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General information

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Contact
The Students' Scientific Association of the Medical University of Lodz
www.stn.umed.pl
www.jpm.umed.pl
stn@stud.lodz.umed.pl

Contents

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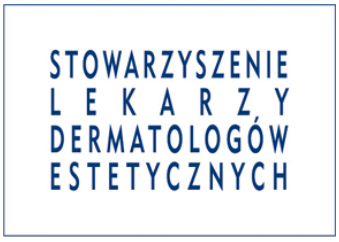

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Invitation

Dear Colleagues,

It is my great honour and pleasure to invite you to the Juvenes Pro Medicina Conference in Lodz, Poland. The National Conferences, organised by the Student's Scientific Society and, since 2004, also the Juvenes pro Medicina International Conferences enjoy a long-standing tradition and good reputation. The primary goals of the Student's Scientific Society at the Medical University of Lodz include: 1. Initiation and support of student scientific activity 2. Propagation of student scientific accomplishments 3. Facilitation of information flow and of the exchanges of medical knowledge and experiences 4. Organisation of workshops, debates and panel discussions 5. Dissemination and publication of results of student research projects.

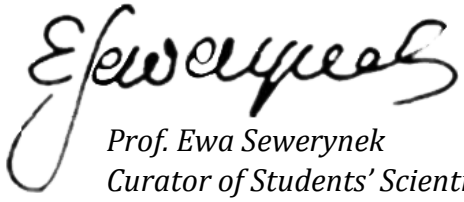
Now a few words about myself: I am Professor of Medicine at the University of Lodz & endocrinologist. Since the year 2002, I have been Curator of the Student's Scientific Society of the Medical University of Lodz. Similarly as you, I started my adventure with science at the Student Scientific Club during my medical studies at the Medical University of Lodz. That Scientific Club was then formally organised at the Institute of Endocrinology. When I joined that team of young research fans, a very exciting time followed, marked with initial successes and high hopes but also with first disappointments and doubts. I also presented the results of my first student research projects at conferences, some of them awarded or distinguished. In addition, what is very important for me, the friendships, established then, live on to this day. While the experiences, gained at the Student Scientific Clubs, proved useful in my later research activity.

Many years passed in my scientific activity, dealing with experimental models, cells and animals. In the meantime, I spent one year under a Fellowship in Paris, sponsored by the French Government and 1.5 year on a Fogarty Fellowship in San Antonio, Texas, USA. The subsequent chapter in my career was clinical in character, encompassing a number of clinical projects with participation of patients.

Currently, the main projects in the scope of my research include:

1. Evaluation of OPG/RANK/RANKL gene expression levels and of quantitative protein products of these genes in mononuclear cells of peripheral blood, following a therapy course with ibandronate and strontium ranelate. 2. Evaluation of the adherence to the protocol of therapy with alendronate in patients, treated for osteoporosis - the role of motivating factors in clinical practice. 3. Assessment of the correlations between oestradiol and testosterone concentrations and bone metabolism parameters in men suffering of osteoporosis. 4. Evaluation of a 10-year risk of bone fractures by the FRAX calculator and the NGYUEN monogram in patients treated for osteoporosis. 5. Evaluation of the demands for vitamin D in a group of women at the time of peak bone mass formation. 6. Evaluation of pro- and antiinflammatory and immune processes in patients with autoimmunological thyroiditis in euthyroid state, in the course of supplementation with vitamin D. 7. Evaluation of genetic predispositions to bone fractures in patients with low bone mass and osteoporosis. 8. Participation in studies on antioxidative effects of melatonin in the oxidative stress, induced by a bacterial endotoxin and in hepatic ischaemia-reperfusion. 9. Evaluation of the factors which affect the patient's compliance with long-term therapy protocol.

I express my best hope that the exciting period of medical studies will also be the onset of your scientific career. I wish you a very successful and interesting time during the Juvenes pro Medicina Conference in Lodz. Welcome to the Medical University of Lodz and have a fruitful and productive meeting.



Prof. Ewa Sewerynek
Curator of Students' Scientific Society
of the Medical University of Lodz

On behalf of Students' Scientific Association at the Medical University of Lodz it is our pleasure to meet you at the 56th Polish and 14th International Conference Juvenes Pro Medicina 2018.

The Juvenes Pro Medicina Conference has a tradition of more than 50 years is now an important scientific event, directed to young scientists and doctors that are the beginning of their professional career.

Our goal is to create an international, scientific event for young scientists, where they can share and present their best work. We wish the conference to be a part of the developing medical sciences. You will be able to share your research in one of the scientific sessions. Additionally, we provide the participants with a chance to take part in a series of practical and theoretical workshops and lectures. We hope that our event will be an unforgettable experience for you.

Over the years, we have hosted many young and brave researchers that presented great research results. This year, we hope to see even more of you – talented and successful scientists.

We hope that you will enjoy your time during your stay in Lodz, Poland and that you will remember the Conference as a fruitful experience.

President of JPM 2018 Conference &
Chairman of Students' Scientific Association

Plan of Scientific Sessions

FRIDAY

Time/Room	1.17	1.18	1.19	1.20	1.27	01.11
11-14.00	Endocrinology and Diabetology	Internal Medicine	Opthalmology and Optometry 12.30 - 14.00	Anesthesiology and Emergency Medicine	Public Health 1	Otolaryngology
14.00-15.00	BREAK					
15:00-18:00	Human Science in Medicine	Psychiatry and Psychology	Technical Medicine and Bioengineering	Basic Science	Surgery and Transplantology 1	Public Health 2

SATURDAY

Time/Room	1.17	1.18	1.19	1.20	1.27	01.11
8:00-9:00						
9:00-12.00	Cardiology, Cardiosurgery & Interventional Cardiology	Orthopedics	Pharmacy	Dermatology	Pediatrics	Dentistry
12.00-12.30	BREAK					
12:30-15:30	Radiology	Oncology and Haematology	PhD	Gynecology and Obstetrics	Surgery and Transplantology 2	Neurology
17:00-18:00	Closing Ceremony - West Lecture Hall					
18:00-19:00						

ANESTHESIOLOGY & EMERGENCY MEDICINE

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Excited delirium syndrome - the cardiorespiratory death. Two case reports.

Karolina Sszatner, Olga Śliwicka

Medical University of Warsaw

Presenting author: Karolina Szatner
e-mail: szatnerek@gmail.com
Tutors: Aleksandra Borowska - Solonynko

Introduction

Unexpected cardiac death in young patients brings a lot of controversy, especially when happened in police custody, despite early performed cardiopulmonary resustitation. Initially calm patients experiencing stress stimuli may manifest aggressive behavior, agitation, hyperactivity, "superstrenght", profuse sweating, respiratory distress and eventually die. Those are the characteristics of Excited Delirium Syndrome (ExDS), which occur in young, obese, males, abusing recreational drugs, especially cocaine, usually during summer. Pathophysiology mainly underline dopaminergic stimulation and high catecholamine levels, irrelevantly released to the external stimulus. The unpredictable death results from cardiovascular and respiratory failure.

Case report

Police officers were called to an aggressive 39-year-old patient running naked in the public estate. He didn't respond to orders and behaved bizarrely. Handcuff restrain was applied. Meanwhile patient became agitated, his face and neck turned blue. The dark red foamy discharge from his mouth was observed. Patient was given CPR by emergency team and pronounced dead 20 minutes later.

36-year-old patient was held by the police while driving his car. During his personal check up, he became aggressive, agitated and run away from the car. Police officers were forced to use the tear gas. The patient was eventually restrained by 6 officers. He broke car's window using his head and repetitevely hit onto the pavement. After handcuff application patient reported dyspnea, turned pale, his pulse became impalpable. The CPR by medical professionals was performed. Death was pronounced 40 minutes later.

Autopsy of the patients didn't provide a satisfactory explanation of the cause of death. Both patients resembled similar external physical characteristics of 190cm tall and 140kg body weight. Heart pathomorphology examination revealed subtle ischemia and myocardiocytes hypertrophy. Toxicology revealed sildenafil, cantinon 4-CEC 315ng/ml and cocaine 100ng/ml, cannabinoids THC-COOH respectively.

Conclusion

Excited delirium syndrome can be easily misdiagnosed as psychiatric condition or diagnosed only after patient's death. Not every aggressive behavior should be referred to psychiatrist but undergo extended, multidisciplinary diagnostic investigation. Pathogenesis in Emergency Rooms could be evaluated by use of the echocardiograms. Once the patient is suspected of experiencing Excited Delirium Syndrome, the rapid sedation with ketamine, antipsychotics and benzodiazepine should be applied concomitantly with treatment of hyperthermia, dehydration. Reduction of the stress stimuli is inevitable to improve patients outcome.

The frequency of MINS (Myocardial Injury after Noncardiac Surgery) and others postoperative complications in different ASA physical status classification groups of patients who underwent open aortic repair because of abdominal aortic aneurysm and/or peripheral arterial disease.

Anna Iwańska, Radosław Kacorzyk, Aleksandra Kaszuba, Anna Gajdosz

Jagiellonian University

Presenting author: Anna Iwańska
e-mail: annaiwanska95@gmail.com
Tutors: Dorota Studzińska MD, Prof. Wojciech Szczeklik MD, PhD

Introduction

Myocardial injury after noncardiac surgery (MINS) is prognostically relevant myocardial injury due to ischemia that occurs during or within 30 days after noncardiac surgery and is an independent predictor of 30-day mortality. The American Society of Anesthesiologists physical status scale (ASA) is used to assess the patient's pre-operative physical status.

Aim of study

The purpose of our study was to determine the frequency of MINS, myocardial infarction (MI), acute kidney injury (AKI) and intra-hospital mortality (IHM) incidences after open surgical procedures and its dependency on the following classes of ASA scale.

Materials and Methods

The observational, retrospective single-center study took place in St. John Grande Hospital in Cracow. The study group consisted of 416 patients (83,17% men) undergoing primary open surgical procedure within abdominal aorta due to aneurysm or/and peripheral arterial disease. ASA score was obtained from anesthetic charts. Statistical analysis was performed with Kruskal-Wallis and Chi^2 test as appropriate.

Results

For the statistical comparisons, patients were divided into four groups depending on preoperative ASA score: ASA II – 104 (24,4% of all patients), ASA III – 250 (58,5%), ASA IV – 45 (10,5%) and ASA V 17 (4%).

MINS occurred in 100 (24,04%) of all patients, while MI was diagnosed only in 10 (2,4%) of them, AKI occurred in 65 (15,63%) patients and intra-hospital death in 51 (12,26%). There were a statistically significant differences between groups in the frequency of MINS (ASA II-V, respectively: 9,71% vs 21,88% vs 67,5% vs 81,82%; p<0,001), AKI (5,77% vs 9,6% vs 53,33% vs 64,71%; p<0,001) and IHM (2,88% vs 6,8% vs 40% vs 76,47%; p<0,001). The prevalence of some comorbidities such as hypertension, coronary artery disease, history of MI/acute coronary syndrome, congestive heart failure, cerebrovascular disease, chronic kidney disease and diabetes mellitus increase with higher class of ASA scale. The study groups were comparable regarding sex, aortic stenosis and chronic obstructive pulmonary disease.

Conclusion

The results of this study suggest that MINS is a common postoperative complication. Usually, the patients suffering from MINS are asymptomatic and MINS rarely fulfills the universal definition of MI. The frequency of MINS, AKI and intra-hospital mortality incidents increase with higher class of ASA scale.Therefore patients undergoing open aortic repair, especially with high ASA score, should be routinely tested for troponin levels and creatine concentration after surgery.

Body Mass Index (BMI) - prognostic value in critically ill patients at intensive care unit

Dominik Andrzej Panasiuk, Ewa Rozenbajgier, Agnieszka Mijalska, lek. Urszula Kościuczuk, dr hab. n. med. Andrzej Siemiątkowski

Medical University of Białystok

Presenting author: Dominik Andrzej Panasiuk
e-mail: domi_foto@o2.pl
Tutors: Urszula Kościuczuk , dr hab. n. med. Andrzej Siemiątkowski

Introduction

Body mass index (BMI) is a parameter that is rarely used in ICU documentation and patient monitoring or prognostic process. Although, it may be useful to improve therapeutic activities or to compare efficacy of treatment in multiple patients as a standarized measurment unit.

Aim of study

The aim of the study was to analyze the role of BMI as a prognostic parameter in hospitalization process.

Materials and Methods

The study was carried out after obtaining the consent of the Bioethical Commission in Medical University of Białystok, Poland. Medical documentation of patients admitted to the Department of Anaesthesiology and Intensive Care, Medical University of Białystok in 2017 was studied and data: age, sex, BMI, department of admission, length of stay (LOS), duration of mechanical ventilation, the need to implement renal replacement therapy, duration of renal replacement therapy, transfusions of blood products and the final effect of medical treatment - death / discharge were noted. The data were analyzed using STATISTICA 12.5.

Results

The data of 361 patients was analyzed. The characteristic data of patients were: 145 female, 216 male, mean age 65,30 SD=16,41, Body Mass Index - mean 27,42 SD=6,29). The structure of admisssion was: 178 - Surgery Department (S.D), 96 – Emergency Department (E.D), 81 – Internal Diseases Department (I.D.D), 4 – another ICU and 2 – Psychiatry Department (P.D). The data connected with hospitalization were: LOS 12 days, mean time of mechanical ventilation 9 days, 41 patients underwent renal replacement therapy - with mean time of implementation of this therapy 1,26 day. Transfussion of packed red cells was performed in 104 patients, fresh frozen plasma was given in 67 cases and 6 patients needed platelet concentrate transfusion. As a final effect of hospitalization in ICU 214 of 361 patients were discharged and 147 patients died. Statistically significant correlations between patient's BMI and need of implementation of renal replacement therapy was observed (rho=0,18; p=0,05). Odds Ratio (OR) of death correlated with patient's BMI was 1,02 [95% CI (0,99-1,06)] in the whole group of patients. In relation to the patient admitted from I.D.D OR was 1,09 [95% CI (1-1,18)] and in S.D OR was 1,01 [95% CI (0.96-1.06)], respectively. The OR in patients admitted from E.D was 0,99, additionally.

Conclusion

Body Mass Index is a prognostic marker of implementation of replacement renal therapy in ICU patients. Body Mass Index is a factor that increases the risk of death of patients admitted to ICU from Internal Diseases Department and Surgery Department.

The prognostic significance of lactate clearance and neutrophil-to-lymphocyte absolute ratio in the abdominal sepsis

Stefan Stefanović

University of Novi Sad

Presenting author: Stefan Stefanović
e-mail: stefan19930@gmail.com
Tutors: Assist.Prof. Arsen Uvelin

Introduction

Sepsis is a significant health problem and is the leading cause of morbidity and mortality in patients in Intensive Care Unit (ICU). Since the incidence of sepsis is still high, early recognition and urgent treatment of this condition according to the „golden hour" is of great importance.

Aim of study

To determine the prognostic significance of lactate clearance, the ratio of the absolute number of neutrophils and lymphocytes, eosinophils as well as APACHE II score in patients with abdominal sepsis.

Materials and Methods

65 patients with abdominal sepsis treated at Emergency center at Clinical center of Vojvodina in period of 1st January 2016 to 31st December 2017. were included in the retrospective study. Patients were divided into two groups according to 28-day mortality (35 non-survivors and 30 survivors). For every patient we collected data from patients history, gender and age data, as well as laboratory findings. Every laboratory parameter was taken at the admission and after 24 hours of treatment in ICU. The values of APACHE II and SOFA score were calculated at hospital admission. Patients who were imunodeficient or were on hemodialysis program due to chronic renal failure were excluded from the study. Statistical analysis was done with SPSS 23 software. Statistical significance p was set at value $p \leq 0.05$.

Results

Lactate values were significantly higher in patients with abdominal sepsis who experienced fatal outcome after 24 hours staying in ICU compared to patients who survived (5.43±4.78 vs 1.52±0.77; p=0.000). The lactate values at the admission and after 24 hours of treatment significantly affect the fatal outcome of patients (X2(3)=40,311; p=0,000). With an increase in lactate level at the admission for 1 unit, the mortality rate increases 2.45 times (Exp (B):2.452; 95% C.I.for EXP(B):1.035-5.811), while after 24 hours of treatment, the mortality rate increases 2.52 times (Exp (B):2.520; 95% C.I.for EXP(B):1.181-5.378). ROC analysis has established that, based on the lactate value, our sample has an excellent separation power into two groups of patients: survivors and non-survivors (AUC:0.907; p=0.000). The average APACHE II score was higher in patients who died compared to survivors (19.74 vs 12.46; p=0.000). Also, significantly lower average values of eosinophils were reported at admission in ICU in the group of non-survivors (0.04 vs 0.10; p=0.031). There was no significant difference in the absolute number of neutrophils and lymphocytes in the group of survivors and non-survivors (X2(1)=2,351; p=0.309).

Conclusions

In patients with abdominal sepsis as significant predictors of fatal outcome may be considered lactate values, APACHE II score, lymphopenia after 24 hours of treatment in ICU and eosinopenia at admission in ICU.

Evaluation of the postoperative pain therapy in children

Michał Zięba

Medical University of Warsaw

Presenting author: Michał Zięba
e-mail: michalzieba01@gmail.com
Tutors: Magdalena Mierzewska-Schmidt,

Introduction

Pain is the subjective feeling which many people, in general, connect with medical procedures for example with operations. In these days, in the most of cases, it is possible to reduce or relieve postoperative pain. Then, it is very important to measure the intensity of pain and to relive the pain using the methods which are appropriately to the pain intensity.

Aim of study

The aims of the study were:
1) To assess the pain intensity in children who undergo various types of operations.
2) To identify the areas which need improvement.

Materials and Methods

85 parents' patients of SPDSK (Samodzielny Publiczny Dziecięcy Szpital Kliniczny) in Warsaw were surveyed by formular which was made by the author. Children underwent the operations under anaesthesia and were treated in 3 surgical Departments. The survey were anonymous and the parents were giving the oral agreement before they took part in the study. The survey consisted of the 18 questions. The pain intensity was measured on the Likert Scale (the five-point scale) and on the numerical rating scale.
The statistical analysis was conducted in program STATISTICA (v.13).

Results

In the survey took part parents of 34 girls and 51 boys. The most of the children were at age from 4 to 12 years. The intensity of pain on the numerical rating scale fulfilled the normal distribution, $p>0,256111$. Mean value of the intensity of pain was 4,2239 and the SD±2,5276. This data was related to the 67 respondents. It was not any statistical difference between the pain intensity in girls and boys ($p=0,24$). On the Likert scale the most parents chose the pain intensity as moderate pain. In the 36 cases the pain was the factor, which caused the problems in sleeping in children. The most respondents in the question: "Choose the answear that the best describe in what why the pain was treated in your children", chose the variant of answear: "My child regulary received the painkillers so the pain was not a problem". The survey disclosed that one parent gave one's child the codeine without the knowledge of medical personnel. In same cases effective in the pain relieving were non-pharmacological methods such as: breastfeeding, massage or sucking the dummy.

Conclusions

Despite the latest guidlines on the pain therapy and our knowledge it is very important to regulary measure the pain intensity and relieve the pain using many methods. The severe pain can disturb the physical and psychic patient's comfort and lead to the increasing in time of hospitalization and reconvalescency. Moreover Pain can trigger the fear against the medical personnel and hospitalization. In the pain therapy the role of nurses is so important because they can measure the efficiency of analgesia but unfortunately they often does not do that. Parents should be informed that pain is not normal state and they should informe the doctors or nurses as soon as the pain in their children appears.

NEWS2 Scale in estimating risk of deterioration in trauma patient admitted to Emergency Department

Rafał Nowakowski, Dominika Janosik, Mateusz Stelmach, Bogusława Nowak

Medical University of Lodz

Presenting author: Rafał Nowakowski
e-mail: bogusia.kawon@gmail.com
Tutors: Dariusz Timler

Introduction

Trauma is 3rd cause of death in general population and first in group aged 1-44 years in Europe. Because of high incidence rate trauma is a big challenge for emergency departments. Reduction of high mortality is one of the most important objectives and may be achieved by implementing intensive treatment in a proper time. That is why segregation and selection systems for patients admitted to Emergency Departments are crucial to identify those in serious condition. Among many different in-hospital triage systems, in 2012 Royal College of Physicians (RCP) implemented NEWS2 score, based on measurements of basic physiological parameters (heart rate, respiratory rate, pulseoximetry, systolic blood pressure, need of oxygen supplementation, level of consciousness, temperature) as one of the most sensitive and specific in discriminating risk of clinical deterioration and acute mortality, becoming gold standard in primary triage and survey in emergency departments in Great Britain.

Aim of study

Aim of the study was to compare NEWS2 scores in trauma patients coded yellow according to hospital Manchester Triage System and estimate correlation with mortality and length of stay in hospital.

Materials and Methods

The study was based on retrospective analysis of medical history of patients reported to regional Trauma Center (Copernicus Memorial Hospital in Łódź) between 01.06.2017 and 31.12.2017. Inclusion criteria covered: initial traumatic diagnosis, yellow code according to Manchester Triage System, age over 16 years old. For each patient NEWS2 sore was calculated, according to RCP guidelines. Results were correlated with mortality, length of stay in hospital and need for intensive care.

Results

Among 11543 patients reported to Emergency Department of Regional Trauma Center Copernicus Memorial Hospital in Łódź between 01.06.2017 and 31.12.2017, in 2186 (19%) cases initial diagnosis was trauma. Finally 115 patents fulfilled inclusion criteria, including 60 females. Mean NEWS2 score was 2,16 ± 1,56. 7 (6%) patients presented single red score (SR - isolated abnormality in one parameter), while 19 (16,5%) reached medium risk score (MR - NEWS2 5-6) and 5 (4%) reached high risk score (HR - NEWS2 >7). 84 (73%) patients reached low risk score (LR - NEWS2 <5). Mortality in total group was 2,6%, all from HR or SR group. NEWS2 score correlated with length of hospital stay with correlation coefficient r=0,26 (p=0,0065), and need for intensive care r=0,52 (p=0,0005).

Conclusions

NEWS2 is sensitive and specific tool to detect critically ill patients. According to its score additional monitoring and vigilance should be implemented. Although all patients were coded yellow in MTS there were fatalities and patients admitted to ICU. Routine practice of NEWS2 may improve alertness and prioritizing patients.

BASIC SCIENCE

COORDINATORS
Agata Gabryelska
Marcin Sochal

JURY
Katarzyna Bąbol-Pokora
Professor Jakub Fichna, PhD
Aleksandra Król, PhD
Professor Ireneusz Majsterek, PhD
Robert Stawski, PhD
Katarzyna Góralska, PhD

Determinants of oxidative stress in the primary guinea pig gastric epithelial cells exposed to Helicobacter pylori components in the cell cultures in vitro

Weronika Gonciarz, Adrian Gajewski, Krzysztof Hinc, Michał Obuchowski, Magdalena Chmiela

University of Lodz, Poland

Presenting author: Weronika Gonciarz
e-mail: weronika.gonciarz@gmail.com
Tutors: Magdalena Chmiela

Introduction

Helicobacter pylori causes in humans gastritis, gastric and duodenal ulcers and even gastric cancers. During *H. pylori* infection the interactions of *H. pylori* compounds with the gastric epithelial cells may result in upregulation of oxidative stress and deleterious effects in the gastric tissue.

Aim of study

To determine the level of oxidative stress markers, including myeloperoxidase-(MPO), reactive oxygen species-(ROS) and 4 hydroxynonenal-(4HNE) in the cultures of guinea pig primary gastric epithelial cells exposed or not exposed to *H. pylori* antigens *in vitro*.

Materials and methods

Cells were incubated for 24h in the culture medium alone or in the milieu of *H. pylori* antigens: glycine acid extract-(EG) 10µg/ml; cytotoxin-associated gene A (CagA, IRIS, Siena, Italy) protein 1µg/ml; subunit A of urease (UreA) 5µg/ml; *H. pylori*lipopolysaccharide-(LPS, prof. AP Moran, Galway, Irland) or *Escherichia coli* 25ng/ml. The production of MPO was determined colorimetrically using chromogenic substrate 3,3',5,5'-tetramethylbenzidine (TMB), whereas ROS were detected by redox indicator dihydroethidium (DHE) and 4HNE by fluorescence using the specific antibodies conjugated with FITC.

Results

In response to all bacterial antigens the production of ROS and MPO was increased significantly as compared to untreated cells. By comparison only in response to *H. pylori* CagA protein used in this study the lover level the production of 4HNE was observed.

Conclusion

In this study the oxidative stress markers: MPO, ROS, 4HNE were detected in the cultures gastric epithelial cells in response to various *H. pylori* compounds. *In vivo* during *H. pylori* infection the increased oxidative stress can promote gastric barrier damage and dysfunction. Financing. NSC, Poland, DEC-2015/17/N/NZ6/03490.

Body posture and symmetry among children practicing handball

Natalia Dobrowolska

Medical University of Lodz

Presenting author: Natalia Dobrowolska
e-mail: natalia.dobrowolska@stud.umed.lodz.pl
Tutors: Katarzyna Michalak

Introduction

Training of specific sports discipline is connected with characteristic adaptational changes in the structure of the body. It is particularly visible among children, while young body is more prone to environmental factors. The changes depend on muscle group mostly engaged in training, type of exercises, intensity and loading.

Adaptational changes connected with practicing handball are related to well-developed shoulder and arm muscles. During handball training, emphasis is put on quality of throw, that is why this movement is repeated many times and the muscles are trained to achieve the best results. The same applies to trunk muscles which are engaged in throwing performance. That is why the purpose of this study was to assess body posture among young children practicing handball and to estimate the influence of this sport to body posture development and eventual risk of developing postural asymmetry.

Aim of Study

The aim of the study was to assess the influence of practicing handball on body posture of children and to determine any possible postural asymmetry connected with regular training of this discipline.

Materials and methods

The study was conducted among 40 12-year-old children (15 girls and 25 boys) training handball for at least 3 years. Children undergone body posture assessment according to Kasperczyk's Point Method. On the basis of the body posture evaluation, analytical description of the posture components was obtained, which allows for diagnosis of the type, location and severity of the postural abnormalities.

Results

In the studied group authors reported only minor deviations from the correct body posture. Among handball players the most commonly observed deviation was the uneven alignment of shoulders (45%), protruding shoulder blades (40%), increased thoracic kyphosis (45%) and spine alignment deviation in the frontal view (40%) as well as decreased foot arching (36%). Small deviations from the correct alignment of the spine in frontal view was seen in 40% of children. Minor knee abnormalities were reported only among 13% of children playing handball, while they were connected only to knee valgus. Authors did not report knee varus deformity. Incorrect arching of the foot concerned 42,5% of children. Only 4 of 40 studied children exhibited substantial postural deviations in the form of thoracic hyperkyphosis (n=1) and flat foot (n=3). Structural changes were not found in studied group.

Conclusion

1. Training handball for at least 3 years enabled to maintain and fix correct body posture among 12-year-olds. 2. Training of handball is not connected with developing postural asymmetry.

17β-estradiol prevents experimentally-induced oxidative damage to membrane lipids in porcine thyroid – sexual dimorphism

Edward Koziróg

Medical University of Lodz

Presenting author: Edward Koziróg
e-mail: edward.kozirog@gmail.com
Tutors: Małgorzata Karbownik-Lewińska

Introduction

It is well-known that thyroid diseases, such as thyroid cancer and thyroid autoimmune diseases, are more prevalent in women than in men. The contribution of sex hormones to the initiation of thyroid diseases does constitute one of hypotheses explaining this sexual dimorphism. Estrogens, with 17β-estradiol being their principle representative, exert pro- and anti-oxidative properties within cells. The dual action of estrogens depends on their chemical structure and biological activity in specific tissue.

Aim of Study

The aim of the study was to assess effects of 17β-estradiol on oxidative damage to membrane lipids (lipid peroxidation) in thyroid homogenates under basal conditions and in the presence of Fenton reaction substrates (experimentally-induced oxidative damage). Another aim of the study was to evaluate if there are any differences between sexes concerning oxidative effects of 17β-estradiol in the thyroid.

Materials and methods

1. Animals Porcine thyroids were collected from animals at a slaughter-house. *2. Assay of lipid peroxidation* Male or female thyroid tissue was homogenized in ice cold 20 mM Tris–HCl buffer (pH 7.4) (10%, w/v), and then incubated for 30 min at 37 °C in the presence of 17β-estradiol only (1 mM; 100 μM; 10 μM; 1 μM; 100 nM; 10 nM; 1 nM; 100 pM; 10 pM; 1 pM) or in the presence of 17β-estradiol together with Fenton reaction substrates [$FeSO_4$ (30 μM) + H_2O_2 (0.5 mM)]. *3. Measurement of lipid peroxidation products* The concentrations of malondialdehyde + 4-hydroxyalkenals (MDA + 4-HDA), as an index of lipid peroxidation, were measured in thyroid homogenates, with the use of LPO-586 kit. The level of lipid peroxidation is expressed as the amount of MDA + 4-HDA (nmol) per mg protein. *4. Statistical analyses* Data were statistically analysed, using a one-way analysis at variance (ANOVA), followed by the Student-Neuman-Keuls' test. Results are **presented** as means ± SE.

Results

17β-estradiol did not change the basal level of lipid peroxidation in thyroid homogenates and no differences were observed between sexes. In female thyroid homogenates, protective effects of 17β-estradiol was observed for three highest concentrations, i.e. 1 mM, 100 μM, 10 μM. In male thyroids, 17β-estradiol reduced experimentally induced-oxidative damage to membrane lipids at following five concentrations: 1 mM, 100 μM, 10 μM, 1 μM, 100 nM.

Conclusion

Protective effects of exogenous 17β-estradiol against experimentally-induced oxidative damage to membrane lipids in the thyroid confirm antioxidative activity of this estrogen. Stronger protective effects of 17β-estradiol observed in male thyroids suggest higher sensitivity of male tissue to the exogenous hormone. This sexual dimorphism of oxidative processes in the thyroid may constitute one of the mechanisms of different prevalence of thyroid diseases in women and men.

Morphological and immunohistochemical changes in the jaw bone as result of influence of heavy metal salts on the organism

Anna Honcharova, Korobchanska A.B., Alexandrova Y.S.

Sumy State University

Presenting author: Honcharova A.M.
e-mail: annetmuse@gmai.com
Tutors: Anatolii Romaniuk

Introduction

The problem of environmental pollution by industry and agriculture waste remains very relevant today. Salts of heavy metals occupy an important place among the chemical pollutants, causing at high concentrations severe and sometimes irreversible processes in an organism.

Aim of study

Aim of our work is to study morphological and immunohistochemical changes in the lower jaw occurred at excessive ingestion of heavy metal salts to the body.

Materials and methods

An experimental study was performed on 46 experimental white rats, with adding to their drinking water (the first series - 12 animals) an excessive amount of heavy metals (such as zinc, lead, manganese, iron, chromium). The second series (12 animals) served as a control group. Changes were studied in the bone tissue of the lower jaw in 2, 3, 4 weeks after the beginning of the experiment. Histological and immunohistochemical studies were performed. The standard histological methods were used: dyeing of the preparations by hematoxylin and eosin according to Van-Gison technology. Such immunohistochemical markers as protein markers S 100 and Ki-67 were used in the course of experiment. The obtained results were processed by mathematical and statistical methods to determine their reliability.

Results

Salt of heavy metals negatively affects the growth and structure of the mandible. The results showed the inhibition of bone formation processes, suppression of the proliferative activity of chondrocytes in the growth plate, the violation of its specific zonal structure, which is accompanied by a decrease in the growth rates of the mandible in length. Significant accumulation of connective tissue in the proliferative zone leads to the local extinction of proliferating chondrocytes, the elements of mitosis are almost not observed. Expression of the marker of osteogenesis S 100 in the experimental animals is reduced by 24%, and the marker of proliferative activity of chondrocytes KI-67 is detected by 27% less than in control animals. The identified changes of the morphological and immunohistochemical markers increase with an increasing of the observation period. The chemical analysis of the main mineral component of the crystal lattice of bone tissue in the experimental animals also showed the violation of the elementary composition with the accumulation of the corresponding metals, which replaced the calcium in the hydroxyapatite grate.

Conclusion

The use of heavy metal salts in surplus amounts leads to osteogenesis in the mandible due to the inhibition of bone formation processes in the experimental animals.

Small-molecule PERK inhibitors as a promising therapeutic strategy in neoplastic diseases

Adam Wawrzynkiewicz

Medical University of Lodz, Poland; Medical University of South Carolina, USA

Presenting author: Adam Wawrzynkiewicz
e-mail: adam.wawrzynkiewicz@stud.umed.lodz.pl
Tutors: Wioletta Rozpędek, Radosław Wojtczak, Dariusz Pytel, J. Alan Diehl

Introduction

Hypoxia may evoke Endoplasmic Reticulum (ER) stress condition activating the Protein kinase RNA-like Endoplasmic Reticulum kinase (PERK)-dependent Unfolded Protein Response (UPR) pro-adaptive signaling pathway. Its main effector, Eukaryotic Initiation Factor 2 alpha (eIF2α), plays a pivotal role in maintenance of cellular homeostasis. However, prolonged ER stress conditions may switch the pro-adaptive UPR into the pro-apoptotic resulting in apoptosis of cancer cells.

Aim of study

The purpose of the present study was to evaluate the biological activity and cytotoxicity of small-molecule PERK inhibitors.

Materials and methods

We examined the biological activity of the GSK2606414 inhibitory compound both on wild-type Mouse Embryonic Fibroblasts (3T3 MEFs WT) and MEFs with *PERK* deletion (3T3 MEFs KO) cell lines. Cells without treatment with thapsigargin (Th) and GSK2606414 constitute a negative control. Cells treated with Th constitute a positive control. Cells were pretreated with GSK2606414 in the 1μM concentration for 1h, and then treated with Th for 2h. The level of p-eIF2α was evaluated by using the Western blot technique. Moreover, we evaluated the biological activity of the GSK2606414 inhibitory compound on SH-SY5Y, HT-29, A549 cancer cell lines using the same experiment set up. Next, other potential PERK inhibitors were selected from 80 000 compounds utilizing a docking software. Then 209 compounds were obtained by using the Time Resolved Fluorescence test. Their ability to inhibit only PERK was measured by evaluating PERK phosphorylation at a concentration range of 250nM to 5000nM using the Radioactive Kinase Assay. The cytotoxicity of the most promising inhibitor NCI-A146, at a concentration range of 0.75 to 50 μM and 500 μM, was examined on SH-SY5Y, HT-29, A549 cell lines using the XTT assay. Cells were incubated with NCI-A146 for 16, 24 and 48 h. Positive control constituted cells treated with 50% ethanol, untreated cells were used as a negative control.

Results

In 3T3 MEFs WT cells treated with Th the ER stress was activated. There was no activation of the ER stress in 3T3 MEFs KO control cells. After treatment 3T3 MEFs WT cells with GSK2606414 the ER stress was completely inhibited. eIF2α phosphorylation was also inhibited onSH-SY5Y, HT-29, A549 cell lines after treatment with GSK2606414. It was found that NCI-A146 compound significantly inhibited PERK phosphorylation at a minimum concentration 1 μM. No cytotoxicity was evaluated on SH-SY5Y, HT-29 and A549 cell lines in all incubation times and all used

Conclusion

Thus, use of small-molecule PERK inhibitors may induce tumor cell apoptosis. Thereby, potent, highly-selective PERK inhibitors may provide a ground-breaking, anti-cancer treatment strategy.
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Effectiveness of vitamin e correction of the changes in the urinary bladder under the long-term influence of the heavy metals and in the readaptation period

Clinton Obina , Vladyslav Sikora, Yulia Lyndina, Volodymyr Sikora, Dmitrii Hyriavenko, Natalia Galenko, Anna Korobchanska

Sumy State University

Presenting author: Clinton Obina
e-mail: ziikspree619@yahoo.com
Tutors: Anatolii Romaniuk

Introduction

Potentially dangerous heavy metals (HMs) circulate in all components of the environment. The variants of their distribution and the consequences of their contact with the body are characterized by the variety of the pathological changes in the organs and systems that complicate the understanding of the danger of this problem. The issues of the physiological homeostasis recovery of the body after the termination of their comprehensive influence, also remain unsolved. Great attention is paid to the search of the effective protective means in clinical and experimental medicine, which will help to reduce the HM toxicity on the body.

Aim of study

Study the peculiarities of the morphological changes in the urinary bladder (UB) of the rats under the intake of the vitamin E together with the HM mixture and during the readaptation period.

Materials and methods

The study was conducted on the UBs of the laboratory rats that were given the water with the combination of the HMs (zinc, copper, iron, manganese, lead, chromium) and the corrector (vitamin E) during 90 days. The UB readaptation capabilities were studied on the 90^{th} (180^{th}) day of the experiment after the termination of the pollutants activity and with the prolongation of the vitamin E intake. Histological samples, stained by hematoxylin-eosin, van Gizon, and alcian blue staining methods were studied on Carl Zeiss Primo Star microscope. Statistical analysis was performed by Graph Pad® 6.0 software.

Results

On the 90^{th} day the examination of the UB wall showed the moderately expressed changes in all structural elements of the organ: epithelial height imbalance (areas of desquamation, atrophy and hyper-proliferation), destructive and dystrophic, edema, fibrous and dyscirculatory changes in stroma due to the mixed-cell inflammatory infiltration. Collagen fibers were swollen, stratified and disoriented. Numerous defects and gaps in the layer of glycosaminoglycans were observed over the epithelium, followed by the loss of urothelial tightness. On the contrary, during the recovery period with vitamin E correction the features of the stability in the urothelial height were observed as well as single areas of inflammatory infiltration, improvement of the muscle fibers structure, reduction of the edema and disorders of the hemocirculation. Signs of the collagen fibers swelling have almost disappeared, the network of their connections and orientation was clearly identified. The layer of glycosaminoglycans was thickened, single superficial defects were observed.

Conclusion

Moderate morphologic changes are observed in the wall of the urinary bladder under the correction of pathogenic action of the heavy metals with the vitamin E. The prolongation of the corrector intake, when the xenobiotics are discontinued, is followed by the improvement of the recovery processes and optimization of the organ's structure during the recovery period.

The Neurochemical characterization of phoenixin-immunoreactive nerve fibers supplying the porcine urinary bladder wall.

Paweł Janikiewicz

University of Warmia and Mazury

Presenting author: Paweł Janikiewicz
e-mail: pablo3991@gmail.com
Tutors: Agnieszka Bossowska, Mariusz Majewski

Introduction

Phoenixin (PNX), a newly discovered hypothalamic neuropeptide has recently been suggested not only to change different autonomic functions of hypothalamus (e.g., release rate of gonadotropins from the pituitary gland), but also to be present in the sensory neurons of dorsal root ganglia (DRGs) and the spinal cord. However, there is no detailed information dealing with the potential involvement of PNX in innervations of the urinary bladder.

Aim of Study

was to identify the expression of PNX in nerve fibers (NF) supplying the urinary bladder wall and to determinate the chemical coding of these fibers containing PNX.

Materials and methods

The study was carried out on 3 female pigs. Samples from the bladder wall were processed for double-labelling immunofluorescence with antibodies against PNX, substance P (SP), somatostatin (SOM), nitic oxide synthase (NOS), cocaine and amphetamine regulated transcript (CART), neuropeptide Y (NPY), vasoactive interstitial peptide (VIP), leu-enkephalin (L-ENK) and dopamine beta hydroxylase (DBH).

Results

A small number of PNX-immunoreactive (IR) NF were observed both in submucosa and muscle layer of the urinary bladder wall. A moderate number of PNX-IR NF distributed in the muscle layer also contained SOM or L-ENK but only single PNX-IR NF found in the submucosa were also stained for SP.

Conclusion

The results of the present study for the first time show that PNX contributes to the innervation of the porcine urinary bladder wall. Colocalization of PNX with SP in the same NF suggests that PNX may play a role in sensory transmission from the urinary bladder.

Influence of guanethidine on the chemical coding of dorsal root ganglia sensory neurons supplying the porcine urinary bladder – comparison with changes induced by conantokin G.

Paweł Janikiewicz

University of Warmia and Mazury

Presenting author: Paweł Janikiewicz
e-mail: pablo3991@gmail.com
Tutors: Agnieszka Bossowska, Mariusz Majewski

Introduction

Although guanethidine (GUA) was used in the past as a drug that suppressed the hyperactivity of the sympathetic nerve fibers, however, there is no available data concerning the possible action of this substance on the sensory component of the peripheral nervous system supplying the urinary bladder. Next substance, conantokin G (CTG) may present neuroprotective activity. As it was revealed in our previous study, CTG administration led to a decrease in the number of bladder-projecting sensory neurons containing substance P (SP), somatostatin (SOM), nitic oxide synthase (NOS) and pituitary adenylate cyclase activating polypeptide (PACAP) and an increase in the number of cells containing galanin (GAL). Because CTG and GUA have not only different binding points to the nerve terminals, but also dissimilar mechanisms of pharmacological action, it may be of great interest to compare the mode of action of these neurotoxins on the plasticity of the sensory dorsal root ganglia (DRG) neurons supplying the urinary bladder.

Aim of study

The present study was aimed at revealing changes in the chemical coding of porcine urinary bladder-projecting DRG neurons after GUA administration and, furthermore, to compare such changes with modifications induced by CTG treatment.

Materials and methods

Retrograde tracer Fast Blue (FB) was injected into the urinary bladder wall of twelve juvenile female pigs in order to visualize neurons of interest. Three weeks later, intravesical GUA instillation was performed in the experimental group (n=6 animals), while the remaining six pigs (control group) were instilled with the vehiculum only. After seven days, all animals were sacrificed and bilateral DRG were collected. The neurochemical profiles of DRG neurons were disclosed by means of routine double-immunofluorescence labelling technique on cryostat sections.

Results

In healthy animals, FB+ neurons immunoreactive (-IR) to SP, calcitonin gene-related peptide (CGRP), PACAP, NOS, GAL and SOM constituted 45%, 36%, 26%, 6,5%, 6% and 3.7% of all retrogradelly traced DRG neurons, respectively. In GUA-treated pigs, the number of FB+ neurons containing SP and SOM decreased (till 20% and 1%), meanwhile an increase in the number of cells containing GAL and NOS was found (up to 12 % and 10%). There were no significant changes observed in the population of CGRP- or PACAP-IR neurons supplying the urinary bladder (34% and 24%, respectively).

Conclusion

The results of the present study show that GUA influences the chemical coding of DRG neurons supplying the porcine urinary bladder and the effects of its action in many aspects is similar to that of CTG. The reduction in the number of of SP- and SOM-IR FB+ neurons induced by GUA and CTG administration as well as the GUA- and CTG-induced increase of GAL expression suggests that GUA may also have positive effect on sensory innervations of urinary bladder. However, this hypothesis should be confirmed in the further studies.

An investigation of how a single nucleotide polymorphism (SNP) may impact post-translational modification of Retinoid X Receptor alpha (RXRa) through SUMOylation

Joanna Michalina Jurek

Ulster University

Presenting author: Joanna Michalina Jurek
e-mail: jurek-j@ulster.ac.uk
Tutors: Paul Thompson,

Introduction

The Retinoid X Receptor alpha (RXRa) is a nuclear receptor (NR), with ability to control gene expression and maintain biological processes, which is regulated by post-translational modifications, like SUMOylation. Binding Small Ubiquitin-Like Modifiers (SUMO) to the sequences within the NR at SUMO-acceptor site, created by lysine (K) residue, surrounded by consensus motif: Ψ-K-x-E/D, where Ψ is hydrophobic amino acid, and x any amino acid. The motif determines, whenever K residue might undergo SUMOylation. In RXRa, there are two SUMOylation sites, K108; and the most abundant K245. The presence of mutation within the consensus disrupts SUMO-protein transfer.

Aim of study

Project aims to investigate, whenever an incidence of single nucleotide polymorphism (SNP), glutamic acid to lysine at the position 247 (E247K), established in the population in the consensus of confirmed SUMOylation site K245, will disrupt SUMO-binding, therefore capability to regulate RXRa by post-translational modification.

Materials and methods

The methodology employed *in silico* approach, such as using online tools, EMBOSS and NCBI, to perform protein sequence alignment to assess region of similarity and conserved domains between RXRs. Moreover, lysine SUMOylation sites predictors: SUMOsp, SUMOplot, JASSA, SUMOhydro, SUMO-CD were used to compare and justify candidates for SUMO attachment to lysine residues indicated by the predictors and sequence alignment results. The consensus motifs of SUMOylation candidates from each isoform were evaluated, in terms of SNPs reported by searching Exome Variant Server (EVS) database. The SNPs present in RXRa was assessed by site directed mutagenesis Polymer Chain Reaction (PCR), which involved mutant preparation, by using mutagenic primers designed by Quick Change II (Agilent Genomics) software. The mutant sequence was confirmed by Next Generation Sequencing (NGS). There would be an opportunity to perform cell-based SUMOylation assays primarily in Human embryonic kidney cells 293 (HEK293) to explore SNP effect *in vitro* on RXRa ability to undergo SUMOylation.

Results

The key findings from the study indicated high degree of similarity between RXR family members: RXRa and RXRb (78.2%); RXRa and RXRg (81.4%); as well as the identity, RXRa and RXRb (71.7%); RXRα and RXRg (72.5%). Presented results have shown, that potent and experimentally verified SUMOylation sites present in RXRa, K245 and K108, are conserved in isoform RXRb as K271 and K180; and isoform RXRg as K249 and K113. The use of SUMO-predictors, discovered new potential potent SUMO-acceptor sites in RXRb - K435; and in RXRg - K205.

Conclusion

The outcome from EVS searching for SNPs in the consensus motifs, indicated consensus motif alteration for SUMO site K245 in RXRa. The detected missense mutation was present in African population, and caused protein change, which might have possibility damaging effect on the protein.

In vitro study of class I HDAC inhibitors in chronic lymphocytic leukemia.

Aleksander Ślusarczyk, Małgorzata Bobrowicz, Magdalena Winiarska

Medical University of Warsaw

Presenting author: Aleksander Ślusarczyk
e-mail: slusarczyk.aleksander@gmail.com
Tutors: Magdalena Winiarska

Introduction

Chronic lymphocytic leukemia (CLL) is the most prevalent hematological malignancy of adults, still remaining incurable. It is documented that increased histone deacetylase (HDAC) activity correlates with shorter overall survival of CLL patients. 18 isoforms of HDAC were identified and classified in 4 different classes (I- IV). Significant upregulation of class I HDAC including HDAC1, 2, 3 and 8 at mRNA level was reported in CLL cases with a poor prognosis. Thus, increasing evidence suggests the therapeutic potential of specific inhibitors targeting class I HDACs in CLL. We focused on HDAC1 and HDAC3 inhibition as it may reveal efficient anti-tumor effect.

Aim of study

Our aim was to evaluate the effect of class I HDAC inhibitors on the viability and proliferation of CLL cell line and primary samples in vitro, with and without the presence of bone marrow stroma cells.

Materials and methods

Firstly, the HDAC inhibition experiment was performed on PGA CLL cell line. The toxicity of three inhibitors- MS-275, ACY1044 (HDAC1 and 3 inhibitors) and SAHA (pan-HDAC inhibitor) solved in DMSO in 5 different concentrations was evaluated. CLL cells viability was determined using Annexin V and propidium iodide staining with flow cytometry after 48 hours of drug exposure. MTT assay was also performed to determine the proliferation. Primary CLL cells were obtained from peripheral blood of patients treated in Institute of Hematology and Transfusiology in Warsaw after their full consent. In 24-well plate $2*10^4$ M2-10B4 bone marrow stroma cells per well were seeded on the half of the plate (second half was reserved for testing CLL without stroma) and after 4 hours $1*10^6$CLL cells were added to each well. Finally, CLL primary cells were exposed to drugs and their toxicity was validated as described above.

Results

Class I HDAC specific inhibitors (MS-275 and ACY1044) decrease the viability and proliferation of PGA CLL cell line and primary samples in vitro. IC50 value in PGA cell line for MS-275 was 3,33 μM, 10 μM for ACY1044 and 2,35 μM for SAHA. Importantly, drug toxicity in primary CLL samples obtained from patients showed comparable results. It was also validated how primary CLL cells co-culture with bone marrow stroma affects the HDAC inhibitors' toxicity. Our results show that the average CLL cells viability was 11% higher in the presence of stroma compared to CLL cultured alone.

Conclusion

Due to pan-HDAC inhibitors' unfavourable toxicities in clinical trials there is an urgent need for investigation on specific HDAC inhibitors. Results of our preliminary experiments demonstrate that class I HDAC inhibitors impair the viability of CLL cells. Moreover, bone marrow stroma microenvironment decreases HDAC inhibitors' toxicity. Such results could serve as evidence for the need of a more detail investigation of class I HDACs' role in the pathogenesis of CLL. Thus, in the future class I HDACs could become a novel druggable target for CLL.

Comparative analysis of mutation status and expression levels of mRNA and proteins in Ras-Raf-MAPK and PI3K-Akt pathways in human colorectal cancer cell lines

Adam Wach, Klaudia Kałuzińska, Piotr Gabryś, Maciej Bartas, Maciej Janowski

Jagiellonian University Medical College

Presenting author: Adam Wach
e-mail: adamwach27@gmail.com
Tutors: Joanna Dulińska-Litewka,

Introduction

Colorectal cancer (CRC) remains the third most commonly diagnosed malignancy worldwide and a leading cause of cancer-related death. CRC develops during a progressive accumulation of alterations in genes that code proteins involved in pathways of the epidermal growth factor receptor. NRAS, KRAS, BRAF, PIK3CA and AKT1 somatic mutations are frequently found in CRC, and even modern targeted agents face the problem of drug resistance that is related to alterations in the main CRC pathogenesis pathways. Determining the exact expression profiles of pivotal genes/proteins may facilitate preclinical trials in which the established human CRC cell lines are used as a reference material.

Aim of study

The impact assessment of particular mutations in Ras-Raf-MAPK and PI3K-Akt pathways on the expression level of mRNA and proteins in CRC cell lines.

Materials and methods

The study was conducted on six ATCC colorectal cancer cell lines: three derived from primary tumours (HT29, COLO320, SW480) and three from metastatic sites (T84, COLO205, SW620). Cell lines were cultured according to the recommended protocol. The expression of e.g. KRAS, NRAS, BRAF, PIK3CA were analyzed at mRNA level (RT-PCR). Proteins were extracted, purified and assessed with the Western-Blot.

Results

COLO320 (wild type) presents higher expression of KRAS and BRAF mRNA as well as total Akt and Raf protein, while its phosphorylated protein expression remains quite low. Mutated cells reveal the opposite tendency – low mRNA and increased phosphorylated protein levels (especially MAPK and Akt). KRAS and BRAF mutations correlate with elevated levels of PIK3CA.

Conclusion

Our analyses may suggest that in mutated cell lines the dominating element of the CRC pathogenesis pathways is located downstream the signaling cascade. KRAS and BRAF mutations result in not only higher activity of Ras-Raf-MAPK but also PI3K-Akt pathway. These findings may facilitate the selection of the most suitable *in vitro* models for further research.

Transgenic mice lacking the Calb1 and Pvalb genes in pain sensitivity studies

Mateusz Grabowski, Konstancja Jabłońska

Medical University of Silesia in Katowice

Presenting author: Mateusz Grabowski
e-mail: mateusz.m.grabowski@gmail.com
Tutors: Jarosław Barski,

Introduction

A pain sensitivity is directly related with allodynia. The allodynia is a clinical feature of many diseases associated with neuropathic pain. It is a condition of central pain sensitization when a stimulus which normally do not cause the pain is recognized as a painful one. We can distinguish between the mechanical and the thermal allodynia. The *Calb1* gene encodes the calbindin protein and the *Pvalb* gene encodes the parvalbumin protein. Calbindin and parvalbumin are intracellular calcium binding proteins widely distributed in muscle fibers and GABA-ergic inhibitory neurons and interneurons. Recent investigations have shown a relationship between the insufficient activity of those neurons and common neurological diseases such as Alzheimer disease, autism and schizophrenia, but our knowledge about mechanism by which the lack of calbindin or parvalbumin influences the pain threshold is very sparse.

Aim of study

The goal of the presented study was to investigate the level of allodynia in animals lacking expression of *Calb1* and *Pvalb* genes.

Materials and methods

In the study were used transgenic mouse lines B6.129-*Calb1*, B6.129P2-*Pvalb* and C57Bl6 line as a control group. Thermal nociception was examined by means of the hot plate test where a flat surface was heated to 52 ºC. An animal was placed in the center of plate and the time to animals reaction was recorded. Recorded time – the latency was indicator of the allodynia level. Mechanical nociception was measured by means of the von Frey filaments test which is based on set of filaments with different diameter, flexibility and force pressure. Applying different filaments with various parameters on animal's foot we can determine the pain threshold.

Results

The average size of the filament which cause the reaction is 2,0 g. The study shows that the hot plate test is useful for assessing thermal allodynia.

Conclusion

Methods used in the study have some disadvantages: are not easy to apply and the results are influenced by a wide range of inter-individual variability. There is a need to find other, more objective methods or to adjust the presented protocols in the way resulting in more specificity and objectivity.

Characteristic of cellular landscape of diffuse glioma – xCell analysis

Szymon Baluszek

Medical Unversity of Warsaw

Presenting author: Szymon Baluszek
e-mail: szymonbaluszek@gmail.com
Tutors: Jakub Mieczkowski,

Introduction

Cellular composition of tumours has been investigated for a long time. Research conducted so far relied mainly on classical histopathology and was limited by their semi-quantitative character and relatively few samples. While the immune response in glioma contributes to tumour growth control, infiltrating cells may degrade extracellular matrix and secrete growth factors, leading to progression. Addition of two new hallmarks of cancer – avoiding immune destruction and tumour-promoting inflammation – by Hanahan and Weinberg in 2011 exemplifies the ambiguous role of immune system in oncogenesis.

Aim of study

of this study is to quantitively characterise cellular populations in glioma and determine their impact on patients' survival and symptoms.

Materials and methods

Data analysis was performed with R programming language. The next generation sequencing (NGS), methylation, copy number alteration (CNA), mRNA and protein expression data of 1133 patients with diffuse gliomas were downloaded from The Cancer Genome Atlas. The cellular infiltrates were quantitively estimated by xCell – a novel bioinformatic tool based on gene expression signatures from cellular populations sorted by flow cytometry.

Results

Initial analysis using GLM and ANOVA indicated correlation of most cell infiltrates with grade, histological subtype, survival and previously described molecular subtypes. Interestingly, some features like seizures and infratentorial location were associated with specific T-cell infiltrates (all $p<.001$). Further analysis with tSNE and hierarchical k-means clustering lead to the selection of cluster more infiltrated with M2 macrophages, CD4+ memory T-cells and less populated by CD8+ T-cells and neurons. Patients in this cluster had significantly worse prognosis ($p < .001$). Moreover, in this cluster EGFR, NF1 or PTEN mutations occurred frequently whereas IDH1, TP53 and ATRX were less common (all $p < .05$). Targets of transcription factors associated with MHC type II protein expression (DOK2, LCP2, RFXANK, RFXAP) were preferentially expressed in this cluster whereas those controlled by Neuron-Restrictive Silencer Factor were downregulated.

Conclusion

This study emphasizes a prominent role of stroma in gliomagenesis. Some of the findings are in concordance with previously published research. For instance, role of M2 macrophages in glioma progression and neural survival as a protective factor are well established. The findings associated with T lymphocytes are relatively new. We present yet another example of bioinformatics deepening our insight into cancer biology. Hopefully, this will lead to the development of new diagnostic, prognostic and therapeutic options.

The modulatory effect of hypotensive drugs on murine model of contact hypersensitivity

Mateusz Michalak, Adam Chmielowski, Paweł Bryniarski, Spencer Strobel, Ida Sletteng Karlsen, Katherine Kitura

Jagiellonian University Medical College

Presenting author: Mateusz Michalak
e-mail: michalakcontact@gmail.com
Tutors: Katarzyna Nazimek,

Introduction

Hypertension is a towering problem of modern medicine and the leading cause of cardiovascular mortality globally. There is an increasing trend to consider hypertension as an inflammatory process. However, immune response and its role in the disease have been, until very recently, underexplored or omitted in literature. One example of that is how little is known about the influence of popular hypotensive drugs on immunity.

Aim of study

The aim of our study was to examine the effect of clinically important hypotensive drugs on delayed-type hypersensitivity in mice, using contact hypersensitivity assay (CHS). As a measure of intact cell-mediated allergic immune response, it would give a reliable insight into the effect of selected drugs on adaptive cellular immunity.

Materials and methods

Healthy CBA mice were treated intraperitoneally for 7 days with following drugs: propranolol (10mg/kg), carvedilol, captopril, verapamil (5mg/kg), amlodipine (3mg/kg) or olmesartan (1mg/kg). On the third day mice were sensitized with hapten (picryl chloride - PCL) by application of 0.15ml of 5% PCL solution on shaved abdominal skin. Five days later, after baseline ear thickness measurement 0.01ml of 0.4% PCL solution was applied epicutaneously on the both sides of both ears to elicit CHS, and the ear swelling was measured after 24 and 48 hours.

Results

Administration of all tested drugs resulted in decrease of ear thickness after 24 and 48 hours in comparison with the control group. The strongest effect was caused by calcium channel blockers - amlodipine and verapamil.

Conclusion

This study demonstrates that commonly used hypotensive drugs may modulate cellular immunological response. Further research should be conducted to explain the mechanism of this action, examine its clinical effect and to determine the usefulness of hypotensive drugs in cardiovascular disorders and possibly immune-mediated diseases. It could be speculated that this effect results from polarization of immunity towards Th2-type, as we had formerly observed the enhancement of humoral immunity under the influence of tested medications.

The influence of endothelial-mesenchymal transition to focal adhesion organization in human microvascular endothelial cells.

Kamil Siekacz

Medical University of Lodz

Presenting author: Kamil Siekacz
e-mail: siekacz.k@gmail.com
Tutors: Katarzyna Sobierajska,

Introduction

The endothelial-mesenchymal transition (EndMT) is accompanied by cytoskeleton rearrangements. This process is correlated with changes in cell polarity, lower adhesion ability and increase the capacity of migratory and invasive cell properties. The presented study focused on the analysis of the focal adhesion site reorganization during EndMT induced by tumor growth factor class beta-1 (TGF-β1). The conducted studies demonstrated that small G proteins pathway modulate the size of the focal adhesion and the change of alpha-actinin (α-actinin) localization within the tested structures. The results of the relevance of this pathway are important in the maturation focal adhesion.

Aim of study

The Rho signaling pathway is one from several cellular pathway activated through TGF-β1. This track has also impact on focal adhesion formation. Therefore aim of study was investigation how inhibition of RhoA influences to EndMT and focal adhesion formation.

Materials and methods

Human microvascular endothelial cells (HMEC-1) were maintained by culturing in conditional medium (CM). EndMT was induced by TGF-β1 addition. To suppress RhoA protein Y23436 inhibitor was added. Whole-cell extracts were prepared by lysing the exponentially growing cells. To perform Semiquantity Westen-Blott proteins from total lysates were separated on gels and then electroblotted onto nitrocellulose membranes. Immunochemiluminescence was used to detection. Confocal Microscopy was performed. Cells cultured in investigational condition were fixed and stained with proper antibodies conjugated with fluorochromes. Cells were captured by Leica SP8 under 68-times zoom. STATISTICA software was used to asses statistical significance.

Results

Semiquantity Westen-Blott analysis indicates approximately 2-fold increased of mesenchymal state markers (N-cadheryn, vimentin) and 4-times downregulated level of claudin after TGF-β1 treatment in comparison to non-treated cells. Significant increase of fluorescence approximately 50% in case of alfa-actinin between control and TGF-β1- induced cells under CM were observed.
The 60% enhancement of mean dimension of focal adhesion plate in mentioned groups was detected. Application of RhoA inhibitor with TGF-β1 decrease respectively level of alfa-actinin fluorescence - 25% and mean dimension of focal adhesion plate – 20% in comparison to only TGF-β1-treated cells but both parameters was still higher than in control cells.

Conclusions

TGF-β1 induced EndMT in HMEC-1 cells leads to morphological changed of focal adhesions *via* Rho pathway. Inhibition of RhoA protein decrease formation and maturation of focal adhesions. Analyzed protein is also associated with EndMT.

Variation of AKAP9 gene expression in healthy thyroid and different types of thyroid tissue lesion

Kamila Soboska

Medical Univerity of Lodz

Presenting author: Kamila Soboska
e-mail: kamila.soboska@hotmail.com
Tutors: Karolina H. Czarnecka, Prof. dr hab. n. med. Ewa Brzeziańska-Lasota

Introduction

Thyroid carcinoma is one of the most common endocrine malignancy worldwide with increasing incidence in the last three decades. Preoperative diagnostic methods as fine-needle aspiration biopsy (FNAB) contribute often to unequivocal or false positive results, overdiagnosis phenomenon and "alleged" thyroid cancer epidemic. In order to improve diagnosis and reduce number of unnecessary treatment, search for molecular prognostic marker is necessary. *AKAP9* gene product – A-kinase anchor protein 9 interacts with key proteins of numerous signaling pathways, important in tumorigenesis and can impact the cell cycle by regulation of G1 to S phase progression. Therefore, interesting seem to be the assessment of *AKAP9* gene expression which can impair multiple physiological processes essential in thyroid tumor development.

Aim of study

Quantitative assessment of *AKAP9* gene expression and analysis of the correlation between expression level and different thyroid tissue lesion.

Materials and methods

Material (thyroid tissue) was obtained during thyroidectomy from 55 patients with following diagnosis: 16 papillary thyroid cancers (PTC), 6 follicular thyroid cancers (FTC), 4 follicular adenomas (FA) and 29 nodular goiters (NG); as control for each sample served the macroscopically unchanged thyroid tissue from the second lobe. Expression of *AKAP9* gene was evaluated by real-time PCR using KAPA SYBR FAST Universal qPCR (KAPA Biosystems) in the ECO Real-Time PCR (Illumina, USA). Analysis were performed in triplicate for each sample. Data obtained as a result of real-time PCR were analyzed using the build-in software (Illumina, USA),compared to endogenous control – β-actin.

Results

The expression of *AKAP9* gene in macroscopically unchanged thyroid tissue – control in majority of samples (33/55) was decreased in comparison to the endogenous control, revealing differential *AKAP9* expression level among patients. In 58% total samples the *AKAP9* expression was decreased in lesion in comparison to control tissue: observed in all FA (4/4) and FTC (6/6) samples, 15/29 NG samples and 7/16 PTC samples. The lowest mean expression level was observed in FTC group. Only in one type of thyroid tissue lesion – PTC group – the mean *AKAP9* expression was higher than in control.

Conclusion

Decreased *AKAP9* gene expression observed in different thyroid tissue lesion compared to control tissue may indicate that AKAP9 protein is involved in thyroid tumorigenesis. Lower *AKAP9* gene expression in benign thyroid lesions (NG & FA) in comparison to control indicates silencing of *AKAP9* in early steps of thyroid carcinogenesis. Differentially decreased expression level of AKAP9 in PTC and FTC - cancer type with worse prognosis (most decreased *AKAP9* expression), suggest the diagnostic and differential value of the *AKAP9* marker.

Four novel RPS6KA3 gene mutations in Polish patients with Coffin-Lowry syndrome

Łukasz Działach

Poznan University of Medical Sciences

Presenting author: Łukasz Działach
e-mail: l.dzialach@wp.pl
Tutors: Wicher K. , Badura-Stronka M.

Introduction

Coffin-Lowry syndrome (CLS) is a rare genetic disorder associated with severe mental retardation and disturbances of psychomotor development. Patients with CLS have characteristic facial appearance, microcephaly, short stature, tooth defects, hands abnormalities and skeletal anomalies. The prevalence is estimated at 1:50,000 births. The genetic cause of CLS are mutations in *RPS6KA3* gene. The condition is inherited in a dominant X-linked pattern, however, most cases of the syndrome are associated with *de novo* mutation (70-80%). Some patients with CLS phenotype do not have mutations in *RPS6KA3* gene and in these cases the cause of the syndrome remains unknown.

Aim of study

Molecular genetic testing of *RPS6KA3* gene has not been previously carried out in Poland and diagnosis of CLS is based on clinical features.The aim of the study was optimization of *RPS6KA3* sequence analysis, mutation screening and biobanking the genetic material of Polish patients with CLS phenotype.

Materials and methods

The study group consisted of 7 patients from unrelated Polish families. Informed consent was gained from each patient and DNA was isolated from the peripheral blood of each. 22 exons and exon-intron boundaries of the *RPS6KA3* gene were amplified with PCR method and then obtained products were sequenced. Sequences were analyzed with CodonCode Aligner software.

Results

The applied diagnostic strategy allowed to identify mutations in the coding region of the *RPS6KA3* gene in 4 patients. None of the identified mutations have been described in the literature so far.

Conclusion

A large number of exons and mutations create difficulties in systematic analysis of the *RPS6KA3* gene in the diagnosis of CLS. Failure to detect a mutation in *RPS6KA3* gene does not exclude the diagnosis of CLS because in up to 20% of cases the molecular background remains unknown. Also the methods used in the study did not allow to detect duplications/deletions or deep intronic mutations affecting splicing. Therefore, the results obtained need further investigation.

NK cells in Dasatinib-Treated Chronic Myelogenous Leukemia Patients

Mieszko Lachota

Medical University of Warsaw

Presenting author: Mieszko Lachota
e-mail: mieszko.lachota@gmail.com
Tutors: Magdalena Winiarska,

Introduction

Dasatinib is a potent small molecule kinase inhibitor targeting BCR-ABL – oncogenic driver in Philadelphia chromosome positive (Ph+) cases of chronic myelogenous leukemia (CML). It is routinely prescribed as a second-line treatment (due to its adverse effects and higher price) with prior intolerance or acquired resistance to imatinib. In addition to BCR-ABL kinase, it also targets a broad array of other kinases, affecting not only leukemia cells but immune cells as well. Just one hour after dasatinib administration, there is a rapid increase of lymphocytes in peripheral blood including NK, NKT and B cells. Dasatinib was also shown to influence NK cell cytotoxicity, but with discordant results. Some groups observed potentiation of NK cell cytotoxic activity while others strong inhibitory effects. These inconsistencies may be explained by different in vitro protocols used to study this phenomenon.

Aim of study

This study aims to investigate dasatinib influence on immune cells in CML patients in whole blood assay that serves as a good tool to predict immune response in vivo. In particular, we want to investigate dasatinib effects on NK cell mobilization and degranulation. Our results could potentially contribute to establishing more effective dosing scheme and explain some of dasatinib adverse effects.

Materials and methods

Peripheral blood was collected from CML patients at the dasatinib treatment initiation day. Blood was collected before and one hour after drug administration. Whole blood was added to target cell line K562. After co-incubation, erythrocytes were lysed, cells were stained with monoclonal antibodies against CD3, CD8, CD16, CD19, CD45, CD56, CD107a and analyzed with flow cytometry. Relative increase in NK cell count was determined by Trucount Tubes (BD).

Results

In agreement with previous reports we confirm post-administration NK, NKT and B cell count increase in peripheral blood. Our preliminary results also suggest that dasatinib increases number of T cells. Whole blood degranulation assay used in this study closely resembles patient settings including dasatinib concentration. We observe potent inhibitory effects of dasatinib on NK cell degranulation. We also observed a shift in NK cell subpopulations – during degranulation assay dasatinib decreased $CD16^-$ NK cell number.

Conclusion

Using whole blood degranulation assay we report that dasatinib presence in peripheral blood was associated with complete inhibition of NK cell cytotoxicity. We also observed T, NK, NK T and B cell peripheral blood mobilization after dasatinib administration. Further studies are needed to evaluate the significance of these findings.

CARDIOLOGY, CARDIOSURGERY AND INTERVENTIONAL CARDIOLOGY

COORDINATORS
Adrianna Cieślak
Jędrzej Chrzanowski

JURY
Professor Jacek Białkowski, MD, PhD
Mateusz Knop, MD, PhD
Professor Andrzej Lubiński MD, PhD
Monika Różycka- Kosmalska, MD, PhD

Echocardiographic methods of fetal heart size assessment- heart to chest area ratio and transversal heart diameter

Oskar Sylwestrzak

Medical University of Lodz

Presenting author: Oskar Sylwestrzak
e-mail: sylwestrzakoskarpatryk@gmail.com
Tutors: Maria Respondek- Liberska

Introduction

Ultrasound assessment of fetal heart size (FHS) is widely used and recommended in many guidelines of fetal echocardiography due to its clinical value.Echocardiographic FHS assessment can be achieved by many ways and seems to be relatively easy and helpful both for screening of fetal congenital heart defects as well as for diagnosing some additional functional abnormalities or in normal heart anatomy and beginning of congestive heart failure.

Aim of study:

The aim of this study was an analysis of some fetal heart measurements: ratio of heart area to chest area (HA/CA) and transversal diameter of heart (AP) and their correlation to gestational age.

Material and methods

This retrospective study was based on database of records of ultrasound and echocardiographic examinations performed in Department of Prenatal Cardiology, Polish Mother's Memorial Hospital Research Institute, Lodz, Poland and included fetuses between 15th and 39th week of gestation with no evidence of heart defect or any abnormality.

Results:

609 ultrasound examinations were analyzed. The mean HA/CA was 0,30 ± 0,015, with no statistical difference between female and male ($p>0,05$), and seemed to be relatively constant with slight increase with advancing gestational age. The AP diameter in whole group correlated with gestational age ($r=0,94$) and there was no difference related to the fetuses gender.

Conclusion

The correlation of AP diameter and relative constancy of HA/CA ratio with gestational age presented in our nomograms could be used for monitoring fetal development, but also for fetal cardiomegaly assessment.

Seasonal variation of ST-elevation myocardial infarction during Sundays, Christmas and Easter period

Tomasz Cyganek, Aleksandra Bąk, Katarzyna Jarzębska, Katarzyna Fąderska

Medical University of Silesia

Presenting author: Tomasz Cyganek
e-mail: ryjkowski98@gmail.com
Tutors: Dr n. med. Bartłomiej Orlik

Introduction

The chronobiological changes of pulse rate, hypertension, vasomotor tone and aggregation of platelets and specific daily pattern of myocardial infarction (MI) are well known. Additionally, a seasonal variation with higher winter morbidity has been reported for MI. Although there is a lack of data on the occurrence of MI during different holidays.

Aim of study

Purpose of the study was to obtain a data on the occurrence of MI during different holidays.

Material and methods

This is a retrospective analysis of all consecutive patients admitted to 13 invasive cardiology departments (Ustroń, Bielsko Biała, Dąbrowa Górnicza, Mielec, Kędzierzyn-Koźle, Starachowice, Polanica Zdrój, Tychy, Nysa, Bełchatów, Chrzanów, Sztum, Myszków) between January 2011 and December 2015 with diagnosis of acute coronary syndrome. The date was based on the terms of admission of the patients to the hospital. The patients were divided into two subgroups according to the discharge diagnosis, using following codes from International Classification of Diseases, 10th Revision (ICD-10): I21.0, I21.1, I21.2, I21.3 were considered as ST-elevation myocardial infarction (STEMI). All admission diagnoses were confirmed with the discharge summaries and patients with myocardial infarction type 4a and 5, or with other final diagnosis than myocardial infarction, were excluded from the study. All data was obtained from the hospital medical database.

We analyzed the seasonal variation of STEMI incidence during Sundays, Christmas period and Easter period.

Results

A total of 10 177 patients with STEMI were included to the registry. The occurrence of STEMI was significantly lower in December (by 11%; $P<0,05$) than in November and reached the lowest level during Christmas period. The incidence of STEMI increased during the springtime. We did not observe any decrease during Easter period. There was a significant decrease in incidence of STEMI on Sundays, with a reduction of 13% ($P<0,05$), in comparison to the rest of the week.

Conclusion

We suppose that lower incidence of STEMI during Christmas period is due to high number of free days resulting in lower sympathetic nervous system activation, while only one additional free day during Easter period did not influence it significantly.

In contrary to other studies we did not observe a higher incidence of myocardial infarction in the coldest months.

Intravenous administration of 0,9% NaCl as prevention of CIN in cardiac patients.

Aneta Durmaj, Anna Misiołek, Lidia Pietrzak, Karolina Anna Stańska, Natalia Wysocka

Medical University of Warsaw

Presenting author: Aneta Durmaj
e-mail: anet.durm@gmail.com
Tutors: Michał Ciurzyński ,

Introduction

Contrast-induced nephropathy (CIN) is one of the most common causes of hospital-acquired acute renal failure which may occur after an exposure to a contrast agent. CIN is defined as a 25% increase in serum creatinine concentration from the baseline value or an increase of at least 0,5 mg/dL, which occurs within 48h after the administration of a radiocontrast and lasts 2 to 5 days. Due to increasing rates of diagnostic and therapeutic coronary interventions, it is necessary to use prevention because cardiac patients have a greater risk of developing CIN.

Aim of study

The aim of the study was to evaluate the effectiveness of the prevention of CIN in patients treated invasively for acute coronary syndrome (ACS)**.**

Material and methods:

It was a retrospective study based on the analysis of medical records of patients hospitalized in the University Hospital. The survey involved individuals admitted to the hospital from July to December 2016 with a suspicion of ACS. All of them underwent a coronary angiography with use of a low-osmolar contrast medium. An intravenous administration of 500mL 0,9% sodium chloride before and after the therapeutic coronary intervention was given as a standard prophylaxis to prevent CIN. Subjects were analysed for risk factors which could promote CIN development. The survey was based on the scale of the risk of CIN created by the Cardiovascular Research Foundation in 2004. Risk factors taken into consideration included: prolonged hypotension, congestive heart failure, intra-aortic balloon pump, age, anaemia, diabetes mellitus, dose of contrast medium and serum creatinine. Each of them had several points, which were summed up for all the patients.

Results

90 consecutive patients (44 men, 46 women, mean age 71,1 years [range 22-91]) were included into the study. Individuals were classified into four risk groups of CIN development: group 1 – 34 patients with less than 6 points and the risk 7,5%; group 2 – 27 patients with 6-10 points and the risk 14%; group 3 – 18 patients with 11-15 points and the risk 26,1%; group 4 – 11 patients with more than 15 points and the risk 57,3%. Regardless of the assignment to different risk groups none of the patients developed CIN what indicates that intravenous administration of 0,9% sodium chlorideis an effective prevention that decreases the incidence rate of CIN.

Conclusion

The evaluation of CIN risk factors is necessary in all ACS patients. Appropriate prophylaxis against CIN is effective and should be administrated in each patient before coronary angiography.

Diminished myocardial reperfusion despite successful opening of the obstructed artery.

Aneta Durmaj, Jakub Poliński

Medical University of Warsaw

Presenting author: Aneta Durmaj
e-mail: anet.durm@gmail.com
Tutors: Michał Ciurzyński,

Introduction

Percutaneous coronary intervention (PCI) using primary balloon angioplasty, with or without use of stenting, is a standard of care for ST-elevation myocardial infarction (STEMI). However, there is a group of patients who continue to manifest diminished myocardial reperfusion despite successful opening of the obstructed artery. This phenomenon is called "slow-/no-reflow" and is defined as slow reperfusion or lack of coronary perfusion during or directly after PCI procedure, although there is no angiographic evidence of mechanical vessel obstruction.

Case report

A 55-year-old woman with a medical history of inferior wall STEMI treated with PCI of the right coronary artery (RCA) with implantation of everolimus-eluting stent 8 months ago, was admitted to the hospital with chest pain lasting about 10 hours. An ECG showed a ST-elevation in leads II, III, aVF and ST-depression in leads I, aVL, V2-V3. Laboratory testing revealed an increased level of troponin T (1630ng/l). STEMI of inferior wall was diagnosed. In echocardiographic examination akinesia of left ventricle inferior wall with EF=40% was observed. Coronarography showed a total RCA occlusion in the segments 1-2. A guidewire was put into the vessel. Due to lack of the flow an aspiration thrombectomy was performed and afterwards the stent was implanted. After stent deployment the posterolateral artery and posterior descending artery showed features of distal embolization and slow-reflow phenomenon. Eptifibatide were administered intravenously. After the procedure the chest pain subsided but patient complained about dyspnea and the controlled ECG revealed a persistent ST-elevation in leads II, III, aVF. There was also a significant increase in troponin T level up to 5010ng/l. Finally, within 5 days from the PCI the patient was released from the hospital for further ambulatory care unit.

Conclusion

The slow-reflow phenomenon remains a significant challenge for STEMI patients. It leads to a potential dissociation between coronary revascularization and myocardial perfusion in STEMI. Slow-reflow is a multi-factorial phenomenon, but micro-embolization during PCI remains the principal mechanism responsible for microvascular obstruction. It is regarded as independent predictor of death or recurrent myocardial infarction. Clinically it manifests with prolonged chest pain, dyspnea and may progress to cardiogenic shock, cardiac arrest, serious arrhythmias and acute heart failure.

Immediate results of percutaneous interventions for coarctation of the aorta in neonates and infants.

Huriyyah Aljarrash , Aqeelah Almadhlouh , Paweł Dryżek, Tomasz Moszura, Katarzyna Ostrowska, Jadwiga Moll, Jacek Moll, Sebastian Góreczny

Medical University of Lodz

Presenting author: Huriyyah Aljarrash
e-mail: h0o0r_2008@hotmail.com
Tutors: Sebastian Góreczny,

Introduction

Coarctation of the aorta (CoA) occurs in 5-8% of new-borns with congenital heart disease. Traditionally surgery has been the treatment of choice in patients with primary coarctation under 6 months of age. The first line of treatment in those between 6 and 12 months of age is still debated.

Aim of study

The aim of this study is to present a single centre experience in interventional cardiology procedures for CoA in patients 12 months or younger.

Material and methods

A retrospective review of institutional database was performed. Patients with CoA, who underwent cardiac catheterization in the first 12 months of life were identified. Catheterization records were reviewed and demographic, hemodynamic and procedural data were collected.

Results

From 12/1994 to 08/2017, 250 catheterizations were performed in patients with CoA aged 12 months or less, including 220 catheterizations in patients 6 months or younger. Percutaneous treatment was conduced during 107 catheterizations, and diagnostic study was performed during the remaining 143 studies. Among those patients who underwent trans-catheter intervention, the median age was 103 days (range 6 days – 361 days) and the median weight was 5,2 kg (range 0,7 kg – 11,6 kg). Balloon angioplasty was performed in 90 cases, stent implantation in 15 and stent redilation in 2 cases. In the group treated with balloon dilation, the mean CoA diameter increased from 2,9 1 mm to 4,7 1,1 mm ($p<0,5$) and the invasive pressure gradient decreased from 33,1 17,6 mmHg to 10,2 7,3 mmHg ($p<0,5$). In those treated with stent implantation, the mean CoA diameter increased from 3 1,9 mm to 6,4 2,6 mm ($p<0,5$). The invasive pressure gradient decreased from 28,4 15,5 mmHg to 13,8 18 mmHg ($p<0,5$).

Conclusion

In neonates and infants with CoA percutaneous treatment is an effective procedure. In the majority of patients isolated balloon dilation leads to immediate significant hemodynamic improvement. In selected patients, stent implantation may be required.

Evaluation of the impact of short-term usage of creatine supplements on the cardiovascular system - a randomized double-blind placebo controlled study.

Dawid Bugara, Sebastian Janiec, Jeremiasz Kubisiowski , Andrzej Nowak

Jagiellonian University Medical College

Presenting author: Dawid Bugara
e-mail: david94med@gmail.com
Tutors: Agnieszka Olszanecka

Introduction

Creatine is one of the most popular supplements used by athletes in order to increase muscle strength and gain lean body mass. It is well-known and considered to be harmless even in high doses taken in a long period of time. However, there has been some indications that creatine may affect several functions of cardiovascular system.

Aim of study

The study aimed to analyze the effects of high-dose creatine supplementation on cardiovascular parameters in young healthy adults.

Material and methods

A randomized double-blind, placebo controlled study was carried out on 32 healthy male volunteers (mean age- 24,1±1,9 years). In all subjects: anthropometric measurements, bioelectrical impedance analysis (Bodystat analyzer), peripheral (Omron) and central blood pressure (BP) measurements were taken, with short-term heart rate variability (HRV) (Sphygmocor), ECG analysis and echocardiography performed during first visit. Afterwards, individuals were randomized (1:1) into 2 groups: receiving capsules with creatine monohydrate - 1g per capsule (Gr.1), and placebo in the form of capsules with microcrystalline cellulose (custom-made at the pharmacy) in an analogous dose (Gr.2). The capsules did not differ in color, shape or size. Participants were instructed to use the obtained supplement for a full 5 days (16g per day, total dose- 80g). After 5 days, the follow-up was arranged with all the previous examinations repeated, and a morning urine sample was collected, to analyze urine creatinine concentration and exclude non-compliance. The study protocol was approved by the local ethics committee.

Results

There were no differences between creatine and placebo group in BP values (Δ systolic BP -2.0 ± 8.9 mmHg for Gr.1 vs -0.31 ± 9.3 mmHg for Gr.2 and Δ central systolic BP 0.06 ± 6,0 vs -2.4 ± 11.2 mmHg respectively). However, a slight decrease in the HR in Gr.1 was observed (66.19 vs. 64.56 BPM) in contrast to its increase in Gr 2 (62.63 vs. 64.5 BPM) ($p=0.067$). This was accompanied by an increase in the triangular index (362.69 vs 421.13, $p=0.07$) and high frequency HRV spectrum values (0.21 vs. 0.26, $p=0.026$) in Gr.1, not observed in the control group. An increase in aortic augmentation index (Δ = 10.63 ± 11.6 for Gr.1 vs 1.06 ± 14.2 for Gr.2, $p<0.05$) and aortic augmentation (Δ = 3.88 ± 4.9 vs. 0.19 ± 5.6 respectively, $p=0.057$) in Gr.1 were shown. High-dose creatine supplementation in Gr 1 was also associated with a decrease in total body water (51.58 vs 50.42 dm^3, $p=0.02$) and lean body mass (73.16 vs 72.01 kg, $p=0.04$). There was no differences between creatine and placebo groups in detailed ECG parameters and echocardiography.

Conclusion

Even high-dose creatine supplementation has a neutral effect on the cardiovascular system in young people. The importance of long-term supplementation of this substance requires additional research.

Early Clinical Outcomes of True Bifurcation Lesions According to Medina Classification

Evija Camane, Arnis Laduss, Andrejs Erglis, Gustavs Latkovskis, Dace Sondore, Inga Narbute, Kristine Dombrovska, Andis Dombrovskis, Ieva Briede, Aigars Lismanis, Ainars Rudzitis, Sanda Jegere

University of Latvia
Presenting author: Evija Camane
e-mail: Camaneevija@inbox.lv
Tutors: Indulis Kumsars,

Introduction.

In percutaneous coronary interventions (PCI) the treatment of bifurcation lesions is still a challenge to the interventional cardiologist. The technical difficulties inherent in the treatment of bifurcation lesions, associated with their lower success and higher complication rates compared with non-bifurcation lesions, have always been the object of intense research activity. Bifurcation lesions and bifurcation stenting have been reported to be risk factors of stent thrombosis, bleeding, stroke and death.

Aim of study

The aim of the study was to evaluate in-hospital outcome of patients undergoing bifurcation lesion percutaneous coronary intervention.

Material and methods

We retrospectively analysed the incidence of in-hospital major adverse cardiac and cerebrovascular events in patients undergoing percutaneous coronary bifurcation treatment. Death, myocardial infarction (MI), stent thrombosis, target lesion revascularisation, bleeding, stroke, transistor ischemic attack were analysed. Data were collected from Latvian Center of Cardiology Coronary Bifurcation Treatment registry started in January 2017.

Results

A total of 89 patients without acute ST elevation myocardial infarction were included in this retrospective study. For 46 patients, creatine kinase MB (CK-MB) measurements were performed before and after the procedure. Mean age was 67±7 years and 69.7% of the patients were male. The incidence of patients undergoing a prior percutaneous coronary intervention was 41.6%. 36% of patients had history of prior myocardial infarction (> 30 days) and 1.1 % of coronary artery bypass graft (CABG). There were 89.9% of the patients with stable angina., 2.2% with unstable angina and 7.9% with non-ST-elevation myocardial infarction. 78.7 of patients undergoing coronary bifurcations treatment had dyslipidemia and 14.6% - diabetes. 13.8 of patients were current smokers. In this retrospective analysis were not observed cases of in-hospital death, in-stent thrombosis and in-hospital stroke and transistor ischemic attack. One case of Non-Q MI was detected. However, in 10.9% of cases after PCI, an increase in CK-MB was observed 3 times the norm. Only one case of bleeding according to *Bleeding* Academic Research Consortium (*BARC*) type 2 occurred in woman patient with hypertension, positive family history and dyslipidemia.

Conclusions

In our study coronary bifurcation treatment with percutaneous coronary intervention was associated with low incidence of in-hospital major adverse cardiac and cerebrovascular events.

„Valve-in-valve" TAVI procedure

Marta Betka, Anna Polańska

Medical University of Lodz

Presenting author: Marta Betka
e-mail: marta.betka96@wp.pl
Tutors: Stanisław Ostrowski, Andrzej Walczak MD PhD

Introduction

Aortic stenosis (AS) is the narrowing of the aortic valve opening. One of main risk factors is being born with a bicuspid aortic valve – a condition which affects about 1 to 2 percent of the population. Aortic regurgitation (AR) is the leaking of the aortic valve that results in the reverse direction of blood flow during ventricular diastole - from the aorta back into the left ventricle. Transcatheter aortic valve implantation (TAVI) is the replacement of the aortic valve of the heart through the blood vessels.The valvular prosthesis is implemented via one of several accesses: transfemoral, transapical, subclavian, direct aortic or transcaval.

Case report

An 63-year-old patient with nicotinism, obesity, HA, DM type II, CKD stage III, gastritis, thrombocytopenia, paroxysmal AF and chronic CAD was admitted to the Cardiology Department because of effort dyspnea, decreased effort tolerance and general malaise. Patient after one-stage angioplasty of two chronic occlusions: Cx and RCA because of STEMI(2008), CABG and AVR because of severe AS with mild AR(2015), stroke and TIA(2017). In January 2018 because of clinical manifestations, infective endocarditis and destruction of bioprotesis was suspected. The patient was consulted and qualified for angioCT of the aorta and coronary vessels. The echocardiography was also performed and incicated features of destruction of aortic valve bioprotesis with severe regurgitation (III/IV°)(V max: 2,9m/s, Gr max/mean 34/20mmHg, EF:40%). The laboratory tests revealed increased levels of AST, ALT and bilirubin in the blood. The patient was admitted to Department of Contagious Diseases and Hepatic Diseases for further management. Ultrasonography of abdominal cavity was performed and it showed thickening of gall bladder wall with distuinguished fluid compartments. The patient was reconsulted by the HeartTeam and qualified for TAVI procedure after hepatic diagnostics and was admitted to the Cardiosurgery Department for „valve-in-valve" TAVI.In February 2018 the operation was performed with access via right femoral artery under local anasthesia. The right femoral artery was identified, punctured and the implant kit was inserted. Subsequently, the Evolut Pro 23 valve was implemented and released. The procedure was performed without complications in TTE and angiography. The patient was in ICU for 2 days. In second post-operative day the endocavital electrode was implemented via left femoral vein. The patient was secured with external pacemaker on demand. After 5 days the endocavital electrode was removed. The patient was discharged in a good condition.

Conclusion

TAVI „valve-in-valve" procedure is an alternative, minimally invasive treatment for patients with valvular bioprotesis degenration because of infective endocarditis. As a result, the patient receives a low risk of complications during surgery and a short period of convalescence simultaneously having guaranteed the highest level of safety.

In the search of heart barometer – predominance of left atrial dimension over classical electrocardiographic indices for the detection of left ventricular hypertrophy in arterial hypertension

Rafał Nowakowski, Bogusława Nowak, Dominika Janosik, Aleksandra Gapys

Medical University of Lodz

Presenting author: Rafał Nowakowski
e-mail: bogusia.kawon@gmail.com
Tutors: Karina Wierzbowska-Drabik, Ewa Trzos, Małgorzata Kurpesa, Piotr Lipiec, Jarosław D. Kasprzak

Introduction

Left ventricular hypertrophy (LVH) is a common complication of arterial hypertension. Despite the known limitations of the ECG-LVH criteria, these parameters are routinely evaluated.

Aim of study

The study assessed the correlation between the electrocardiographic indices of LVH, left atrial dimension (LA) and left ventricular mass index (LVMI) calculated from transthoracic echocardiography (2D-TTE).

Material and methods

The study included the group of 88 patients with and without HA, hospitalized in Cardiology Department. In the whole group 12-lead electrocardiogram (ECG) and transthoracic echocardiography were performed. There were evaluated: Sokolow-Lyon index (SLI), Cornell Voltage Criteria (CV), Cornell Product (CP) and Romhilt-Estes Point Score System (RES). The ECG-derived parameters were correlated with echocardiography data.

Results

Studied group included 61 males, the average age 59.75±18.6, sinus rhythm recorded in 76 patients, AF in 12, HR 71±16/min, LV EF 53±12.5%, 61 (69%) with HA. Mean LVMI was 139.5±51.5 g/m^2, LA 40.5±11.3 mm. According to LVMI 57 (64%) patients were diagnosed LVH. 11 patients (12,5%) fulfilled LVH criteria of according to SLI, 8 (9 %) according to CV, 12 (13,6%) according to CP and 23 (26%) according to RES. Among ECG-LVH indicators SLI showed significantly strongest correlation with LVMI (r=0.37, P=0.0008), whereas CV and IC revealed solely positive trend with accordingly r=0.28, P=0.0112 and r=0.25, P=0,0279. The strongest correlation with LVMI was found for the antero-posterior LA dimension: r=0.73, P<0.0001. In the multivariate analysis, the LA was the only independent predictor of the increased LVMI with the determination coefficient R^2=0.52, P<0.0001.

Conclusion

Among the tested ECG–LVH criteria, the strongest correlation with the LVMI was shown for SLI, however in the multivariate analyzes the only independent predictor of left ventricular hypertrophy was antero-posterior left atrial dimension.

Aortic pulse wave velocity assessment - comparison between two methods (aplanatic tonometry and ultrasonographic measurement) in patients with arterial hypertension and non-hypertensive group

Rafał Nowakowski, Bogusława Nowak, Dominika Janosik,

Medical University of Lodz

Presenting author: Rafał Nowakowski
e-mail: bogusia.kawon@gmail.com
Tutors: Karina Wierzbowska-Drabik, Ewa Trzos, Jarosław D. Kasprzak, Małgorzata Kurpesa, Piotr Lipiec

Introduction

Aortic pulse wave velocity (PWV) is confirmed to be an indirect index of arterial wall stiffness and an independent cardiovascular risk factor. PWV assessment is presumed to be valuable for clinical application, whereas availability of measuring devices and awareness of its importance is still insufficient.

Aim of study

Our aim was to compare PWV assessment, between two methods: aplanatic tonometry (AT) and ultrasonographic measurement (USG) in patients with and without arterial hypertension.

Material and methods

PWV was evaluated in 19 patients with arterial hypertension (7 females, mean age 61±12,3 years) and 14 healthy controls (5 females, age 48±17 years). PWV was measured in a single session with 5-minute interval, primarily with aplanatic tonometry than USG and its reproducibility was assessed with coefficient of variation (CV) and coefficient of repeatability.

Results

Both methods revealed 100% feasibility and confirmed significantly higher PWV values in older hypertensives patients: mean value 9.13 ± 2.66 vs. 7 ± 1,13, $p < 0.0001$ respectively. Mean time of AT duration was 10 ± 4 min, USG 8 ± 7 min, $p = 0.0002$. The achieved results correlated strongly between both methods providing correlation coefficient $r= 0,8$, $p<0.0001$.

The CV of PWV, measured with two methods, was 15% $p<0,0001$. In the hypertensive group, PWV repeatability was lower than in controls (CV 16.68% in hypertensive vs. 12.91% in non-hypertensive; $p=0.0002$). The differences in PWV between repeated measurements, did not depend on variations of mean blood pressure but depended on heart rate (lower HR correlated with higher repeatability) and sex (CV 12% in male group vs 19% in females, $p=0,0004$).

Conclusion

The repeatability of PWV measures between AT and USG was acceptable although not homogenous across hypertensives and non-hypertensives, showing the best results in men with lower heart rate. Both methods being non-invasive and time-effective should be encouraged more widely into routine clinical practice but further studies are needed for full appreciation of their diagnostic and prognostic value. Moreover, both methods consistently confirmed that hypertension was associated with significantly higher PWV, although this conclusion in our group was limited by older age in hypertensives.

Predictors of hospitalization length after myocardial infarction and clinical outcome of earlier hospital discharge in low risk patients.

Michał Węgiel

Jagiellonian University Medical College

Presenting author: Michał Węgiel
e-mail: michal-155@wp.pl
Tutors: Tomasz Rakowski, Dariusz Dudek

Introduction:

The length of hospital stay after myocardial infarction (MI) has been significantly declining over the years with several studies showing safety of early home discharge in low-risk patients after an uncomplicated MI. However, there is a large variance in time of hospitalization after MI between different regions in the world and also individual centers. Most reports include patients treated both conservatively and with primary percutaneous coronary intervention (PCI) or fibrinolysis.

Aim of study

To define predictors of length of hospital stay after MI and assess safety of earlier hospital discharge in low risk patients.

Material and methods

We enrolled 190 consecutive patients with MI who underwent primary PCI between 2016-2017 and survived until hospital discharge. Both ST-elevation and non-ST-elevation patients were included. Low risk patients were defined as: age < 70 years, left ventricular ejection fraction (LVEF) > 45%, no persistent ventricular arrhythmia and no multi-vessel disease (MVD).

Results

Median duration of hospital stay was 8 (Q1:6; Q3:9) days. In a logistic regression model patient's age, LVEF, presence of ST-elevation MI and MVD were associated with hospitalization length ≥ 8 days. Follow up was available in 174 (92%) patients with duration of 10 (Q1:7; Q3:13) months. Low risk patients (28%) had significantly shorter hospital stay of 6 (Q1:5; Q3:7) days, which was not correlated with higher rates of all-cause or cardiovascular death, recurrent MI and stroke during follow up.

Conclusion

Factors associated with coronary artery disease and also patient's demography are predictors of longer hospital stay after MI. Low risk patients were significantly earlier discharged from hospital which was not correlated with inferior clinical outcome.

A giant dissecting aneurysm of ascending aorta and aortic arch with concomitant multivessel coronary artery disease in patient with previous stroke- perioperative neuroprotection strategy

Paulina Bronst

Medical University of Lodz

Presenting author: Paulina Bronst
e-mail: paulina.bronst@yahoo.com
Tutors: Stanisław Ostrowski

Introduction:

Ascending aorta and aortic arch replacement (AAR) combined with coronary artery bypass grafting (CAGB) poses a considerable challenge for surgeons. The research shows that additional CAGB dramatically increases mortality rate when compared with AAR alone. It prolongs the mean time of the surgery and presents a threat of myocardial infarction due to the condition of coronary artery disease. Severe diffuse atherosclerosis in the patient and previous stroke imply impeded blood flow and possible difficulties in proper neuroprotection, what may leadto stroke, encephalopathy and neuropsychological deficits. Current neuroprotective strategies of choice to decrease the risk of these adverse effects are antegrade selective cerebral perfusion and hypothermia.

Case report

A 61-year-old female presented with a chief complaint of chest tightness and progressive dyspnoea at rest. The patient had been referred from other hospital for the sheduled surgery admission. The patient's history revealed hypertension up to 200mmHg systolic blood pressure, two previous strokes, diffuse atherosclerosis and abdominal aortic aneurysm. The patient was an ex-smoker. A CT scan of the thoracoabdominal aorta revealed a giant aneurysm of ascending aorta and aortic arch measuring 8,5cm in diameter, 11cm in length, involving the brachiocephalic trunk and left subclavian artery. The diagnostic procedure was complemented by echocardiography and coronary angiography. The patient underwent ascending aorta and aortic arch replacement with woven dacron four branch graft and triple CABG. Neuroprotective strategy included bilateral antegrade selective cerebral perfusion and hypothermia of 29ºC. Regardless of applied neuroprotection the patient developed post-anoxic encephalopathy and areflexia.

Conclusion

Despite the indesputable development of neuroprotective strategies during cardiac surgery, it's efficacy in patients with multiple risk factors remains uncertain. Current data suggests that bilateral antegrade cerebral perfusion in conjunction with hypothermia provides sufficient brain protection, although there is lack of large-scale randomized controlled trials of neuroprotective strategies during AAR+CABG surgery considering the following factors: extent of aortic arch as well as carotid and vertebral arteries calcification, morphology of atheromatous plaques, blood flow volume, blood flow velocity, accompanying hypertension, condition of vessels. Further studies of methods of both pharmacological and non-pharmacological neuroprotection during major aortic surgery are required to optimize management with patients of high risk and to minimize the incidence of perioperative cerebral injury.

Intramural haematoma- an unusual complication of percutaneous coronary intervention

Aleksandra Teneta

Medical Unversity of Lodz

Presenting author: Aleksandra Teneta
e-mail: ola.teneta@gmail.com
Tutors: Ewa Szymczyk,

Introduction

Percutaneous coronary intervention (PCI) is, at present, one of the most frequently performed procedure in cardiology (according to the National PCI Registry there were 126,241 PCIs in Poland in 2014) However, this procedure is associated with the risk of side effects: death, heart attack, stroke, hemorrhagic complications at the injection site, contrast nephropathy. A highly unusual complication of coronary angioplasty, which I would like to present in this work, is left atrial intramural haematoma. (LAIH)

Case report

66 years old man was admitted to the hospital complaining of stenocardial chest pain of a few hours duration. The patient had a history of hypertension, diabetes mellitus t. 2 and paroxysmal atrial fibrillation (AF). He has had a stroke. Electrocardiogram (ECG) demonstrated sinus rhythm, right bundle branch block, and negative T-waves in leads III, aVF. Laboratory studies denied presence of elevated level of troponin.

Transthoracic echocardiogram (TTE) showed normal size of both ventricles, boundary size of left atrium, hypertrophy of interventricular septum. Basal part of inferior wall and septum was hypokinetic with left ventricle ejection fraction -57%. Abnormal left ventricular diastolic filling pattern indicated impaired relaxation. Moreover, mild mitral and tricuspid regurgitation was present. Coronarography revealed occlusion of circumflex artery in the course of NSTEMI. Angioplasty was performed which successfully restored blood flow in the artery.

After several days, stenocardial chest pain returned with accompanying hypotonia. Control coronarography revealed contrast extravasation from the stented artery. TTE showed round mass (49x54x62mm in size) with hypoechogenic interior without any flow in the lumen. This mass constricted left atrium from behind. Flow through the mitral valve was accelerated. 3D transesophageal echocardiography (TEE) and contrast computed tomography confirmed thediagnosis of LAIH. After 1 week the patient was operated. Median sternotomy was performed and hematoma was exposed. Epicardium was cut 5mm backwards from the coronary groove and thrombus was removed. Left internal mammary artery-left anterior descending artery bypass was subsequently grafted. AF occurred in the postoperative period, which resolved after cardioversion. Control TEE confirmed good results. Patient was discharged 8 days after the operation and after 3 months control TTE showed positive outcome of the procedure.

Conclusion

Considering the entire clinical picture of the aforementioned case I can conclude that coronary angioplasty was the cause of LAIH. With regard to literature, it is very improbable that this complication can also develop in patients without previous cardiac operations. Most frequently LAIH can be treated conservatively. It is of utmost importance to ensure cautious use of instrumentation during PCI in order to prevent the possibility of developing intramural haematoma.

DENTISTRY

COORDINATORS
Wojciech Kuligiewicz
Julia Stępień

JURY
Krzysztof Drobnik, MD, PhD
Joanna Kunert, MD, PhD
Aleksandra Palatyńska-Ulatowska, MD, PhD

Influence of the magnification use in full crown preparations on axial walls convergence.

Oleksandr Tokman

Warsaw Medical University

Presenting author: Oleksandr Tokman
e-mail: otokman@ukr.net
Tutors: Dr. Kamila Wróbel-Bednarz ,

Introduction

Full-coverage crowns is common choice of restoration for extensively damaged teeth. Ability of the dentist to adequately prepare teeth is important for success and durability of these restorations. Retention and resistance of crown is affected mostly by convergence angle of preparation but also by the height of preparation, height to base ratio of preparation and type of luting cements. Recently there is a wide usage of magnification in dentistry. Operating microscope or loupes can provide clinician better visualization of preparation, possibly giving an advantage in achieving better preparation.

Aim of study

Comparison of axial walls convergence of full crown preparations done with and without magnification loops.

Material and methods

10 plastic teeth on the phantom were prepared for prosthetic crowns by 5th year dental student. The procedures were done using dental loupes with magnification 2.5x and without them. Preparations were photographed with digital camera in mesio-distal, buccalo-lingual and occlusal planes. Pictures of prepared teeth were transferred to AutoCAD software for the measurement of convergence angle.

Results

Taper achieved without loupes was: 2nd lower molar: 5°, 2nd lower premolar: 13°, 1st lower incisor: 9°, 1st upper incisor: 9°, 1st upper molar: 36°. Taper achieved with loops: 2nd lower molar: 5°, 2nd lower premolar: 22°, 1st lower incisor: 4°, 1st upper central incisor: 5°, 1st upper molar: 16°.

Conclusion

The use of the magnification allows to achieve more precise preparation that has the influence on crown retention. Usage of dental loupes with the light source improves visualization of operation field in the mouth. Clinical work with the magnification should be recommended for teeth preparation procedures.

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The Oral Health Habits and Modifying Factors of Mothers of Young Children in Urban Areas in the United States and Poland - A Questionnaire Study

Dominique Gnatowski, Steven Hamati

Warsaw Medical University

Presenting author: Steven Hamati
e-mail: dominiquegnatowski@gmail.com
Tutors: Anna Turska-Szybka, DDS, PhD,

Introduction

In the U.S. and Poland, early childhood caries (ECC) in children is still a health concern.

Aim of study

To compare the oral health habits and modifying factors of both American and Polish mothers and their children.

Material and methods

Surveys consisting of 49 questions were given to mothers from Philadelphia (USA) and Warsaw (Poland). Statistical analyses including Spearman correlations were made using Statistica 12.

Results

There were 500 Polish and 504 American surveys collected. The average age of Polish and American mothers was 39.0±6.5 and 37.7±8.6 ($p=0.008$). 47.2% of Polish and 42.3% of American mothers had a graduate level of education and 91.8% and 88.3% were in the middle social class ($p>0.05$). Of Polish and American mothers 52.8% and 59.1% did not have dental caries during pregnancy or breastfeeding ($p<0.05$). Polish (80.0%) and American (92.7%) mothers received instructions about caring for children's oral health: 55.3% and 46.3% from the dentist and 56.5% and 46.3% from the pediatrician ($p<0.05$). 76.1% of American children above 3-4 years, never had dental caries but 43.1% of Polish children had caries ($p<0.05$). In Poland 26.4% and in the U.S. 17.3% of mothers cleaned their children's toothless mouths after feeding and before bed. When the first teeth appeared, 80.7% and 47.8% of mothers started cleaning their children's teeth ($p<0.05$). In both countries if mothers had systemic diseases they were more likely to breastfeed for a shorter time ($p=-0.173$, $p=-0.011$). As a Polish mother's education level and social status increased smoking during pregnancy ($p=-0.260$, $p=-0.207$) and breastfeeding decreased ($p=-0.270$, $p=-0.206$). In Poland, the higher the education and status of a mother, the earlier she started cleaning her children's teeth ($p=-0.270$). Similarly, with U.S. mothers ($p=-0.196$), but without the social status correlation.

Conclusion

Mothers received instructions from both the dentist and pediatrician about caring for their children's oral health. In Poland, a higher percentage of mothers cleaned the child's toothless mouth after feeding and before bed as compared to the U.S. However, they did not start brushing the children's teeth immediately after the appearance of the first tooth.

Correlation between oral health and hygienic, dietary habits of children under 6 years old and their parents.

Stempniewicz Anna, Tubaja Monika

Medical University of Warsaw

Presenting author: Stempniewicz Anna
e-mail: stempniewicz.ania@gmail.com
Tutors: Anna Turska-Szybka, Anna Pantelewicz DDS

Introduction

Children's health behaviour are moulded mostly by parents. Their dietetic and hygienic habits, approach to dental treatment may have an influence on children's oral health. Awareness about correlation between parents' and children's' oral health can be useful to elaborate effective plan reducing caries prevalence.

Aim of study

To determine a correlation between oral health, hygienic, dietetic habits of children under 6 y.o. and their parents.

Material and methods

The study was conducted for healthy patients under 6 y.o. treated in the in Department of Paediatric Dentistry, MUW and their parents. Dental caries (DMFT/dmft) and oral hygiene (OHI-S) were examined. The questionnaires for parents were given, concerning dietetic and hygienic habits and caries risk factors. Statistica 12 software and Spearman's rank correlation were used for statistical analysis. The study received Bioethics Committee approval.

Results

Sixty children (4±1,37 years) and sixty parents (37±5,24 years) participated in the study. The mean value of OHI-S was 0,5±0,55(children) and 0,96±0,9 (parents), dmft 2,75±3,15 and DMFT 8,02±4,86 respectively. The lowest OHI-S and dmft were found in the group of children in which brushing teeth was initiated by parents at the age of 6 months. A statistically significant correlation was found between children's and parent's OHI indexes (r=0,380), frequency of brushing teeth (r=0,355) inappropriate dietetic habits like drinking soda drinks (r=0,375) and juices (r=0,395) by children and parents. There is an association between dmft, OHI index and the age of starting brushing teeth (r =0,321 and r=0,304). It was found that using additional hygiene accessories by children is correlated with OHI indexes (r=-0,353). There is no statistically significant correlation between children's and parent's dmft/DMFT.

Conclusion

Parent's oral hygiene and dietetic habits- frequency of brushing teeth, drinking juices, soda drinks are adopted by their children. Starting brushing teeth at the age of 6 months reduces OHI and dmft indexes of children in the examined group. Using additional hygiene accessories by children helps to keep oral hygiene and lower OHI indexes.

Teeth-health related dietary knowledge and correlation with caries intensity in adolescents

Jana Vasjanova, Lina Džiaugytė

Vilnius University

Presenting author: Jana Vasjanova
e-mail: jana.vasjanova@gmail.com
Tutors: Lina Džiaugytė,

Introduction

It is known that the main reasons of high caries prevalence are cariogenic microorganisms, oral hygiene as well as diet. A lot of studies research the correlation between the prevalence of caries and socioeconomic status while the role of teeth health related diet is not so broadly investigated. A diet improving one's general health is being accented in society. Regardless, the cariogenic effect of specific products on teeth is not emphasized clearly enough.

Aim of study

To evaluate caries intensity and diet knowledge in perspective of oral health of 10-16-year-old teenagers in Vilnius region. To determine a correlation of dietary knowledge and caries intensity.

Material and methods

A pilot study, including 10-16-year old pupils from 4 randomly chosen public schools in Vilnius region (2 schools in Vilnius, 2 in small town), was carried out. 211 respondents (40.8%, N=86 boys and 59.2% N=125 girls) were given a questioner (23 questions) to evaluate whether specific food is healthy for teeth or not. Caries intensity evaluation was based on Nyvad's visual method using participant's intraoral photographs. DFMT and dft indices were used. Statistical analysis was performed using IBM Statistics SPSS v.23.0 software, descriptive statistics, $\chi 2$ test, independent samples T-test, One-Way ANOVA test with a significance level set at 5 %. ($p \leq 0.05$).

Results

None of the respondents answered all 23 questions correctly. Children were well informed of the cariogenic effect of sweets and fizzy drinks with correctly labeling cake (96.1%, N=199), chocolate (96.2%, N=200), ice cream (86%, N=178), milkshakes (69.4%, N=145), energy drinks (98.1%, N=205) and cola (96.2%, N=200) as teeth unfriendly products. Girls gave more correct answers ($\bar{x}$ 16.25; SD 2.42) than boys ($\bar{x}$ 15.25; SD 3.07) ($p = 0.01$). Age and living location had no significant difference in all questions ($p > 0.05$). A lack of knowledge involving hidden sugar containing food was found since less than 40% of respondents correctly classified sweetened yoghurt, oatmeal cookies, cereal and ice tea as unhealthy. The majority of children didn't recognize oranges, apples and fruit juice as teeth unhealthy. Girls' permanent molars ($\bar{x}$ 2.03; SD 1.41) were decayed, filled or extracted more frequently than boys' ($\bar{x}$ 1.62; SD 1.48) ($p = 0.043$). No difference was found between dft index and the children's gender, age or living location ($p > 0.05$). A correlation between dietary knowledge and DFMT+dft was not found ($r = 0.009$).

Conclusion

None of the adolescents correctly answered all the questions. Girls gave the correct answers more frequently than boys. Knowledge of respondents about the cariogenic effect of sugary products was satisfying in the contrasts of knowledge about potential harm of food with hidden sugar, fruit and fruit juice. Girls' permanent molars' DFMT index was higher than boys'. Caries intensity was not correlated with dietary knowledge.

Cone-beam computed tomography as a diagnostic tool in treatment of the young patient with mesiodens and avulsed central incisor. Case Report.

Adam Wawrzynkiewicz, Katarzyna Mazurek

Medical University of Lodz

Presenting author: Adam Wawrzynkiewicz
e-mail: adam.wawrzynkiewicz@stud.umed.lodz.pl
Tutors: Adrian Strzecki,

Introduction

Cone-beam computed tomography (CBCT) has found its way as an essential diagnostic tool in numerous fields of dentistry. Due to its low dose of radiation and short acquisition time it could replace the conventional radiographic diagnostic tools. In orthodontics it can be used to assess the amount of bone in the alveolar process area, teeth inclination, root position and resorption. Undistorted visualization of impacted and supernumerary teeth and their contact with surrounding tissues as well as 3D cefalometrics, diagnosis of complex, asymmetric skeletal defects and orthognathic surgery are another advantages of this imaging modality. It also allows for the 3D reconstruction of radiopaque structures which proved to be vital in the presented case.

Case Report

An 8-year-old boy was admitted with the avulsed right central permanent incisor. The replantation of the tooth was performed after 4 hours leading to the unsuccessful integration with the alveolus. Inflammation and external resorption of the root and surrounding bone began to occur. A standard set of radiographs was taken and the orthopantomogram showed a supernumerary teeth in the midline. Due to the poor prognosis a more complex radiographic examination was performed, a CBCT scan. 3D visualization allowed the assessment of mesiodens shape, structure and surrounding tissues. The 3D model of the supernumerary was printed using the 3D printer in order to further judge the usefulness of it as a substitution for the avulsed tooth. As the external resorption of the replanted incisor progressed with the concomitant alveolar bone loss, it was removed. The space after the extracted tooth was retained by means of removable appliance with the acrylic tooth. After few weeks the mesiodens began to spontaneously erupt through the socket and 6 months later erupted fully in the place of the right central incisor, suitable for a composite build-up using a wax-up and silicon matrix. The post-inflammatory and post-extraction alveolar bone loss was restored by the subsequent eruption of mesiodens. It could be perceived as a long-term temporary solution. After the patient finishes the growth period the discussed tooth is planned to be extracted and replaced with an implant possibly without any additional bone augmentation. The use of patients own supernumerary prevented the bone resorption and allowed the consideration of further, otherwise impossible, treatment methods.

Conclusion

As presented in this case CBCT is becoming a new golden standard in orthodontic diagnosis. Combined with 3D printing it can greatly enhance the capabilities of the clinician allowing him to confirm the position and shape of structures of the orofacial area. The localization of supernumerary teeth and use of them as avulsed teeth replacement could not be possible without in-depth diagnosis and 3D visualization, as 2D radiographs fail to represent the complexity of the skull hard tissues.

Changes in heart rate in patients during a stressful dental procedure – a pilot study

Mariusz Nawarycz

Medical University of Lodz

Presenting author: Mariusz Nawarycz
e-mail: mariusz.nawarycz@gmail.com
Tutors: Wojciech Goździewicz, Tadeusz Nawarycz

Introduction:

The stress of visiting a dental office is a very common problem in our society. Due to this reason, patients are reluctant to go for check-ups, which in turn leads to high rates of intensity and frequency of caries in the population. Untreated early caries very often leads to the need of tooth extraction, which is associated with a visit to a dental surgery clinic.

Aim of study

1/Perform a comparison analysis of heart rate changes (DHR) in the group of dental patients applying for conservative treatment and patients applying for the tooth extraction in a surgical office. 2/ Evaluation of the suitability of a sports electronic band in the study of dental stress.

Material and method

A group of 30 patients (12/18 M/F) undergoing conservative treatment and 30 patients (15/15 M/F) who had a tooth extraction participated in the study. Patients' age was between 18 and 35 years. In all patients a continuous heart rate (HR) measurements were made using the POLAR A360 (Polar Electro Oy-Fin) heart monitor in the form of a wristband / watch placed on the right wrist. In both groups recorded: absolute HR values before dental procedure, during the procedure (HRmax and HRmean) as well as their maximum and average changes (increments) during the procedures (DHRmax and DHRmean respectively). In order to compare the results of the two groups of patients we have used Student's t test (Statistica PL packet).The research was approved by the local Bioethics Committee (NN/43/18KE from 15/02/2018).

Results

Before the dental procedure, mean HR values in the group of patients waiting for tooth extraction were significantly higher comparing to the group of conservatively treated patients (70.2 ± 7.8 vs 64.5 ± 6.3, $p < 0.05$).Observed HR increments, both mean (DHRmean) and maximum (DHRmax) values during the procedures also took significantly higher values in the group of patients subjected to tooth extraction(DHRmean: 18,2 ± 7,0 1/min vs 13,2 ± 5,2 1/min; and DHRmax: 37,4 ± 12,9 1/min vs 33,7 ± 14,6 1/min; for both $p<0.05$) .

Conclusion

1 / Preliminary results demonstrated significantly higher pulse rates increments (DHRmax and DHRmean) in the group of patients subjected to extraction in the surgical office in comparison with patients treated conservatively.

2 /Popular sports wristbands that monitor the wrist heart rate can be useful in the study of dental stress.

Comparative analysis of the clinical, radiological and histopathological picture of the keratocystic odontogenic tumour (KCOT) - a retrospective study

Dominik Woźniak, Paulina Urbańska

Medical University of Warsaw

Presenting author: Dominik Woźniak
e-mail: domciu91@gmail.com
Tutors: Piotr Regulski, Zygmunt Stopa MD, PhD, Dorota Biernacka-Wawrzonek MD, PhD, Paweł Pihowicz MD

Introduction:

Deriving from odontogenic epithelium tumor was considered as non-inflammatory cyst for many years and was described as keratocyst. Clinical process, aggressive behavior manifested by the ability of destroying adjacent tissues and high recurrence tendency, as well as latest information involving histology and genetics caused that World Health Organization classified this lesion as odontogenic tumor from 2005 to 2017.

Aim of study

Assessment and comparison of diagnoses made on the basis of clinical, radiological and histopathological picture of keratocystic odontogenic tumor (KCOT) – a retrospective study. The selection of the representative characteristics of clinical and radiological picture, on the ground of the histopathological examination results, having an effect on more efficient identification of keratocystic odontogenic tumor.

Material and methods

A selection and retrospective study of the Department of Cranio-Maxillofacial Surgery, Oral Surgery and Implantology, Medical University of Warsaw patients' medical history with diagnosed keratocystic odontogenic tumor, theirs radiological examinations (panoramic radiograph and Cone Beam Computed Tomography) made in the Department of Dental and Maxillofacial Radiology, Medical University of Warsaw, and histopathological examinations' descriptions prepared in the Department of Pathology, Medical University of Warsaw. Assessment and comparison of diagnosis made on their basis. Comparison with a control group consisting of patients with histopathological recognition of odontogenic cyst. All of the examinations were made as a regular diagnostic process of patients coming to the departments mentioned above, no patient was exposed to X-ray radiation for scientific purposes only. A statistical analysis conduction of individual characteristics of the clinical and radiological picture and a degree of correlation between these characteristics and the histopathological diagnosis.

Results

Data analysis of 18 patients in 2 groups with equal number of people. The women constituted for 66,6% of the test group, average age was 42,6 years, tumors were located mainly in the mandible, often in the proximity of impacted teeth, and caused relocations of those teeth, recurrences occurred. The men constituted for 55,6% of the control group, average age was 47,3 years, cysts were located mainly in the maxilla, impacted teeth in the proximity occurred less often, cysts caused resorption of teeth, recurrences did not occur.

Conclusion

Patients with a diagnosed keratocystic odontogenic tumor require regular and long-term check-ups. In those cases, radical chirurgical treatment should be considered on account of the recurrence tendency.

Recurring numerous keratocystic odontogenic tumors of the 31-year old patient with suspicion of the Gorlin-Goltz syndrome

Dominik Woźniak, Paulina Urbańska,

Medical University of Warsaw

Presenting author: Dominik Woźniak
e-mail: domciu91@gmail.com
Tutors: Piotr Regulski, Zygmunt Stopa MD, PhD, Dorota Biernacka-Wawrzonek MD, PhD, Paweł Pihowicz MD

Introduction:

The Gorlin-Goltz syndrome is genetically determined, autosomal dominant disease, manifesting through skin, eyes, bone structure and nervous and endocrine systems abnormalities. The main diagnostic criterion is the presence of numerous keratocystic odontogenic tumors.

Case report

In 2017 a patient reported to the Department of Cranio-Maxillofacial Surgery, Oral Surgery and Implantology, Medical University of Warsaw with suspicion of cyst. In the medical interview – treatment caused by the suspicion of the Gorlin-Goltz syndrome 8 years earlier. The panoramic radiograph made in the Department of Dental and Maxillofacial Radiology, Medical University of Warsaw revealed 3 osteolytic centres in the base, left angle and ramus of the mandible. All of the changes had osteosclerotic shells, visible mass effect, without the radiological signs of roots' external resorption of the adjacent teeth. One of them involved partially impacted tooth 38. The diagnosis was broadened by the Cone Beam Computed Tomography examination, which revealed a recommence of the growth process in the maxilla, and a calcification in the cerebral falx and the cerebellar tentorium, which are the main diagnosis for Gorlin-Goltz syndrome. In the course of 2 months, all of the changes were removed, as well as adjacent teeth 37, 38, 45 and 46. Tissue material was transferred to the histopathological examination, which, except for the right maxilla (cyst), confirmed the suspicion of numerous keratocystic odontogenic tumors. In the routine Cone Beam Computed Tomography examination no signs of recurrence were identified.

Conclusion

The Gorlin-Goltz syndrome is a challenge for many specialities. Patients with the diagnosed disease show large predispositions to developing tumorous changes. The knowledge on this subject among dentists allows an early diagnosis and introduction of the proper procedure. An aggressive local behavior and high recurrence tendency of keratocystic odontogenic tumor require an individual consideration of chirurgical intervention radicality and consistent radiological examinations.

Description of dental abnormalities encountered in cleido-cranial dysplasia - CBCT analysis

Alicja Kacprzak, Alicja Musierowicz

Medical University of Lodz

Presenting author: Alicja Kacprzak
e-mail: alicjakacprzak94@gmail.com
Tutors: Adrian Strzecki,

Introduction

Cleidocranial dysplasia (CCD) is autosomally dominant inherited disorder affecting entire skeleton with symptoms being most notably visible within the chest and dentofacial complex. Numerous dental abnormalities such as the presence of numerous unerupted supernumerary teeth, dental impaction and displacement, retention of deciduous dentition, delayed eruption of permanent teeth, elongated and dilacerated dental roots are associated with CCD.

Aim of study

The aim of this study was to perform a 3-dimensional quantitative and qualitative analysis of dental abnormalities encountered in cleidocranial dysplasia by means of Cone-Beam Computed Tomography (CBCT).

Material and methods

7 CCD patients (4 females, 3 males, mean age: 18,5±9,5) were enrolled in the study. All patients undergone a CBCT scan (6 of them of both maxillary and mandibular region, 1 patient of only mandibular region).

Results

The total number of 73 either impacted or displaced teeth were detected in all patients; 40 impactions were diagnosed in maxilla and 33 in lower dental arch with premolars being most often (39,7%) impacted teeth group. Supernumerary teeth were discovered in all patients in a number varying from 1 to 16 (total number of supernumerary teeth in the maxillary: 29; 4,1±3,8 teeth per patient, total number of supernumerary teeth in mandibular: 21; 3,5±2,7 teeth per patient). Majority of supernumerary teeth were impacted and detected in either premolar (50%) or incisor (42%) region. Other commonly encountered dental abnormalities were root dilacerations, retained deciduous dentition and hypodontia. One case of dental transposition was also observed.

Conclusion

Symptoms of CCD observed in patients enrolled in the study manifested significant diversity especially in terms of the total number of teeth although if the supernumerary teeth were present they would most often be detected in either incisor or premolar region. Adversely, canines could be considered a teeth group most prone to impaction. Root dilacerations proved to be a relatively common finding which could possibly impair the course of orthodontic treatment. Numerous dental abnormalities regarding both number of teeth and their morphology required complex 3-dimensional evaluation provided by CBCT scanning.

DERMATOLOGY

COORDINATORS
Carmen Mielnik
Katarzyna Sojka

JURY
Joanna Torzecka, MD, PhD
Professor Anna Woźniacka, MD, PhD

Localized scleroderma - a disease that leaves much to be discovered.

Marta Lewoc, Julia Nowowiejska, Ewelina Brzozowska,

Medical University of Bialystok

Presenting author: Marta Lewoc
e-mail: lewocmarta@gmail.com
Tutors: Anna Baran, Prof. Iwona Flisiak MD, PhD

Introduction

Localized scleroderma (morphea) is an autoimmune, connective tissue disease, of not fully explained etiology, that can be limited to the skin or involves subcutaneous tissue and underlying tissues. It occurs with a frequency of 0.3 to 3 cases per 100,000 per year, is more common in women than men, with peak age of 50 years old.

Aim of study

Retrospective analysis of medical records of patients with morphea.

Material and methods

Seven-year retrospective analysis of patients hospitalized with morphea at the Department of Dermatology. Gender, age of patients, comorbidities, clinical course of the disease and treatment used were considered. Results were analyzed using Chi-squared test.

Results

In the analyzed period 70 patients were hospitalized with morphea, 56 females (80%) and 14 males (20%). Age of patients ranged from 7 to 77 years, with average of 43.6. Five patients (7%) reported morphea among family members. The history of skin lesions ranged from one month to thirty years and persisted five years in average. The most common manifestation was skin thickening (70%), red-brown plaques (51%) and atrophic lesions (41%). In 31% of mentioned skin lesions lilac ring was observed. Lesions were localized most commonly on the trunk (74%), lower (41%) and upper (36%) limbs and on the head (17%). In 17% of patients lesions were observed in both upper and lower limbs. Pruritus was reported by 14% of patients. The most common comorbidity was arterial hypertension (24%), thyroid diseases (18%), autoimmune diseases (17%), Lyme disease (13%), hypercholesterolemia (11%), osteoarthritis (11%), depression (7%) and carbohydrates metabolism disorders (7%). Elevated levels of inflammatory markers were observed in 13% of patients. In 63% cases the diagnosis was confirmed by the histopathological examination. Correlations between morphea and the following were observed: arterial hypertension, thyroid diseases, ischaemic heart disease, Lyme disease, elevated levels of inflammatory markers, monocytosis and smoking. Almost 57% of patients received procaine penicillin (in 3 of them Hoigne syndrome appeared) and 10% phototeraphy.

Conclusion

The analysis confirmed morphea is a disease of a chronic course affecting women in majority and usually people between fourth and fifth decade of life, as well as that lesions mostly present as skin thickening localized over the trunk. In patients with morphea thyroid disorders and Lyme disease were observed more frequently. Smoking in such patients is contraindicated as it may worsen their condition.

Diagnostics visualization of lichen planus with high growth dynamics. A case report

Karolina Skalska, Magdalena Świderska, Tomasz Kamiński, Wojciech Popowski; Andrzej Wojtowicz

Medical University of Warsaw

Presenting author: Karolina Skalska
e-mail: karolinaskalska92@gmail.com
Tutors: Kamiński Tomasz,

Introduction

Lichen planus (LP) is a mucocutaneous disease affecting approximately 0.5–2% of the population. The malignant potential of oral LP lesions is a cause of controversies in the literature, but constitutes an important clinical issue as oral lichenoid and contact lesion, which are separate nosological entities, can also undergo malignant transformation. In this paper we present a case of highly dynamic oral lichen planus that rapidly transformed into preinvasive cancer and discuss the factors influencing this transformation.

Case report

A 60-year-old Caucasian man came to the Department of Oral Surgery at the Medical University of Warsaw, from the Department of Diseases of the Mucous membranes and Periodontics due to the presence of white lesions on the mucosa and suspicion of lichen planus and a request for consultation and possible treatment of the patient. In the interview, the patient reported the appearance of lesions three months earlier after extraction of molars on the left side. The changes were not accompanied by any discomfort. In the clinical trial, enlarged, painless, shifting submandibular and cervical lymph nodes were found. Intra-oral on the left and right cheek there were extensive white-red lesions around the molars 4 x 2 cm and 4 x 4 cm with the character of Wickham's mesh. In the central part of the lesion on the right side a erosion was found.

Additional tests were performed at the same visit. Using a Velscope device using violet light at a wavelength of 400-480 nm, tissue fluorescence was examined. Changes in this study were visible as dark areas indicating the possibility of dysplasia.

The changes were then stained with 1% toluidine blue solution. On the right, the staining result was positive. Then a clipping for histopathological examination was taken from the central lesion area on the right side. In this study, a multilamellar flat epithelium with features of high-grade dysplasia (pre-invasive carcinoma) was found. After reviewing the results, it was decided to refer the patient to the maxillo-facial surgery department for further treatment.

Conclusion

Although there are doubts about the potential for malignancy changes in the mouth in the course of lichen planus, careful observation of patients with this unit is indicated disease. He has cancerous changes the impact of many factors whose presence can be detected thanks to meticulous physical and subjective examination. Careful monitoring of patients allows detection tumor outbreaks at an early stage, what – how can be seen from the example of the patient presented in this work - is extremely important due to the possibility of very much rapid transformation of changes since their occurrence accession.

Analysis of biological treatment influence on body mass changes in psoriatic patients.

Anna Kisielnicka, Marta Walikowska

Medical University of Gdańsk

Presenting author: Anna Kisielnicka
e-mail: a.kisielnicka@gumed.edu.pl
Tutors: Aneta Szczerkowska - Dobosz, dr n. med. Monika Konczalska

Introduction

Biologic treatment is considered as a new era of therapy strategies in modern-day medicine. It plays a major role in treatment of mild to severe psoriasis vulgaris by using selective inhibition of its molecular patomechanisms: tumor necrosis factor-alpha inhibitors (anti-TNFa) and interleukin 12, 23 inhibitors (anti-IL-12/23). Yet, the long-term effects of such therapeutic intervention are still not well recognized. On the other hand, many studies described significant positive correlation between clinical manifestation of the disease and body mass.

Aimof study

The aim of the study was primarily to evaluate the influence of the specific biological treatment in psoriatic patients on their body mass index (BMI) changes throughout the treatment process.

Material and methods

We analysed medical records of 41 patients with psoriasis vulgaris of Clinic of Dermatology, Venereology and Allergology of Medical University of Gdańsk qualified for and treated under national therapeutic programme in years 2013-2017. The study involved two groups: 18 patients receiving anti-IL12/23 drug (ustekinumab) and 23 patients receiving anti-TNFa drugs (infliximab, adalimumab, golimumab). Clinical parameters values such as BMI, Psoriasis Area Serenity Index (PASI) and Dermatology Quality of Life Index (DLQI) were compared before and after each cycle of drug administration in each group respectively.

Results

Almost 60% of patients in general had abnormal BMI level at the start point. Analysis of body mass changes showed a prevalence of BMI increase in anti-TNFa group (40,7% of patients) in comparison to no change (25,9%) effects. On the other hand, anti-IL12/23 group showed higher incidence of constant BMI value (44,1% of patients) in comparison to increase (26,5%) effects.

Conclusion

To conclude, specific biological treatment may have the influence on patients' body mass with dominating weight increase effect for anti-TNFa drugs and constant weight level for anti-Il-22/23 drug. It could affect the efficacy of the therapy and patients' quality of life, since patients with decrease or constant BMI level seem to reach better PASI and DLQI outcomes after treatment. Such observations should be taken into consideration in long-term perspective treatment and result in weight control of psoriatic patients.

What features predispose to fungal infections? – Retrospective analysis

Paulina Dłużniewska, Magdalena Pałdyna, Marta Lewoc, Julia Nowowiejska

Medical University of Bialystok

Presenting author: Paulina Dłużniewska
e-mail: paulina.dluzniewska29@gmail.com
Tutors: Anna Baran, Prof. Iwona Flisiak, MD, PhD

Introduction

Cutaneous fungal infections are among the most common diseases of mankind. It affects from 10 to 40% of global population. Tinea cutis is the most popular one just after onychomycosis. The causative agents are dermatophytes including *Trichophyton, Epidermophyton* and *Microsporum;* imperfect fungi with the most common *Candida* and moulds. Ambulatory treatment is usually beneficial nevertheless some patients remain undiagnosed for a long time and require hospitalization.

Aim of the study

The aim of the study was a retrospective analysis of medical records of patients with fungal infections.

Material and methods

We retrospectively analyzed patients hospitalized with fungal infections in the Department of Dermatology and Venereology in Bialystok in the years 2006-2015. Gender and age of patients, type of tinea, clinical course of the disease, comorbidities and used treatment were taken into account.

Results

In the years 2006-2015 141 adult patients with fungal infections were hospitalized, 79 of them had tinea cutis. The patients was admitted to the hospital after more than 6 months from the appearance of the first changes. In the analyzed group there were 48 female and 31 male. The age of patients ranged from 18 to 83 years, average 56 years. Onychomycosis coexist in 37 patients (46,8%), tinea capitis in 8 patients (10,1%), tinea barbae in 3 patients (3,8%). Material for culture was taken from 73,4% of patients. Most common fungal growth from skin were Candida albicans (59,2%), Trichophyton species (46,9%) and Aspergillus species (22,4%). Almost 20% of patients was infected with more than one species. In 18 cases (22,8%) the source of infection was identified usually farmed animals, pets or family member. We observed association between fungal infection and increased Body Mass Index (observed in 64,6%), hypertension (43,0%) and impaired glucose metabolism (31,6%). Most common coexisting dermatosis was psoriasis observed in 9 patients (11,4%). In the treatment both topical and systemic antifungals was used.

Conclusion

The analysis confirmed increased incidence of fungal infections in patients with obesity and impaired glucose metabolism. It can be assumed that many infections are preventable by limiting contact with infected animals or family members, early diagnosis and treatment.

Scabies – an ongoing problem. A retrospective analysis of patients.

Magdalena Olszyńska, Julia Nowowiejska, Paulina Dłużniewska, Monika Król

Medical University of Bialystok

Presenting author: Magdalena Olszyńska
e-mail: magdalena.olszynska1@gmail.com
Tutors: Anna Baran, Prof. Iwona Flisiak MD, PhD

Introduction

Scabies is a common parasitic skin disease caused by the mite Sarcoptes scabiei. About 300 million cases worldwide each year in people of all agesare reported.

Aim of study

Retrospective analysis of medical records of patients with scabies.

Material and methods

Six-year retrospective analysis of patients hospitalized with scabies at the Department of Dermatology was conducted. Gender, age of patients, comorbidities, clinical course of the disease and treatment were considered.

Results

In this period 193 patients were hospitalized with scabies, 96 females (49.7%) and 97 males (50.3%), including 33 children (17%). The age of patients ranged from 2 to 87 years old, 52.9 in average. Children were of similar gender, with average age 8.43 years old. Skin lesions persisted from one day to 5 years, average 142 days, reoccurrence was noted in 14% of cases. The lesions were observed most often during winter (31%) and spring (30%). The most common skin manifestations were erosions (80.8%), excoriations (73.6%), papules (72.6%), crusts (24.3%) and erythematous-papular (14%). Lesions were localized mainly on the trunk (92%), lower (91%) and upper (86%) limbs, or both in 80%. 181 patients (93.8%) reported pruritus, which was intensifying at night in 69 (35.8%) subjects. Previous contact with people affected with scabies was reported by 41 patients (21%). The most common comorbidity was hypertension (27%), diabetes mellitus (13%) and coronary heart disease (10.3%).Accompanying dermatoses were eczema (11%), secondary bacterial superinfectionand psoriasis (equally 7%). 85 patients (44%) were overweight or obese. In 34% cases eosinophilia was noted. Most patients were treated topically with permethrin (57%) and crotamiton (29%), subsequently with topical glicocorticosteroids (73%), antibiotics (11%) and oral antihistamines (91%).

Conclusion

The analysis revealed more frequent occurrence in adults with no evident sex prevalence. Greater incidence in winter may be a result of people's tendency to spend more time indoors and closer to each other at this time of year. Pruritus is the most common subjective symptom that typically worsens at night. The analysis showed a relationship of scabies with excessive body weight and metabolic disorders.

"My skin" - a study of the emotional- cognitive representation of skin among people who have tattoos

Karolina Wrzosek, Patrycja Rogowska

Medical University of Gdańsk

Presenting author: Karolina Wrzosek
e-mail: karolinaawrzosek@gmail.com
Tutors: Aneta Szczerkowska-Dobosz, Monika Konczalska

Introduction

Skin plays a significant role in many physiological functions, while also having an impact on psychological aspects of our lives. Tattooing is a popular form of body modification and can be perceived as a way of expressing one's identity or emphasize uniqueness and belonging to various social groups.

Aim of study

Evaluation of cognitive-emotional representations of the skin and its correlations with general self-esteem and degree of self concept clarity. Assessment of whether tattooed people show greater satisfaction with the condition of their skin as well as a higher awareness of its functions (physiological, socio-psychological, health) than people without tattoos.

Material and methods

The study was attended by a group of 488 women and 51 men, ages 18 to over 35. Most of the respondents confirmed having between 2 and 5 tattoos (38.6%), 17.6% declared that they had one tattoo, and 10.4% confirmed having more than 5 tattoos.

The study was conducted using an online survey. Apart from demographic questions the respondents filled in the General Self-Assessment Scale Rosenberg (SES), Clarity Scales by Ja J.Campbell (1996) and the questionnaire Moja Skóra by M. Kossakowska and M. Cieścińska, 2016.

Results

The higher the general self-esteem and the clarity of the subjects, the higher the level of acceptance of their own skin and greater awareness of its importance. People with the largest number of tattoos showed the greatest satisfaction with the condition of their skin. By comparing the average values in the functions of the skin, it can be concluded that people with tattoos were significantly different from those without tattoos only in psychological and social functions. The highest psychological and social awareness of the skin function is possessed by people with the highest number of tattoos.

Conclusion

Satisfaction with the condition of the skin is positively associated with the overall self-esteem and self concept clarity in all groups. People who have tattoos show greater focus on the condition of the skin and greater satisfaction with its condition. They also have greater awareness of the psychological and social functions of the skin. Nevertheless, people with tattoos do not show greater awareness of the physiological and health aspects of the skin, which would be desirable in a group of people undergoing high-risk treatments.

Prevalence of Psoriasis among patients suffering from Obstructive Sleep Apnea

Agata Gabryelska, Marcin Sochal, Bartosz Wasik

Medical University of Lodz

Presenting author: Agata Gabryelska
e-mail: agata.gabryelska@gmail.com
Tutors: Piotr Białasiewicz,

Introduction

Obstructive sleep apnea (OSA) is characterized by recurrent episodes of apneas during sleep, leading to intermittent hypoxemia. Psoriasis is a chronic inflammatory skin condition, characterized by round, erythematous, dry and scaling patches, accompanied by pain and itching. Both OSA and psoriasis are associated with systemic inflammation and activation of inflammatory pathways mediated by OSA may predispose at-risk individuals to the development of psoriasis.

Aim of study

The aim of the study was to determine the prevalence of psoriasis among OSA patients.

Materials and methods:

This observational study included 245 consecutive patients who underwent a standard night polysomnography at Department of Sleep Medicine and Metabolic Disorders and in whom OSA was diagnosed (apnea-hypopnea index > 5 events/h). The diagnosis of psoriasis was based on patients' history or the presence of the typical enanthem.

Results:

Out of 245 patients included in the study we identified 21 who suffered from psoriasis (8.7%). Psoriasis versus no-psoriasis groups were similar regarding age (55.4 ± 11.5 versus 56.8 ± 7.5 years; p = 0.586), sex (M:F ratio 184:40 versus 18:3; p = 0.682), body mass index (32.8 ± 5.5 versus 34.2 ± 8.1 kg/m^2; p = 0.308), and apnea-hypopnea index (37.0, 19.5–56.3 versus 35.5, 20.8–59.8; p = 0.831). The prevalence of psoriasis among patients with OSA in the investigated group was 8.7% compared to a reported prevalence of 2%. Thus, the difference in prevalence of psoriasis in patients with OSA and the general population was 6.7% (95% confidence interval, 3.0% to 10.1%).

Conclusion:

The study has shown that patients suffering from OSA are more likely to be diagnosed form psoriasis than general population as prevalence of psoriasis in OSA patients is 4 times higher than in general population. Therefore, it is important to to investigate factors that may increase the risk of psoriasis in patients with OSA (eg, sleep loss leading to exacerbation of psoriasis through immune system modulation).

Nickel-free environment- Dreams vs. Reality

Anna Łańczak, Aneta Choręziak, Julia Pietz-Muszkieta, Maria Płocka, Dominik Kobylarek

Poznan University of Medical Scientist

Presenting author: Anna Łańczak
e-mail: anna.lanczak@gmail.com
Tutors: Dorota Jenerowicz,

Introduction

The frequent occurrence of elevated nickel levels in everyday items explains why allergic contact dermatitis to nickel is the most common in general population. 10% of patients suffering from contact dermatitis are allergic to nickel. Allergy is manifested by an itchy rash appearing a few hours after skin contact with the allergen, so it's essential to avoid skin contact with nickel-containing metals.

Aim of study

The aim of the study was to assess whether patients sensitized to nickel were able to eliminate metal objects containing nickel from their environment. Furthermore, to determine objects of everyday use with a high concentration of nickel to help patients in removing sources of sensitization. We also wanted to learn patients methods of avoiding skin exposure and allergic reactions to nickel-containing items.

Material and methods

A group of 19 female patients sensitized to nickel on the basis of patch testing was analyzed during a 1,5-year-long period in Poznan. An examination of each patient consisted of general interview and questionnaire. A total of 213 metal items including jewelry, clothing accessories and other objects of everyday use were tested with the Chemo Nickel Test to assess nickel release.

Results

An excessive nickel release was detected in 32,3% of the tested items, relatively in 13.6% of jewelry, 40.9% of clothing accessories, 63.3% of wallets and bags, 69.7% of keys and none of kitchen tools and accessories.

Only 57% of sensitized patients reported trying to eliminate some metal items from everyday use. The rest of the group found it either impossible or plan to remove metal items in future.

84.2% of patients had their ear lobes pierced, 78.9% of patients were also affected by other allergies.

Conclusion

The results of our preliminary study confirm that patients allergic to nickel are exposed to high concentration of this hapten in various items, common in their work environment and everyday life. A significant part of metal items is impossible to be eliminated or replaced. Despite the implementation of the EU Nickel Directive in 2004 in Poland, nickel release from metal accessories remains high.

Assessment of the degree of disease acceptance and quality of life in patients with psoriasis.

Sara Świerczyńska

Collegium Medicum UMK in Bydgoszcz

Presenting author: Sara Świerczyńska
e-mail: sara.swierczynska@op.pl
Tutors: Marek Jankowski,

Introduction

Psoriasis belongs to skin diseases, which both personal and social reception is often strongly negative. For the proper functioning of every patient with psoriasis, it seems to be important to accept his own medical condition. Currently, scales are being used to assess the impact of psoriasis on the quality of life of patients. It is believed that the overall quality of life is the better, the greater the acceptance of the disease by patients.

Aim of study

The aim of the study was to assess the relationship between the quality of life of patients suffering from psoriasis (using DLQI scale) and the acceptance of the disease (using AIS scale). In addition, patients were evaluated in both tests relative to the duration of their disease.

Materials and methods

For the purpose of the study, a questionnaire was prepared, which was placed on Internet groups associating patients with psoriasis. The questionnaire used questions from AIS and DLQI tests, assessing the degree of disease acceptance and the quality of life. As an addition, the questions from the PSS-10 test were included in order to assess the vulnerability to stress among the respondents. The number of 261 responses were obtained. The average age of the respondents was 40.5 (± 13.5). Patients were divided into 4 groups depending on the duration of the disease: <3 years, 3-9 years, 9-15 years and >15 years.

Results

The mean point score in the AIS test was 24 (±9), which indicates a general average level of acceptance of the disease. The average score in the DLQI test was 14 (±8), which indicates a significantly reduced quality of life. Among people with normal or slightly reduced quality of life, according to DLQI, a good level of disease acceptance was prevailing (n=35) - 71.4%. The lack of acceptance of the disease was indicated only by 10.2% (n=5) of the respondents in the above group, and the average level of acceptance of the disease concerned 18.4% (n=9). In the group of patients with severely reduced or decreased quality of life, according to DLQI, 46.0% of respondents indicated both the lack of acceptance and the average level of acceptance of the disease. A good level of disease acceptance in this group was reported only by 8.0% of respondents (n=12). Depending on the duration of the disease, in the DLQI the best results were achieved by people suffering >15 years, and the worst by those suffering from 3-9 years. In the AIS scale, the best results were achieved by people suffering >15 years and the worst by those who have been ill from 9-15 years. The average PSS-10 test score was 23 points.

Conclusion

Psoriasis is a disease affecting the entire life of patients. Many people find it difficult to come to terms with the presence of the disease, which often results in a lack of acceptance of the disease and a severely reduced quality of life. With age, patients gain a distance to the disease, but most of them are never completely reconciled to it.

Why do they come back? A retrospective analysis of 2013-2016 syphilis patients medical history at Department of Dermatology, Venerology and Allergology Medical University of Gdańsk.

Adrian Wiśniewski, Anna Barczykowska, Mateusz Grzybicki

Medical University of Gdańsk

Presenting author: Adrian Wiśniewski
e-mail: adrian.wisniewski@gumed.edu.pl
Tutors: Aneta Szczerkowska-Dobosz , Dr Monika Konczalska

Introduction

Syphilis is not infrequently considered a disease from the past but its prevalence is still very high in certain populations.

Aim of study

The aim of this study was a retrospective analysis of the diagnostic process of patients with syphilis treated in our clinic.

Materials and methods

Our analysis focused on cases of syphilis that have been hospitalized in Department of Dermatology, Venerology and Allergology at Medical University of Gdańsk in 2013-2016. Gathered material concerned 84 patients hospitalized in a given timeframe.

Results

85% of hospitalized syphilis patients were men and 15% were women. Average age of the patient was 32 years. In 20% of the cases the referral to dermatology ward was written by doctors of specialties other than dermatology. The cause of referral were: in 36% syphilis of skin and mucosa, in 13% secondary syphilis and in 11% latent syphilis. 40% of the patients have been hospitalized due to syphilis more than once.

Conclusion

Education of doctors of specialties other than dermatology plays an important role in the diagnostic process and should be reinforced, knowledge of early symptoms of syphilis included. Provision of education for patients hospitalized due to syphilis is crucial as well.

Majocci's Granuloma- unintended consequence of epilation

Anna Łańczak

Poznan University of Medical Scientist

Presenting author: Anna Łańczak
e-mail: anna.lanczak@gmail.com
Tutors: Małgorzata Mazur,, PhD Honorata Kubisiak-Rzepczyk MD, Prof. PhD Zygmunt Adamski MD

Introduction

Majocchi's granuloma is a folliculitis caused by a dermatophytes, which is most commonly located on the skin of the lower limbs in woman. A favorable factor for the infection is an injury caused by epilation, which, together with an existing fungal infection, can lead to spread of folliculitis to other parts of the body. The disease is extremely rare.

Case report

A 21-year-old guinea pig owner is observed to have pustules and papules on the lower legs, especially in area of hair folliculitis. A few days earlier she had performed mechanical depilation of this area. After a few days, the borders of the lesion appeared more intense redness and slight exfoliation of the epidermis. Over time, the changes began to take on the nature of infiltrative inflammatory outbreaks, reminiscent of boils. The lesion of lower legs were accompanied by the appearance of 1-2 cm erythematous lesions with slight exfoliation on the skin of abdomen. The patient had no history of allergies of dermatitis. When the changes first appeared, the patient consulted a dermatologist, who prescribed a topical glucocorticosteroids preparation in combination with antibacterial agents. The lesion improved with use, but as soon as medications were discontinued the lesion returned with greater severity. The patient was referred to Department of Dermatology, Poznan University of Medical Scientist. In addition, the patient's sister was observed to have erythematous and exfoliative lesion on the right elbow, resembling psoriatic changes. Histology and culture results were pending. Due to the patient owning a guinea pig, it was recommended that the animal be taken for veterinary observation. The guinea pig shown no signs of infection, however samples taken from animal's fur yielded a fungal organism, which aided in the patient's final diagnosis. Preliminary scrapings from the skin changes showed mycelium on direct microscopy. *Trichophyton mentagrophytes varietas granulosum* was identified as the causative organism. Systemic terbinafine was prescribed and was well tolerated by the patient. Family members who presented with skin changes were prescribed topical antifungal treatment only. After 4 weeks of treatment, a dermatologic improvement was observed in the patient. A mycological control was recommended and results were negative.

Conclusion

The diagnosis of Majocci's granuloma is possible after conducting a thorough dermatological examination, including a detailed interview, physical and mycological evaluation. It is imperative to keep it as potential differential diagnosis, especially since more immunosuppressive agents are being used as treatment preferences in the general populations.

The frequency of contact sensitization to selected plant ingredients in patients with dermatitis, and the comparative analysis of the prevalence of these ingredients in products available at the chemist's and drugstore

Aleksandra Wnuk-Kłosińska, Ewelina Bielanowska

Poznan University of Medical Science

Presenting author: Aleksandra Wnuk-Kłosińska
e-mail: aleksandrawnuk3@gmail.com
Tutors: Dorota Jenerowicz,

Introduction

The contact allergy reaction is a form of the acquired delayed hypersensitivity. Ingredients of beauty and sanitary products are one of the most common causes of this condition. In recent years, there has been an increased spread of the plant ingredients. Their popularity may result from the widespread belief that natural ingredients are less harmful than chemically synthesized ones.

Aim of study

The aims of the projects were to assess frequency of the contact sensitization to the selected plant ingredients in patients with eczema, and to run a comparative analysis of the spread of these ingredients in beauty and sanitary products available at the chemist's and drugstore.

Material and methods

We conducted a study with the participation of the experimental group (n=181, F=120, M=61, average age= 48) and the control group (n=42, F=32, M=10, average age=42). The European Standard Allergens Set was used to conduct the patch test. Additionally, the patch test was conducted for plant allergens such as *Oleum olivae, Arnica montana, Menthae piperitae aetheroleum, Taraxacum officinale, Matricaria chamomilla, Melaleuca alternifolia*. The interpretation of results was carried out in accordance with ICDRG guidelines. 2891 beauty and sanitary products from 13 categories were analyzed. All the products were available on market in February 2018 in one of the biggest drugstores and chemists on the Polish market. The products were analyzed for the presence of the aforementioned plant ingredients.

Results

There were no positive reactions on plant allergens in patients in the experimental group and the control group. Among the analyzed products available at the drugstore, the most common plant ingredient was chamomile (6,16%) and at the chemist's olive oil (6,58%). The least common plant ingredient was common dandelion (0%). Chamomile was most frequently used in child care products (14,17%), shaving products (13,79%) and aftershaves (12,99%).

Conclusion

Many beauty and sanitary products contain plant ingredients. It seems that they do not cause positive reactions and do not aggravate the symptoms in patients with contact dermatitis despite the wide prevalence and probable allergic potential of these products.

ENDOCRINOLOGY & DIABETOLOGY

COORDINATORS
Julia Kaliska
Adrianna Owczarek

JURY
Maciej Hilczer, MD PhD
Marcin Kosmalski, MD
Professor Jolanta Słowikowska- Hilczer, MD, PhD

Higher-normal TSH in women of reproductive age is associated with less favourable lipid profile and higher prevalence of positive thyroid antibodies – retrospective study.

Anna Żurawska

Medical University of Lodz
Presenting author: Anna Żurawska
e-mail: anzurawska@gmail.com
Tutors: Prof. Małgorzata Karbownik-Lewińska

Introduction

Broad reference ranges of thyroid tests are established for general population. It is known, however, that they depend on age, gender, race and ethnicity. According to current recommendations, a TSH level of <2.5 mIU/l should be maintained during preconception and pregnancy. Despite studies which have proven unfavourable effects of higher-normal TSH concentrations in younger subjects, this recommendation does not relate to all women of reproductive age.

Aim of study

To evaluate relationship between thyroid tests and blood laboratory parameters (complete blood count, lipid profile, vitamin D, glucose, insulin resistance index, iron, C-reactive protein) as well as anthropometric parameters in women of reproductive age.

Materials and methods

Retrospective analysis was performed in 466 inpatients, aged 13-51, hospitalised for suspicion of different endocrine diseases, thyroid dysfunction included, in the Department of Endocrinology and Metabolic Diseases, Medical University of Lodz, Poland. Thyroid tests, i.e. TSH, FT3 and FT4, and thyroid antibodies, i.e. antithyroperoxidase antibodies (TPOAb), antithyroglobulin antibodies (TgAb), and anti-TSH receptor antibodies (TSHRAb) were evaluated in all inpatients. The group of 280 patients with normal thyroid tests (TSH 0.27-4.2 mIU/l; FT3 and FT4 in reference ranges) was selected and it was divided into two subgroups, i.e. with TSH <2.5 mIU/l and TSH ≥2.5 mIU/l.

Results

In the whole group of 466 inpatients, comprising patients with thyroid dysfunction, TSH concentration correlated positively with total cholesterol, LDL cholesterol and triglyceride concentration. Consistently, in a group of 280 patients with normal thyroid tests, increased triglyceride concentration and abnormal HDLC/cholesterol ratio occurred more frequently in subjects with TSH ≥2.5 mIU/l, and this difference remains statistically significant after excluding 40 patients on L-thyroxine treatment. In the whole group of 466 inpatients, as well as in a group of 280 patients with normal thyroid tests, TSH concentration correlated positively with aTPO antibodies. Additionally, after excluding 40 patients on L-thyroxine treatment, positive TPOAb also occurred more frequently in patients with TSH ≥2.5 mIU/l.

Conclusion

In women of reproductive age with normal thyroid tests, TSH ≥2.5 mIU/l is associated with less favourable lipid profile and with more frequent occurrence of positive thyroid antibodies. The results support our standpoint that replacement therapy with L-thyroxine should be strongly considered in women of reproductive age with higher-normal TSH. Further studies should be performed to find additional benefits from adjusting TSH to the lower end of normal range in women of reproductive age.

Expression of ZnT8 transporter in thyroid tissues from patients with immune and non-immune thyroid diseases.

Patrycja Podgórska, Marta Rydzewska, Izabela Elżbieta Pasierowska, Aleksandra Góralczyk

Medical University of Białystok

Presenting author: Patrycja Podgórska
e-mail: p-podgorska@wp.pl
Tutors: Artur Bossowski, Wiesława Niklińska, MD, PhD,

Introduction

Zinc homeostasis is regulated by ZnT and Zip zinc transporters. Zinc transporter 8 (ZnT8)is localized in insulin containing secretory granule membrane and transports zinc from the cytosol into the vesicles. ZnT8 was identified on peripheral lymphocytes, in subcutaneous adipose tissue, in a pancreatic β-cells and extra-pancreatic endocrine glands including pituitary, adrenal and thyroid.Autoantibodies to the ZnT8 are detected in the majority of type 1 diabetes patients. A few recent studies showedthat ZnT8 Ab mayoccur in patients with autoimmune thyroid diseases. There is lack of data about expression of ZnT8 transporter in human thyroid tissues.

Aim of study

Aim of the study was to compare the expression of ZnT8 transporter in thyroid tissues from patients with immune and non-immune thyroid diseases.

Material and methods

The study was performed in thyroid tissues after thyroidectomy from patients with thyroid nodular goiter (n=17, mean age 17.8 years ± 4) and cases with Graves' disease (n=20, mean age15.6 years ± 2.8). The ZnT8 expression protein was evaluated using immunohistochemistry. The specimens were paraffin embedded tissues, derived from the pediatric patients, who had thyroid nodular goiter or GD. The antibody against ZnT8 was goat polyclonal antibody (Santa Cruz Biotechnology USA; sc-98243). The antigen was retrieval was done using high pH (PTLink DAKO) and antibody was incubated in 4°C overnight in 1:50 dilution. The patients with pancreatitis were as positive controls.The intensity and the proportion of stained cells were determined by examining the entire slide and section as: + (low staining intensity in less than 10% cells in the section); ++ (moderate staining intensity in 10-40% cells in the section); +++ (high and diffuse staining intensity in more than 50% cells in the section).

Results

The staining intensity of examined cells in thyroid tissues from patients with: thyroid nodular goiter ++; C cells hyperplasia ++; GD +++. The positive control (patients with pancreatitis) +++.

Conclusions

Expression of ZnT8 transporter was identified in the thyroid tissues from paediatric patients with Graves' disease and nontoxic nodular goiter and was found both in thyroid follicular cells and C cells. Predominant expression of ZnT8 in immune than in non-immune thyroid disorders may suggest potential role of ZnT8 as a new thyroid autoantigen but it requires further study on a larger cohort.

Selected metabolic disorders and their impact on the occurrence of acne in women

Patrycja Radosz, Marcin Setlak, Mateusz Klimek, Małgorzata Sateja

Medical University of Silesia in Katowice

Presenting author: Patrycja Radosz
e-mail: patrycja_radosz1@wp.pl
Tutors: Karolina Kowalczyk,

Introduction:

Acne is a cardinal component of many systemic diseases and syndromes, such as polycystic ovary syndrome (PCOS).

Aim of study

Evaluation of the associations between insulin resistance, hiperinsulinemia and acne in women without hiperandrogenemia and other hormonal disorders, as well as in women with PCOS with and without acne.

Materials and methods

Our retrospective research included 1100 women aged 18-35, BMI 18,5-25 kg/m2, who were admitted to the Gynaecological-Endocrinology Unit between 2014 -2017. We divided them into 4 groups: A- 360 controls (healthy women without acne), B- 39 women with acne without hiperandrogenemia and other hormonal disorders, C- 177 women with PCOS with acne and D- 534 women with PCOS without acne. Levels of glucose 0', insulin in 0', 30', 60', 120' of glucose tolerance test, HOMA-IR, QUICKI, glucose/insulin index and other laboratory tests were analyzed. Acne Global Severity Scale was used to assess the grading of acne. Statistical analysis was performed using Statistica 12.0.

Results

In the study, we observed statistically significant difference in the insulin 30' level between controls and women with acne without hormonal disorders (p=0,0009). Similar differences were noted in insulin 30' and 120' level between control group and PCOS women with acne (p‹0,005). Additionally, PCOS with acne group differed statistically significant from the PCOS without acne group in terms of insulin 120' level (p=0,0012).

Conclusion

Our study showed that hiperinsulinemia is associated with the higher frequency of acne in women without hormonal disorders, as well as in women with PCOS. Dietary counseling may be beneficial in these groups of patients.

Temporal dynamics of serum let-7g expression mirror the decline of residual beta-cell function in longitudinal observation of children with type 1 diabetes

Zuzanna Nowicka, Beata Małachowska

Medical University of Lodz

Presenting author: Zuzanna Nowicka
e-mail: zuzanna.nowicka@stud.umed.lodz.pl
Tutors: Wojciech Fendler,

Introduction

A gradual decline in pancreatic beta cell function, characteristic of type 1 Diabetes Mellitus (T1DM), results in insufficient insulin production with consequent hyperglycemia. Some patients transiently regain beta cell activity following the introduction of exogenous insulin. Since the so-called remission period is not experienced by all patients, and the rate of decline in beta cell function varies between individuals, insight into T1DM-associated pathologic process would be highly desirable.

microRNAs are small non-coding RNAs involved in epigenetic gene expression control. Emerging evidence suggests that miRNAs could reflect underlying pathology in T1DM, serving as stable biomarkers and providing insight into mechanism of beta cell destruction.

Aim of study

To identify microRNAs with serum expression pattern that reflects residual beta cell function and ongoing autoimmunity in T1DM.

Material and methods

The experimental setup was designed to identify microRNAs linked with hyperglycemia with or without autoimmunity. Two separate study groups were used in the study. Profiling group comprised 13 GCK-MODY patients, 9 T1DM patients and 10 healthy controls. The longitudinal group included 34 patients with samples collected at diagnosis of T1DM and 1st, 3rd and 4-8th year following diagnosis. We analyzed data from the profiling group to identify microRNAs differentially expressed between patients with T1DM, other types of diabetes and controls. Subsequent literature review yielded additional microRNAs with altered expression profile previously reported in T1DM patients. We performed quantitative real-time PCR in all samples to quantify the expression of selected microRNAs, levels of anti-islet antibodies (ICA, GADA, IA2A, ZnT8A) and C-peptide concentrations across the 4 timepoints in the longitudinal group.

Results

miR-24 and let-7g serum expression differed significantly between GCK-MODY, controls and HbA1c-matched T1DM patients; $p<0.05$, $FDR<0.05$. Autoantibodies levels showed decreasing linear trend in repeated timepoints (all $p<0.0001$). C-peptide concentration peaked during the 1st year after diagnosis, corresponding to remission phase, and declined in consecutive measurements. Let-7g expression levels followed a temporally variable pattern ($p=0.0207$). Let-7g dynamics were closer to C-peptide non-linear dynamics ($p=0.0058$) than to linear decline of antibodies levels ($p=0.0482$).

Conclusion

let-7g serum expression pattern reflects beta cell function, suggesting the role of this microRNA in T1DM pathogenesis and a new potential indicator of residual beta cell mass.

Merits and faults of FreeStyle Libre flash glucose monitoring system real-life use in children with type 1 diabetes

Karolina Stos, Daria Marcinkowska

Medical University of Lodz

Presenting author: Karolina Stos
e-mail: karolina.maria.stos@gmail.com
Tutors: Beata Mianowska,

Introduction

FreeStyle Libre (FSL) (Abbott Diabetes Care Ltd., Oxon, UK) is a glucose monitoring system, composed of a sensor and a reader, measuring glucose levels in the interstitial fluid without need of pricking fingers. It is intended to support self-monitoring of blood glucose (SMBG) in diabetes patients aged 4 years or more.

Aim of the study

The primary objective of the study is to investigate FSL influence on activities related to diabetes self-control of T1D children and their caregivers. Secondary objectives are to compare patients' glycemic control before and after introduction of FSL and to assess associations (i) between FSL measurements and blood glucose (BG) levels measured with blood glucose meters and (ii) between measurements recorded by FSL and HbA1c levels.

Materials and methods

Children with T1D aged 4-18 years who have used 3 or more FSL sensors over any 3 months' period during the last 12 months are included. The study is composed of a questionnaire survey (filled in by patients' caregivers) and a clinical data analysis. Questions are grouped into three categories: FSL and decisions related to diabetes management, advantages and disadvantages of FSL, FSL and users' quality of life. Clinical data (anthropometric parameters, BG levels, FSL results, insulin therapy characteristics) will be collected from patients medical documentation. The planned study group is N=60. The study protocol was approved by the local Ethics Committee. Statistical analysis will be performed to compare the analysed parameters.

Results

Seventeen participants were surveyed so far, 7 girls and 10 boys, aged 5,3-15,0 years (median 9,6 yr), with diabetes duration 0,3-7,5 yr (median 2,4 yr) and duration of FGM use 0,3-1,9 yr (median 1,1 yr). Before introduction of the FSL >10 BG measurements per day (BGM) were performed in 10/17 (58,8%), 7-9 BGM in 6/17 (35,2%), 5-6 BGM in 1/17 (5,8%), <2 BGM in 0/17 patients. When using FSL the numbers were respectively: >10 BGM 2/17 (11,7%), 7-9 BGM 3/17 (17,6%), 5-6 BGM 6/17 (35,2%, 1-2 BGM 3/17 (17,6%), <1 BGM 3/17 (17,6%). FSL was useful during sleep in 17/17 (100%), during physical activity in 14/17 (82,3%), to prevent hypo/hyperglycemia in 14/17 (82,3%) and for glycemic measurements outside the home in 17/17 (100%) patients. Skin lesions after sensor attachment occurred in 3 patients (17,6%). All caregivers declared that children's quality of life improved while using FSL. Ten of 17 (58,8%) interviewees declared the device is worth its price. Sixteen (94%) parents would recommend the FSL to other people.

Conclusion

This preliminary data suggest that FSL reduces the number of BG measurements in children with DM1 and improves their declared quality of life. FSL seems to be particularly useful during the night and outside the house. Frequency and characteristics of skin lesions related to FSL need further elucidation. Complete statistical analysis will be performed after closing the recruitment of participants.

Awareness of Gestational Diabetes Mellitus (GDM) among pregnant from Upper Silesia

Hanna Jarolim, Klaudia Kulnianin, Iga Florczyk, Maciej Gaździk, Mateusz Porwolik

Medical University of Silesia

Presenting author: Hanna Jarolim
e-mail: hjarolim@onet.pl
Tutors: Katarzyna Nabrdalik, Hanna Kwiendacz

Introduction

Gestational Diabetes Mellitus is a problem which concern about 3-10% of pregnant women. The awareness of the disease is quite poor among patients although GDM may affect the mother as well as her unborn child. It is recommended to perform blood glucose test to each pregnant women yet still a lot of them do not understand the purpose of this laboratory examination.

Aim of study

The aim of our study was to assess the awareness of Gestational Diabetes Mellitus among women after delivery.

Material and methods

99 women hospitalized in the obstetrician ward in Tarnowskie Góry (Poland) after the delivery participated in the research. They were surveyed with the Gestational Diabetes Mellitus Knowledge Questionnaire (GDMKQ, Hussain Z et al.) and also their anthropometric data and medical history were collected. All data was analyzed in Statistica 12.5 programme.

Results

Mean age of women participating in our research was 33,04± 4,79. Their mean declared BMI before pregnancy was 23.31± 4,73. Only one of them suffered from GDM, however 88 of them presented at least one risk factor for this illness. Average score of GDMQK was 10±3,76/15points (66,66%). Women had the best knowledge in the category of basic information about GDM. Questions about risk factors turned out to be the most difficult ones. Woman with higher education gained significantly more points than woman who finished primary school ($p<0.05$, ANOVA Kruskal-Wallis Test).

Conclusions

It seems significant to increase the knowledge about GDM as the number of patients with different types of diabetes increases worldwide. It is important to aware also women with normal glucose tolerance during pregnancy as this disease may occur in the future, especially among the ones with risk factors for it.

Assessing of Gestational Diabetes Mellitus (GDM) prophylaxis.

Klaudia Kulnianin, Iga Florczyk, Hanna Jarolim, Maciej Gaździk, Mateusz Porwolik

Medical University of Silesia

Presenting author: Klaudia Kulnianin
e-mail: klaudia-1001@o2.pl
Tutors: Katarzyna Nabrdalik, Hanna Kwiendacz

Introduction

Gestational diabetes mellitus (GDM) is defined as any degree of glucose intolerance with onset during pregnancy and it concerns 3-10% of pregnancies. Women with risk factors should have Oral Glucose Tolerance Test (OGTT) immediately after their first visit at obstetrician.

Aim of study

The aim of our study was to check if pregnant women perform the oral glucose tolerance test (OGTT) at the adequate time during their gynecological visits.

Materials and methods

The study was conducted at the obstetrician ward in the hospital in Tarnowskie Góry (Poland). 132 women after the delivery took part in the research. They were asked to fill the questionnaire which includes questions about medical history and anthropometric data as well. Collected data were analysed in Statistica 12.5 programme.

Results

Of 124 women in mean age 33.2± 4.8 years, mean declared BMI before pregnancy was 23.4± 4,5. According to international and Polish guidelines risk's factors were: being overweight or obese (24%), having first-degree relative with diabetes (13%), hypertension (6%), history of intrauterine deaths (20%) and being older than 35 years at the time of pregnancy (40%). Women presenting risk factors for GDM had the OGTT performed in mean 19.1±5.9 weeks after the first prenatal visit. Mean gestational week for the OGTT for women with risk factors for GDM was 24.3± 5.3hbd. None of pregnant women had the OGTT immediately after the first prenatal visit as is recommended.

Conclusions

What is disturbing, 100% of women with risk factor for GDM did not have the OGTT performed at the right time. The awareness among doctors taking care of pregnant women of recommendation regard GDM testing should be increased.

Predictive low glucose management and low glucose suspend in prevention of hypoglycemia on children and adolescents with type 1 diabetes during summer camps

Hanna Kuśmierczyk, Arkadiusz Michalak, Aleksandra Bolek

Medical University of Lodz

Presenting author: Hanna Kuśmierczyk
e-mail: hanna.kusmierczyk.umed@gmail.com
Tutors: Agnieszka Szadkowska,

Introduction

Continuous glucose monitoring (CGM) is becoming an integral part of therapy for people with type 1 diabetes (T1DM). It provides both quality-of-life and diabetes-control-related benefits. Many studies concerning its utility were performed, but there are limited number of studies assessing glucose variability in children in real life conditions.

Aim of study

To assess the impact of LGS and PLGM on glycemic control and variability in children and adolescents with T1DM during summer camp.

Material and methods

During two summer camps children and adolescents with T1DM treated with sensor-augmented insulin pump therapy with low glucose suspend (LGS) or predictive low glucose management (PLGM) were included in the study. Glycated hemoglobin (HbA1c) was measured by HPLC. Data from CGM were used to calculate parameters reflecting glycemic control and variability based on experts` guidelines. Participants who provided less than 120 hours' worth of measurements were excluded. For children who participated in both camps, a more complete CGM entry was assessed.

Results

Sixty six patients' records were accepted for analysis (LGS: 42%; PLGM: 58%). Participants mean age was 13±2.5 years, diabetes duration 6.5±3.8 years and HbA1c 7.27±0.62%. HbA1c did not differ between the groups (LGS: 7.2±0.6 vs. PLGM: 7.3±0.6%, p=0.49).

Children using PLGM had significantly lower time in hypoglycemia ≤ 54 mg/dl (median 0.34%, 25-75: 0.04-0.99 vs 1%, 25-75%:0.44-2.51, p=0.004) and hypoglycemia alert state ≤70mg/dl (3.7±2.1% vs 6.8±3.9%, p<0.001) when compared with LGS. Moreover, they had lower hypoglycemia index (0.99±0.45 vs 1.66±0.75, p<0.001) and number of hypoglycemic episodes per day of observation (0.25±0.28 vs 0.55±0.49, p=0.006). However, PLGM group displayed higher mean glycemia (149±16mg/dl vs 138±15, p=0.005), higher percentage of time in hyperglycemic (180-250 mg/dl) range (PLGM: 19.3±6.8% vs 15.4±6.4%, p=0.02) and higher hyperglycemia index (5.8±2.2 vs 4.6±2.2, p=0.03).

Conclusion

Sensor-augmented insulin pumps with PLGM function used by children and adolescents with T1DM during summer camps effectively prevent hypoglycemia at the cost of increased risk of moderate hyperglycemia when compared to insulin pumps with LGS function.

Do small inaccuracies affect the bigger picture? Reliability of flash glucose monitoring system in children and adolescents with type 1 diabetes in light of glycemic variability and control.

Arkadiusz Michalak, Konrad Pagacz

Medical University of Lodz

Presenting author: Arkadiusz Michalak
e-mail: arkadiusz.michalak@stud.umed.lodz.pl
Tutors: Agnieszka Szadkowska, Wojciech Fendler

Introduction

Flash glucose monitoring (FGM) allows for continuous and minimally invasive monitoring of interstitial and, indirectly, blood glucose levels. Due to its relatively low costs, there is a growing number of FGM users among people with type 1 diabetes (T1DM). However, FGM measures glycemia every 15 minutes in contrast to routinely-used continuous glucose monitoring (CGM) that provides more dense data with 5-minute intervals. This raises a question whether FGM results describe glycemic profile and glycemic variability (GV) as accurately as CGM.

Aim of study

To estimate the difference between FGM and the CGM in light of the International Consensus on The Use of CGM and compares GV parameters yielded by both systems.

Material and methods

Children with T1DM aged 12-18 years old with disease duration ≥ 2years were recruited into the study. They were equipped with FGM and blinded CGM sensors worn on arms for 6 days. After this time, CGM were removed, unblinded and calibrated using measurements with glucometer (same brand for all participants). Then raw data was downloaded from both systems and analyzed with in-house software Glyculator 2.0 to calculate indices of glycemic control and variability.

Results

Presented results are preliminary, so far the study was completed by 11 children (intended N=20). Method of monitoring significantly affected several parameters: coefficient of variance (FGM:50.67+/-9.1 vs CGM:43.8+/-8.9, $p<0.001$), high blood glucose index(FGM:9.95+/-2.41 vs CGM:4.97+/-2.2, $p<0.001$), glycemic risk assessment diabetes equation for hypoglycemia (FGM:32.31+/17.5 vs CGM:11.93+/-11.01, $p<0.001$) and hyperglycemia (FGM:61.49+/-17.55 vs CGM:78.41+/-15.88, $p=0.011$).

Conclusions

FGM provides skewed estimation of several parameters used when assessing records of CGM, including important GV parameter such as coefficient of variance which is increasingly popular in clinical practice. Therefore, reports constructed on the basis of FGM data (in particular from short-term observations) may require a different interpretation.

Comparison of new method - Radiofrequency Echographic Multi Spectrometry and DXA

Agnieszka Plesińska, Michalina Czekałowska

Medical University of Lodz

Presenting author: Agnieszka Plesińska
e-mail: agaplesinska@gmail.com
Tutors: Ewa Sewerynek

Introduction

According to WHO, osteoporosis and fracture risk is indicated by bone mineral density measurement (BMD). Currently, the "gold standard" technique is dual-energy X-ray absorptiometry (DXA), which uses two X-ray beams with different energy levels, aimed at the patient's bone. Nevertheless, many intrinsic factors influence the accuracy and the potential of widespread testing of DXA. To overcome these limitations a new technology, called Radiofrequency Echographic Multi Spectrometry (REMS) was developed. REMS exploits the radiofrequency signals acquired during an echographic scan (US) of the target anatomical site to determine the status of internal bone architecture. This method accomplish the same parameters as DXA: BMD, T-score and Z-score.

Aim of the study

The goal of our study was to compare results of DXA and US and to evaluate accuracy of the US in comparison to DXA. To predict future usefulness of echographic method, which has not been included in standards yet.

Material and methods

The study was conducted at the Regional Centre of Menopause and Osteoporosis. A group of 28 (26 female and 2 male) patients was recruited. According to the importance of the measurement in a single patient, the group was diverse with a medium age at 71.1 years (minimum: 31; maximum: 89), medium BMI (body mass index) 26.6 kg/m^2 (minimum: 17.5; maximum: 35.0). All patients recruited for the study underwent two examinations on the same day: a DXA and an REMS scan of proximal femur and/or lumbar spine. As 2 patients underwent examination of lumbar spine and the femur, we had the group of 30 measurements in total. DXA scans were performed with iDXA Lunar. Measurement results were expressed as BMD and as T-score values (T-score value - the number of standard deviations (SDs) from the peak BMD of young women belonging to the same ethnic group). In compliance with the World Health Organization's (WHO) definition of osteoporosis, patients were classified as "osteoporotic" if T-score ≤ -2.5, "osteopenic" if - 2.5 < T-score < -1.0 or "healthy" if T-score ≥ -1.0. Ultrasound scans were performed through EchoS system which is a device using an automatic algorithm to give the same parameters as DXA. Data were calculated and presented using Bland–Altman plot.

Results

US diagnosis was analogical to DXA diagnosis in 71% of the patients with spine examination and 62% in the case of these with thigh bone examination. If Bland–Altman ratio is >5%, there is no good accuracy between two methods. Coefficient of variation (CV) <20% was regarded as low variance. Only for BMD in femur neck and femur total, both VC and Bland–Altman ratio were under these levels. For T-score value, there were high VC in comparison of all parameters.

Conclusion

Comparing to literature, accuracy of diagnosis in both examination is lower. Due to small number of patients it was hard to count sensitivity and specificity of US without errors.

The influence of duodenal-jejunal omega switch surgery and diet on glucose tolerance in Sprague-Dawley rats.

Agnieszka Dulska, Wojciech Kazura, Jan Augustyniak, Justyna Maciarz, Agnieszka Maziarz, Diana Ali

Medical University of Silesia

Presenting author: Agnieszka Dulska
e-mail: dulczes@gmail.com
Tutors: Dominika Stygar , Tomasz Sawczyn, Ph.D.

Introduction

Diabetes mellitus type 2 is recognized as a global epidemic by the World Health Organization. This disease currently affects about 6% of the world's population. For this reason, new types of treatment are constantly being needed. Hence, duodenojejunal omega switch surgery comes as an option.

Aim of study

The aim of our study was to assess the effect of duodenojejunal omega switch surgery and diet on glucose tolerance in diet-induced obese rats.

Material and methods

48 rats were divided into control diet group (CD, n=24) and high fat diet group (HFD, n=24). After 8 weeks, half of rats from both groups underwent SHAM surgery and duodenojejunal omega switch (DJOS) surgery. All rats were then randomly assigned to HFD and CD group. Glucose tolerance was measured by performing Oral Glucose Tolerance Test.

Results

No changes between the two operation types were observed for groups HFD/HFD ($p=0,499$), HF/CD ($p=0,073$), and CD/HF ($p=0,252$). A statistically significant difference in time profile course in the group CD/CD was observed ($p<0,01$). Taking AUC OGTT time profiles into account, no statistically significant changes between the two operation types were observed for the groups HFD/HFD ($p=0,205$) and CD/HF ($p=0,207$). In the HF/CD group, AUC OGTT was statistically significantly higher for DJOS type surgery than in the SHAM type ($p<0,05$), while in the CD/CD group the opposite was found, i.e. the AUC OGTT was higher in the SHAM group compared with the DJOS group ($p<0,05$). In the SHAM surgery group, no statistically significant differences between groups were observed, whereas for the DJOS operation groups the following statistically significant differences were noted: group CD/CD has lower values of AUC OGTT than the HFD/HFD group ($p<0,05$), HF/CD group ($p<0,001$) and CD/HF group ($p<0,01$).

Conclusion

DJOS operation leads to positive changes in carbohydrates metabolism, which may be attributed to the improve glucose tolerance. This procedure could play a supportive role in treatment of type 2 diabetes.

Second to fourth digit ratio (2D:4D) and hypothyroidism in young women.

Barbara Święchowicz

Medical University of Lodz

Presenting author: Barbara Święchowicz
e-mail: swiechowicz.barbara@gmail.com
Tutors: Bogusław Antoszewski,

Introduction

The digit ratio is quotient of finger length- second to fourth (2D:4D) which is negatively related to the level of exposure to androgens in fetal life. In phenotypically female hand second digit has the same or larger dimension than the fourth. Hypothyroidism is the most popular thyroid pathology which is 5 times more often in women than in men. Actually it has not been established whether hypothyroidism is influenced by prenatal sex hormones.

Aim of study

The aim of this study was to determine connection between the digit ratio (2D:4D) and hypothyroidism in young Polish women.

Material and methods

The prospective cohort study was conducted on 160 woman (aged 19-29), students who have never been pregnant. The second and fourth digits length of both hands was measured on the palmar surface. Moreover the questionnaire was conducted- early first menstruation, length, regularity, painfulness of the menstrual cycle, pregnancies, endocrynological disorders (eg. hypothyroidism, hyperandrognism, hirsutism, hyperprolactinemia, polycystic ovary syndrome), acne were evaluated. The statistical analysis was performed in Statistica 13.1PL.

Results

The connection between right index and endocrine disease was confirmed. In the research group women declaring endocrine diseases have statistically higher 2D:4D ratio (p=0,03) than healthy. This is especially evident in woman with hypothyroidism which have higher ratio(2D:4D R >1) than others (p=0,01).

Conclusion

Women with hypothyroidism have significantly higher digit ratio compared to group of healthy woman, phenotypically “superfemale “. It shows that lack of exposure to androgens in prenatal life in women can be associated with a hypothyroidism in adulthood.

GYNECOLOGY & OBSTETRICS

COORDINATORS
Justyna Dychtanowicz
Julia Janiak

JURY
Professor Andrzej Bieńkiewicz, MD, PhD
Mariusz Grzesiak, MD, PhD
Professor Agata Karowicz-Bilińska, MD, PhD
Professor Jacek Suzin, MD, PhD
Professor Piotr Sieroszewski, MD, PhD

Determinative factors in induction of labour in obese women.

Krzysztof Jaroń, Krzysztof Jaroń, Roamana Cal, Katarzyna Łyjak

Medical University of Warsaw

Presenting author: Krzysztof Jaroń
e-mail: krzy.jaron@gmail.com
Tutors: Katarzyna Kosińska- Kaczyńska,

Introduction

According to the WHO, obesity is one of the 21st century epidemics. The worldwide prevalence of obesity among women is estimated of more than 21% in 2025.

Aim of study

Assessment of maternal obesity impact on induction of labour (IOL).

Material and methods

A retrospective analysis of medical data of 208 women qualified for IOL between 2010 and 2015 was performed. The study group consisted of 108 women with body mass index (BMI) ≥ 30 and the control group consisted of 100 women with BMI of 18.5-25. Chi-square test, Fischer's exact test and multivariable logistic regression were used in statistical analysis, with p value <0.05 considered significant.

Results

There were no significant differences in women's age between the groups. Obese women gain less weight during pregnancy (11.9 kg vs 14.6 kg p<0.01). They have more than three-fold higher risk of gestational hypertension (OR=3.4 p<0.01) and almost three- fold gestational diabetes (OR=2.9 p<0.01). They were over than 5 times more likely to be addicted to nicotine (OR=5.1 p<0.01). In the test group 87% had preinduced labor and 81% with Foley catheters, but in the control group 84% and 77% with Foley catheter. There were no statisticaly significant differences in caesarean section rates between the groups (38.9% vs 31%; OR 1.42 p=0.2). The IOL was an average of 39 weeks of gestation. Only a succcesful IOL was observed in the control group statistically more often at 38 pregnancy week (OR=4.4 p=0.05). Epidural anesthesia was administered in the control group in 69% of cases, and in obese patients in 68%. Our research has shown that in the control and test groups, the IOL success depends respectively on the number of pregnancies (OR=2.0 p<0.01; OR=1.58 p=0.02), natural childbirth in the past (OR=3.3; OR=2.48 p<0.01) perinatal anesthesia (OR=11.2 and OR=20.0 p<0.01) and the blood volume loss during delivery (OR=1.9; OR=4.4 p<0.01) . Moreover in obesity women group it depends on occurrence chronic diseases (OR=2.8 p=0.03).

Conclusion

Obesity doesn't increase the rate of IOL failures.

Factors influencing glucose and lipid metabolism in PCOS patients

Marcin Setlak, Patrycja Radosz, Małgorzata Sateja, Mateusz Klimek

Medical University of Silesia in Katowice

Presenting author: Marcin Setlak
e-mail: 7marcin.setlak7@gmail.com
Tutors: Karolina Kowalczyk,

Introduction

Both hypothyroidism and PCOS are associated with adverse metabolic changes. Hypothyroidism is observed significantly more often in patients with PCOS than in the general population (approximately 24,6% vs 6 %).

Ain of study

The aim of our study was to assess the influence of BMI and concomitant hypothyroidism on the metabolic risks in PCOS women.

Material and methods:

Retrospective research included 1159 women with PCOS that were admitted to the Gynaecological-Endocrinology Unit in years 2014- 2017. They were divided into 6 groups depending on their BMI and thyroid status (subdivided on hypothyroidism treated with L-thyroxine and untreated hypothyroidism). The control group included PCOS women with normal BMI (18,5-25 kg/m2) and TSH within reference ranges. The results of glucose tolerance test and lipid profile were analyzed. Statistical analysis was performed using Statistica 12.0.

Results:

In our study was observed statistically significant difference between control and all study groups in terms of insulin in 120' of OGTT Test. Differences in LDLC level were observed between patients with treated and untreated hypothyroidism. Patients with normal BMI (18,5-25) and BMI >25 vary in level of ALAT, GGTP, HDLC, TG, glucose 120', SHBG, insulin in 0', 30', 60', 120' of OGTT Test, G/I index, HOMA-IR and QUICKI ($p<0,005$).

Conclusion

Hypothyroidism and BMI >25 kg/m2 in PCOS patients have a negative influence on their glucose and lipid metabolism, causing an increased risk of metabolic syndrome. That is why maintaining normal BMI and regular thyroid status assessment is advised in this group of patients.

Splenic artery aneurysm - a case not only for a vascular surgeon

Irmina Pawłowska, Dawid Gawron

Poznan University of Medical Sciences

Presenting author: Irmina Pawłowska
e-mail: inanowakowna@gmail.com
Tutors: Katarzyna Kawka-Paciorkowska, Prof. Mariola Ropacka-Lesiak MD PhD

Introduction

Splanchnic arteries aneurysms are rare pathology of vessels and they affect 0,1-2% of population. Splenic artery is the most common localization (60-80%). Pregnant women, especially in their third trimester, constitute nearly 90% of patients with the complication of aneurysm rupture. It is associated with extremely high risk of death - mortality rate among pregnant women approaches 75%, whilst in group of men and non-pregnant women it is significantly lower and reaches 10-25%. Prognosis for newborn is most unfavourable with a survival rate of only 5%.

Case report

A 36-year-old patient during the 30th week of pregnancy presented to ER with a pain in the right lateral area of the abdomen. Hydronephrosis was diagnosed and the patient was transferred to the Clinic of Urology in order to perform ureteral stent insertion. Subsequently, due to reduced fetal movements the patient was admitted to the Clinic of Perinatology. Due to a sudden deterioration of the patient's condition, signs of hypovolemic shock and suspicion of a placental abruption, an emergency caesarean section was performed. During the operation, a massive haemorrhage into the retroperitoneal cavity was observed. After the urological and surgical consultation, a rupture of splenic artery aneurysm was diagnosed. The artery was occluded with a vascular clamp and the packing of abdominal cavity was performed. The patient was consequently transferred to the Clinic of Vascular Surgery. Upon further imaging examination, the aneurysm of distal part of splenic artery was diagnosed and it was treated with stent. The infant received 0, 0, 0 and 2 in Apgar score and was resuscitated, unfortunately, in 35th minute of life, death of the neonate was confirmed.

Conclusion

Although splenic artery aneurysms are rare in the general population, they should be taken into account in practice of every obstetrician because of their specific epidemiology and a serious threat they pose to pregnant women. They cause difficulties in diagnosis and are associated with an extremely high risk of death. Therefore, it is crucial to take them into consideration in differential diagnosis of pregnant patients with the symptoms of internal bleeding and with nonspecific abdominal pain.

An uncontrolled and aggressive expansion – morbidly adherent placenta (case report)

Dawid Gawron, Danuta Maciejewska, Irmina Pawłowska,

Poznan University of Medical Sciences

Presenting author: Dawid Gawron
e-mail: dawid.gawron5@wp.pl
Tutors: Katarzyna Kawka-Paciorkowska, Prof. Mariola Ropacka-Lesiak MD, PhD

Introduction

Morbidly adherent placenta (MAP – a general term that includes placenta accreta, increta and percreta) is a consequence of abnormal implantation of the trophoblast that causes pathological penetration of placental villi into the myometrium. Although it is relatively rare condition, it is also a significant problem due to the severe threat to the health and life of patients. The presence of MAP results in serious complications, such as massive hemorrhage and, as a consequence, an urgent obstetric hysterectomy, which is associated with high mortality. In modern obstetrics a tendency to increase the incidence of MAP can be observed, which is unquestionably associated with the increasing frequency of the caesarean section.

Case report

The case concerns a 32-year-old woman in her second pregnancy who was diagnosed with a complete placenta praevia and placenta increta. The patient from the 32nd week of pregnancy was under constant obstetric care of tertiary referral hospital and treated conservatively. Due to the planned obstetric hysterectomy embolization of internal iliac arteries was performed. In the 35th week of pregnancy, a neonate (Apgar: 4,7,9 points; body weight: 2620 g) was born via caesarean section. The planned hysterectomy was performed after delivery. The placenta surpassed the uterine wall and grew into the posterior wall of the urinary bladder – the suspected presence of placenta percreta was confirmed. The patient was discharged on the 12th day after the surgery in a good general condition.

Conclusion

The pathogenesis of the morbidly adherent placenta is still partially unexplained. The diagnosis and treatment of this condition are a serious challenge for the modern obstetrics. The basic and the most important examination of the diagnostic process is an ultrasound examination. It is worth noting that MAP may accompany other related pathologies, e.g. placenta praevia. Despite the attempts at conservative treatment, obstetric hysterectomy remains a gold standard of treatment.

Induced preterm labor following chemotherapy in pregnancy – case report

Jakub Droś, Joanna Radwan, Karolina Zeman,

Jagiellonian University Medical College

Presenting author: Jakub Droś
e-mail: jakub.dros@gmail.com
Tutors: dr n. med. Magdalena Nowak, dr n. med. Małgorzata Radoń-Pokracka

Introduction

The yolk sac tumor is an ovary cancer from germ cell tumor group which typically occurs in children and young women. It remains very rare diagnosis during pregnancy. Germ cell tumors are very responsive to chemotherapy, but pregnant patients should stay under the careful care of multidisciplinary team of oncologists, obstetricians and gynecologists.

Case report

A 27-year-old woman in the 20th week of gestation (wog) in the first pregnancy was admitted to an emergency department due to dyspnea, abdominal pain and malaise. She reported she had gained 8kg for two previous weeks. Results of ultrasound examination suggested ovary tumor with accompanying ascites. In a tertiary reference hospital the patient underwent to multidisciplinary care involved of oncologists, obstetricians, gynecologists, neonatologist and psychologist. In the 21st wog ovariectomy was performed. During the operation all oncological procedures were preserved including omentectomy, appendectomy, peritoneal metastasectomy as well as pelvic and para-aortic lymph node biopsy. The following histopathological specimen examination revealed yolk sac tumor of the right ovary (pT1cN0), mature cystic teratoma and follicular cysts. In the postoperative period the patient was hospitalized in the obstetrics and perinatology department because of the symptoms of threatening preterm labor. The woman desired to preserve the pregnancy. Chemotherapy treatment including bleomycin, etoposide and cisplatin (BEP) was administrated with no subsequent complications. In the 35th wog, after two cycles of BEP, the decision to induce the labor was made. A female newborn weighted 1740g and obtained 5-minute Apgar score of 7. She was occurred by typical prematurity complications and was discharged home on the 29th day of life in good condition. After the postpartum period the mother continued the adjuvant chemotherapy.

Conclusion

Treatment of malignancies in pregnancy constitutes a challenge and requires consideration of the conflict between advantages of adequate maternal therapy and potential side effects for fetus. The yolk sac tumor may be surgically and adjuvantly treated with good results for the mother and without short-term negative outcomes for the newborn.

Visceral obesity and hyperandrogenemia in women with polycystic ovary syndrome

Patrycja Paś, Joanna Płonka

Śląski Uniwersytet Medyczny w Katowicach

Presenting author: Patrycja Paś
e-mail: patrycjam.pas@gmail.com
Tutors: prof. dr hab. n. med. Paweł Madej, lek. Łukasz Blukacz

Introduction

Polycystic ovary syndrome (PCOS) is the most frequent endocrinopathy among women of reproductive age including hyperandrogenemia, hyperandrogenism, ovulation disorders and abnormal ovarian structure.

Aim of study

The aim of the present study was to investigate a possible correlation between the amount of fat and its body distribution and free androgen index (FAI) as well as prevalent androgen-androstenedione in patients with PCOS of a reproductive age.

Material and methods

The study involved 110 women at age 18-42 with BMI 18.5-47.1 kg/m^2. Women were divided into two groups by the visceral fat area (VFA). The cut-off point was set for 10, which equals 100 sq cm of visceral fat. A group of n=51 patients had VFA ≤10, whereas a group of n=59 presented VFA >10. Visceral fat measurement was done using body composition analyzer InBody170® (InBody Co., Seoul, Korea). In all patients androstenedione serum concentration was measured and free androgen index (FAI) was obtained from total testosterone/SHBG (sex hormone-binding globulin) multiplied by 100.

Results

Women with VFA>10 had higher FAI than those with VFA ≤10, $p< 0.05$. A significant correlation between FAI and VFA was observed in both groups, r(correlation coefficient)=0.45. However, there was no relationship between androstenedione serum concentration and VFA, r=0.17, $p> 0.05$.

Conclusion

The study showed that FAI is positively associated with visceral fat area (VFA). On the contrary, no correlation between androstenedione serum concentration and VFA in women with PCOS was found. This suggests that the examination of visceral fat is necessary in every patient with PCOS, since hyperandrogenemia doesn't always accompany the disease.

Is physical activity recommended for pregnant women? – recommendations versus women's knowledge about the subject.

Anna Ziółkowska, Paweł Wojtczak, Wojciech Stemplowski, Karolina Klimkiewicz-Wszelaki, Eliza Oleksy, Remigusz Sokołowski

Collegium Medicum UMK

Presenting author: Anna Ziółkowska
e-mail: ziolkowska.anna94@gmail.com
Tutors: Kornelia Kędziora-Kornatowska,

Introduction

Physical activity of pregnant women is still a contentious issue. Some doctors recommend physical activity, while others say that regular activity is nor recommended. According to American College of Obstetricians and Gynecologists, moderate everyday physical training is safe and brings many benefits.

Aim of study

The aim of the study is to assess the knowledge of pregnant woman about the indications for regular physical activity.

Material and methods

The survey was conducted among 41 women in the course of physiological pregnancy. During the study, women were in the second or third trimester of pregnancy. The examined women reported their willingness to participate in the survey in 2017 and 2018. There were clients of one of the birth schools in Bydgoszcz or patients of one of the gynecologists from Bydgoszcz.

Results

100% of the examined female respondents are aware that regular activity is appropriate for pregnant women and may improve their physical health. 70.73% of women think that physical activity is advised, while 29.27% think that it is recommended moderately. 75.61% of respondents engage in physical activity, however, in the majority of women it is limited to just walks. Only 12.2% of women engages in yoga and only 14.63% in special exercises for pregnant women in the fitness club, in case of pilates – only 2.44% declare active participation.

Conclusion

Woman's knowledge about physical activity is at acceptable level although it does not translate to real world activities.

NGF as a potential biomarker for early endometriosis.

Magdalena Rogut, Magdalena Zietara, Mariusz Hartman,

Medical University of Lodz

Presenting author: Magdalena Rogut
e-mail: magdalena.rogut@stud.umed.lodz.pl
Tutors: Maria Szubert, Małgorzata Czyz, Jacek Wilczynski

Introduction

Endometriosis, a condition characterized by implantation of endometrium-like lesions at ectopic locations, affects approximately 10% of women of reproductive age. To prevent disease progression and subsequent infertility, early diagnosis is crucial. Although endometriosis is proven to be associated with altered levels of particular markers (e.g. CA-125), none of them is a decisive diagnostic tool.

Aim of study

Here we present an attempt at identifying novel endometriosis biomarkers in eutopic endometrium – a perspective for minimally invasive diagnosis.

Material and methods

33 biopsy samples of eutopic endometrial tissue were obtained during laparoscopy. The study group (n=22) comprised women laparoscopically diagnosed with endometriosis, whereas the control group (n=11) included women without pathological changes. Included were biopsies only from patients with endometriosis of EEC (endoscopic endometriosis classification) stage I or II and in the first phase of the cycle. qRT-PCR was used to evaluate the mRNA expression of selected candidate markers: *ARO1* (aromatase), *CXCL8* (interleukin 8), *NGF* (nerve growth factor), *VEGF-A* (vascular endothelial growth factor A), *PDGF-A* (platelet-derived growth factor A). Statistical analysis was performed in Statistica 13.1. The diagnostic value of potential biomarker was assesed with receiver operating characteristic (ROC) curve and Youden index. $P \leq 0.05$ was considered significant.

Results

NGF expression was decreased in women with endometriosis ($p=0,012$). Area under the curve (AUC) generated for NGF was 76,7% ($p=0,002$). Estimated cut-point resulted in sensitivity and specificity of 72,7% and 81,8%, respectively.

Conclusions

An NGF-based diagnostic test needs further evaluation. Observed results suggest a possible role of NGF in early diagnosis of endometriosis.

Extraordinary bulging mass in the foetus – a case report of bladder extrophy

Joanna Łosińska

Medical University of Lodz

Presenting author: Joanna Łosińska
e-mail: joanna.losinska@stud.umed.lodz.pl
Tutors: Maria Respondek-Liberska,

Introduction

Bladder extrophy is a rare congenital anomaly with incidence of 1 per 30 000 - 50 000 births with a 2:1 male to female ratio. Due to abnormal development of the cloacal membrane there is incomplete closure of the lower abdominal wall, absence of the anterior wall of the bladder and external exposition of the posterior wall. The pubic bones are usually separated, the umbilical cord low inserted and there is abnormal external genitalia developnent. Prenatal diagnosis is extremely rare.

Case report

A 39-year-old multigravida, multipara with unremarkable obstetric and family history, had first US exam at 13th week of gestation which was described as normal. She was oferred amniocenthesis for karyotype due to maternal age, but declied. At 21 week of gestation primary care obstetrician could not find a bladder and therefore pregnant woman was referred for a detailed ultrasound examination to Wroclaw. Inferior umbilical localisation and bladder absence was suspected in female fetus.

At 29 weeks of gestation presence of bulging mass of 2 cm, between the umbilical outlet and labia was detected.

At 31 weeks of gestation gravida underwent songraphic and echocardiographic fetal examination in the referral center in Łodz. Previously detected structure among thighs had 3 cm diameter with lateral umbilical outlet. Major labia were prominent and minor labia were within normal limits. Between two umbilical arteries with an apriopriate intraabdominal course there were no transsonic area corresponding to the urinary bladder.

There was normal fetal face, normal heart anatomy, no functional abnormalities, normal both kidneys.

The newborn baby was born at 37 weeks of gestation by cesarean section with birth weight 3200g in a good condition, but with an exposed bladder of 4 cm in diameter. The urethral outlet was not visualised and the female genitals were abnormal. After 17 days of the hospital stay and maternal teaching how to take care of the newborn, she was discharged home and referred to the Child's Memorial Health Institute in Warsaw. A month later the girl underwent primary bladder extrophy closure. Although she suffers from recurring urinary tract infections, she's in a good general condition.

Conclusion

Due to prenatal diagnostics it was possible to detect and make an initial diagnosis of severe malformation. Early diagnosis allowed to prepare parents for a newborn with a defect and teach them how to take care of the baby.

Pelvic organ prolapse - a search for causes and evaluation of post- operative life quality

Monika Weteska, Joanna Zgliczyńska, Agnieszka Wróbel, Kamil Błaszczyk

Medical Univeristy of Lodz

Presenting author: Monika Weteska
e-mail: monika.weteska@gmail.com
Tutors: Maria Szubert, Jacek Wilczyński

Introduction:

Pelvic organ prolapse (POP) is lowering of pelvic organs below their anatomical location. It is crucial to investigate numerous risk factors of POP and establish ways of effective treatment as this disorder is very common and affects almost all aspects of women's life. However, do the surgeries significantly improve the quality of patient's life?

Aim of study

The aim of the study was to assess the improvement of quality of life among patients subjected to reconstructive surgery due to POP and determine the most prevalent risk factors.

Material and methods

retrospective data of 330 patients who underwent a reconstructive surgery due to POP between 10.2015 and 10.2017 in the Dept. of Surgical and Oncologic Gynecology, MU of Lodz, was analyzed. Post-surgery satisfaction rates by means of a questionnaire via phone call were obtained from 70 patients until now and preliminary data are presented below. The study group was divided according to the stage of POP and implemented surgical methods for statistical analysis (Ms Excell 2016; STATISTICA 12PL).

Results

Mean patient age was 63,87 (median 66), BMI was 27,39 (median 26,71). As for the established risk factors, pulmonary diseases with chronic coughing were present in 15,94% of the patients. All of the patients gave birth to at least one child, perineotomies were conducted in 83,82%, perineal tear during delivery occurred in 36,23% of patients. Increased child weight reported 12,86% of patients, multiple gestation- 4,29%, forceps delivery-11,43%. 61,80% of patients used to work or still work physically. Mean time between delivery and return to work was 14 months, (median 3 months), with 52% of subjects who returned to work after 3 months or less. 12,86% of patients had already had a reconstructive surgery. Perineal or lumbosacral pain affected 62,85% of women and subsided after surgery in 31,81% of the patients. Pelvic pressure and heaviness in the lower abdomen occurred in 65,71 %, subsided in 63,04% of the patients. Mobility limitation due to POP affected 30%, 76,19% reported improvement after surgery, while 2,86% reported aggravation of the symptom. Urinary incontinence presented in 57,14% patients, subsided in 47,5%. Constipation occurred in 38,57%, 40,74% reported improvement, while 4,29% claim aggravation. Mean quality of life on a scale 1-5 before the surgery was 2,12 and after the surgery- 4,24. Prolapse recurrence assessed on phone-call was estimated at 24,29%.

Conclusion

Reconstructive surgeries significantly improve life quality of patients and cause many POP-associated symptoms to regress. Urinary incontinence and constipation could persist after surgery. Patients should avoid modifiable risk factors of POP due to its influence on recurrence of the disease. Current techniques are ineffective in POP-Q categories but look better in QL satisfaction category.

The assessment of knowledge on cesarean section among Polish pregnant women

Jakub Madej, Agnieszka Daszyńska, Joanna Jóźwik, Alicja Andrysiewicz

Medical University of Lodz

Presenting author: Jakub Madej
e-mail: azazela@onet.pl
Tutors: Maria Szubert, Marlena Berner-Trąbska

Introduction

In recent years an increased rate of cesarean section (C-section) procedures in Poland was observed. According to the foundation „Rodzić po ludzku", in 2015 the rate of births given by C-section was 43%. The report „Healt at a Glance" by Organisation for Economic Co-operation and Development showed that 34,6% of polish children are delivered by C-section. The guidelines of the World Health Organisation define that the percentage of C-sections should not exceed 10-15%. These discrepancies highlight the overexecutability of this procedure in Poland.

Aim of study

The aim of our study was to examine the knowledge of Polish women on c-section.

Matherial and methods

The study group involved 831 women who completed the authors questionnaire in The Pregnance Pathology Department od Medical University in Łódź or on-line. The results were then refered to a 6-point scale of patients knowledge on c-section proposed by the authors. The questionnaire consisted of questions concernig the indications to the c-section and the possible complications after that procedure. It also consisted of questions about patients diet, physical condition or the cicatrix after the procedure.

Results

The survey revealed that the patients who underwent a C-section, have a higher level of knowledge on the issue. ($p=0.01$). Whats more, the patients who had no previous c-section would more likely choose this method to give birth to their childs ($p<0.05$). The level of patients education positively correlated with the patients knowledge on the procedure ($p<0.001$). Regardless of the state of the patients knowledge, the group of women, who would not choose the cesarean section as the way of childs births was bigger ($p=0005$).

Conclusion

1. The vast majority of survey participants (57.9%) have a low level of knowledge on C-section. 2. The patients who gave birth by a c-section have a higher level of knowledge than the other patients. 3. There is a necessity of further education of women on the c-section.

A cohort study of vulvar tumors – is there anything we do not know about vulvar tumor?

Amanda Sochacka , Katarzyna Andruszkiewicz, Anita Jędrzejczak

Medical University of Lodz

Presenting author: Amanda Sochacka
e-mail: sochacka.amanda@gmail.com
Tutors: Maria Szubert,

Introduction:

Vulvar cancer is rather rare gynecological tract malignancy which occurrence has been slightly increasing recently.

Aim of study

The objective of this study was to study the risk factors, management protocols, and the outcome of vulvar tumor cases with special interest in vulvar cancer over a period of 6 years in a tertiary care hospital.

Material and methods

Retrospective cohort study; hospital records of 86 patients diagnosed because of vulvar tumor between 2010 and 2016 in the I Department of Gynaecology and Obstetrics, Medical University of Lodz were studied, 9 patients were rejected due to lack of key data. The presence of risk factors, stage of disease, and disease outcomes in terms of survival were analyzed in the group with benign (B) and malignant lesions (M). The data collected were alnalyzed using STATISTICA 13, analysis of variance were used for comparisons between groups, correlation between two continuous groups was checked by the correlation coefficient. Data were compared with the published literature.

Results

33 patients out of 77 presented malignant lesion (42,86%), mostly stage FIGO I and II (n=24); patients in M group were significantly older (60,12 vs 70,6; $p<0,001$), but there was no difference in BMI, amount of pregnancies ($p=0,9$), mode of delivery ($p=0,26$), age at menopause and smoking (36% vs 26%; $p=0,26$) between group M and B. VIN (vulvar intraepithelial neoplasia) was significantly more frequent diagnosed in group B (30% patients vs 3 % in M group; $p<0,01$). There was no correlation between age at the diagnosis and size of the vulvar tumor and weak positive correlation between age and the length of hospitalization. Follow-up was performed in M group but data only from 32% (n=9) of patients was possible to obtain. Between interviewed patients 67% was alive, recurrent tumor was diagnosed in 1 case.

Conclusions

Incidence of vulvar cancer is significantly higher in postmenopausal women than before menopause. Coexistence of VIN and vulvar cancer was not proved in our studied group. Surgical treatment which is the best option in the early stage of the disease (Stage I and II) gives high survival rates. Age is an unmodified factor that influences hospital stay and recovery after surgery.

Predictors for prolonged hospitalization time of term neonates after spontaneous vaginal delivery

Irīna Morozova, E.Pumpure, L.Lapidus, G.Jansone, M.Koka

Riga Stradiņš university

Presenting author: Irīna Morozova
e-mail: irinamor82@gmail.com
Tutors: V.Veisa, D.Rezeberga, S.Markova

Introduction

Length of postnatal hospitalization is a parameter showing effectiveness of managing both intra-partum and post-partum periods. Many factors—like maternal health state during and prior pregnancy—could help medical stuff to predict complications, another—like full blood count or C-reactive protein (CRP) level—to evaluate if additional time in a hospital will be needed. In this study we will pay attention to B group streptococcus (BGS) universal screening status, as one of the leading cause of perinatal mortality and CRO level, as one of standard tests, performed to neonates.

Aim of study

To assess impact of maternal B group streptococcus universal screening status on length of hospitalization in term neonates, delivered vaginally; To evaluate C reactive protein as a predictor of prolonged hospitalization time and prevalence of received antibacterial treatment in term neonates, delivered vaginally.

Material and methods

From January till February 2018 retrospective study was performed by analyzing medical records of women, who had spontaneous vaginal delivery (SVD) in Riga Maternity hospital from January till December year 2017. Total of 1121 cases were divided into 4 groups according to BGS universal screening status and usage of prophylactic antibiotics: BGS negative – Group 1, BGS positive, received full course of prophylactic antibiotics – Group 2, BGS positive, who did not receive full course of prophylactic antibiotics – Group 3, BGS positive, who did not receive prophylactic antibiotics at all – Group 4. Groups were compared with the regard to total hospitalization time. Then we analyzed CRP levels, grouped according to reference value of 0,33 mg/dL, in relation to neonatal hospitalization time and prevalence of received treatment. Data processing was done with MS Excel and SPSS v21.0.

Results

In 534 cases (47,6%) from total number of SVD positive BGS status was determined. For Group 1 (n=587) mean hospitalization time was 2,93 (±1,16) days, for Group 2 (n=442) – 3,07 (±1,19) days, Group 3 (n=50) – 2,94 (±1,04) days, for Group 4 (n=42) – 2,74 (±1,21) days. CRP level was measured for 712 newborns (63,5%). For 34,97 % (n=392) of neonates whose CRP was not detected, average hospitalization length was 2,68 (SD±0,87) days. For 37,60% (n=422) neonates, whose CRP was less than 0,33 mg/dL – 2,93 (SD±0,97) days. For 27,48% (n=308) neonates, whose CRP level was more than 0,33 mg/dL – 3,44 (SD±1,57) ($p<0,001$). From total n=712, whose CRP level was measured, 14,75% (n=105) received antibacterial treatment, 92,38% (n=97) of them had CRO more than 0,33 mg/dL ($p<0,001$).

Conclusion

According to this study, BGS status and use of prophylactic antibiotics do not have significant impact on postpartum neonatal hospitalization time. However, CRO value more than 0,33 mg/dL could be used for prediction of prolonged neonatal stay in a hospital and in more than 92% of cases means necessity in antibacterial treatment.

Embolization as last chance treatment in life-threatening bleeding after cesarean delivery in a patient with abnormal placentation.

Małgorzata Milnerowicz, Małgorzata Milnerowicz, Arkadiusz Kacała, Aleksandra Rubin, Adrian Lis, Paweł Hackemer, Fryderyk Menzel

Medical University of Wroclaw

Presenting author: Małgorzata Milnerowicz
e-mail: gosia.milnerowicz@gmail.com
Tutors: dr hab. n. med. Jerzy Garcarek prof.nadzw.,

Introduction

Obstetric hemorrhage is the leading cause of maternal mortality related to pregnancy. Placental accretism is the principal cause of obstetric hemorrhage and the first cause of peripartum hysterectomy. The risk of massive blood loss during cesarean delivery is increased furthermore in women with coexisting placenta previa, because the placenta has to be traversed before the neonate can be delivered.

Case report

28-year-old woman was transmitted from another hospital after cesarean delivery complicated by a massive, life-threatening hemorrhage due to abnormal placentation. During the procedure a total rupture of uterine wall in the scar of the previous cesarean section was revealed. Placenta previa and increta with infiltration of bladder were observed. Because of the hemorrhage and atony of the uterus, hysterectomy with tamponade by surgical drapes and spongostan was performed. On admission, the patient was in an extremely severe condition in hemorrhagic shock, unconscious, with respiratory and circulatory insufficiency, centralization of circulation and the presence of peripheral edema. Despite the intensive fluid therapy, polytransfusion and pressure amines treatment, the patient's condition worsened and acute renal failure occurred. The patient was qualified for pelvic arteriography and embolization of bleeding vessels immediately. On the left side, the internal iliac artery was occluded proximally and on the right side, the branches of the common iliac artery were occluded selectively using coils and hystoacrylic glue. After the embolization procedure, the doses of catecholamines were reduced owing to gradual stabilization of the circulatory function and improved gasometric parameters. The next day a relaparotomy was performed during which the tamponade was removed. The patient's condition gradually improved, however, the renal failure persisted and the patient presented slight neurological disorders in the form of muscle weakness and paresthesia of the left lower limb, most likely in the mechanism of hypoxia. After a long hospitalization and a total transfusion of 10 units of red blood cell concentrate, 18 units of platelet concentrate and 6 units of fresh frozen plasma, the patient was discharged home with a newborn baby in good condition.

Conclusion

The treatment of choice for placental accretism is puerperal hysterectomy, but it involves greater risk of intraoperative hemorrhage particularly when there is placental involvement of the adjacent structures. Placenta accreta may lead to massive obstetric hemorrhage resulting in life-threatinig complications, such as hemorrhagic shock with respiratory and cardiovascular distress syndrome and kidney failure. Embolization is a good therapeutic option in the case of continuous pelvic bleeding after cesarean section.

The comparison of pelvic floor muscle function evaluated by clinical examination, 2D and 4D ultrasound.

Karolina Ratajczyk, Dorota Mroczek, Anna Zakolska, Alicja Wolska

Medical University of Lodz

Presenting author: Karolina Ratajczyk
e-mail: karolina.ratajczyk.umed@gmail.com
Tutors: Grzegorz Surkont, Dr n. med. Edyta Wlaźlak

Introduction

The evaluation of pelvic floor muscle function is one of the standard elements of every urogynecological examination. It can be evaluated by clinical assessment and ultrasonography as urethral mobility and hiatal dimensions. Pelvic floor ultrasonography is becoming more popular test in diagnostics of urogynecological patients. Different urogynecology clinics use 2D and 4D transabdominal probe and 2D transvaginal probe. There are no publications comparing all those imaging methods in evaluation of pelvic floor muscle function.

Aim of study

The aim of the study was to assess and to compare the function of pelvic floor muscles using different modes of pelvic floor ultrasound and clinical examination.

Material and methods

Pelvic floor muscle function was evaluated during Kegel's exercises. Levator contraction strength was assessed digitally, using the Modified Oxford Grading (MOS). Transabdominal probe was placed translabially. In 2D mode (TAS2D) mobility of the bladder neck, as well as longitudinal distance between symphysis pubis and puborectalis muscle (Sl) were evaluated. In 4D mode (TAS4D) hiatal dimensions (longitudinal dimension – L, area – A, circumference – C) at rest and during Kegel's exercises were measured in the plane of minimal hiatal dimension. 2D transvaginal probe (TVS2D) was placed introitally to evaluate bladder neck mobility. Bladder neck mobility was measured during both TAS2D and TVS2D as movement in longitudinal (H) and transverse (D) axis, as well as vector.

Results:

The study included data from 137 patients in the age from 25 to 85 years (average - 58) with urogynecological complaints who attended outpatient urogynecologic clinic.

Using MOS contraction strength in 16% patients was evaluated as 0, in 37%-1, in 28%-2, in 16%-3, in 3%-4. The average, minimal and maximal values of ultrasound measurements were as follows: TVS2D H: 0,34 cm, -2,62 cm, 1,76 cm, TVS2D D: -0,36 cm, -2,00 cm, 1,84 cm, TVS2D vector: 0,72 cm, 0,05 cm, 2,98 cm, TAS2D H: 0,28 cm, -2,65 cm, 1,85 cm, TAS2D D: -0,3 cm, -1,49 cm, 2,19 cm, TAS2D vector: 0,66 cm, 0,03 cm, 3,43 cm, TAS4D L: -0,91 cm, -3,53 cm, 0,73 cm, TAS2D Sl: -0,82 cm, -2,3 cm, 0,85 cm, TAS4D C: -1,77 cm, -8,26 cm, 1,94 cm, TAS4D A: -3,45 cm, 11,87 cm, 6,63 cm. The best correlation with MOS had: TAS4D L (-0,5760; p=0,000), TAS4D C (-0,5632; p=0,000), TAS2D SI (-0,5165; p=0,000) and TAS4D A (-0,4941; p=0,000).

Worse correlation was found in: TAS2D D (-0,2789; p=0,001), TAS2D vector (0,2813; p=0,001), TVS2D D (-0,3155; p=0,000), TAS2D H (0,3397; p=0,000), TVS2D vector (0,4079; p=0,000), TVS2D H (0,4103; p=0,000).

Conclusion

We found the best correlation between MOS and: hiatal longitudinal dimension, area and circumference (TAS4D), distance between symphysis pubis and puborectalis muscle (TAS2D). Urethral mobility measurements during TAS2D and TVS2D had worse correlation with MOS.

The evaluation of the urethral mobility using 2D and 4D pelvic floor ultrasound

Anna Zakolska, Alicja Wolska, Karolina Ratajczyk, Dorota Mroczek

Medical University of Lodz

Presenting author: Anna Zakolska
e-mail: ammzakolska@gmail.com
Tutors: Grzegorz Surkont, Dr n. med. Edyta Wlaźlak

Introduction

Urethral mobility is one of the most important aspects which should be assessed in urogynecological patients. There is no consensus of the method which should be used for that purpose. Pelvic floor ultrasound is increasingly used in clinical practice, as well as in studies. Depending on the center, 2D/4D transbabdominal probe transperineally and 2D transvaginal probe introitally are used. No study comparing these two methods has been published so far. Transvaginal probe has been used to perform individually planned suburethral tape implantation, while 2D/4D transabdominal probe was used for complex evaluation of pelvic floor.

Aim of study

Comparison of urethral mobility measurements obtained during 2D and 4D ultrasound examination performed with transabdominal and transvaginal probe and analysis which hiatal measurements have influence on urethral mobility.

Material and methods

137 patients in the age of 25 to 85 years (average 58) with urogyneacological complaints who attended outpatient clinic were included in the study.

Urethral mobility was evaluated during maximal Valsalva maneuver. Transabdominal probe was placed translabially. In 2D mode (TAS2D) mobility of the bladder neck, as well as longitudinal distance between symphysis pubis and puborectalis muscle (Sl) were evaluated. In 4D mode (TAS4D) hiatal dimensions (longitudinal dimension – L, area – A, circumferemce – C) at rest and during Valsalva maneuver were measured in the plane of minimal hiatal dimension. 2D transvaginal probe (TVS2D) was placed introitally to evaluate bladder neck mobility. Bladder neck mobility was measured as movement in longitudinal (H) axis, and as vector as well, during both TAS2D and TVS2D.

Results

The average, minimal and maximal H values during TVS2D were:1,38cm;-0,97cm;3,77cm, during TAS2D:1,50cm;-0,22cm;4,23cm. The average, minimal and maximal vector values during TVS2D were:1,52cm;0,11cm;4,25cm, during TAS2D:1,63cm;0,21cm;4,23cm. The average, minimal and maximal differences between H values measured during TVS2D and TAS2D were as follows:0,13cm;-3,5cm;1,59cm. The average, minimal and maximal differences between vector values measured during TVS2D and TAS2D were as follows:-0,11cm;-2,48cm;1,45cm. Correlation between H values measured during TVS2D and TAS2D was good (0,5169,p=0,000), as well as between vector values (0,5541,p=0,000). There were weak correlations between measured dimensions of pelvic floor and urethral mobility (0,1810-0,2709,p=0,037-0,002).

Conclusion

There is good correlation between urethral mobility measurements obtained during transperineal 2D pelvic floor ultrasound (transbdominal probe) and introital 2D pelvic floor ultrasound (transvaginal probe). In our opinion the differences between both methods are too high to use them interchangeably. There is need for the research to find the reasons for those differences. We did not find strong predictors of urethral mobility in evaluated aspects of pelvic floor.

The use of diode laser in intrauterine myelomeningocele repair by open fetal surgery

Agnieszka Dulska, Agata Kilijańczyk, Michał Tiszler,

Medical University of Silesia

Presenting author: Agnieszka Dulska
e-mail: dulczes@gmail.com
Tutors: Mateusz Zamłyński

Introduction

Myelomeningocele (MMC) is a congenital malformation with prevalence of 2-5 cases per 10,000 births. Its main comorbidities are Arnold-Chiari malformation type II (CM II), hydrocephalus (HC), sphincter dysfunction, and lower limbs paresis. Intrauterine myelomeningocele repair (IUMR) can be carried out in two ways - using open fetal surgery (OFS) methods or a fetoscopic aproach. Both types of interventions may result in iatrogenic complications during surgery such as uterine contractions, uterine myometrial bleeding or fetal bradycardia. We describe a case of the OFS using diode laser (LD) in two stages of IUMR: hysterotomy and preparation of the fMMC bag.

Case report

Patient aged 29 in second pregnancy, after single cesarean section, admitted to the Department of Gynecology, Obstetrics and Gynecologic Oncology in Bytomdue to fMMC diagnosis. The ultrasound and MRI imaging confirmed the presence of hindbrain herniation and fMMC which are the main "inclusion criteria" according to MOMS.

Midline incision was performed to open the abdominal cavity. The uterus was established and the placenta was located using ultrasound imaging. After insertion of the traction stitches the myometrium and the amniotic membrane were opened using LD (Leonardo Dual Biolitec, Jena Ger) obtaining access to the amniotic cavity. Two symmetrical DeBackey Clamps were placed and the LD cut was extended. Reposition of fMMC to uterine muscle opening was performed. After fetal anesthesia, the tissue of the fMMC was prepared using LD.

In the course of IUMR, the patient did not require additional tocolysis with magnesium sulfate. Delivered by Caesarean section through previous scar after OFS due to pPROM. Newborn preterm female 2400g/50cm, Apgar 10/10, the fMMC site of the repair was healed completely. The period of gestation after OFS with LD was 35 weeks and 2 days. The loss of uterine and fetal blood during OFS was negligible 60 and 8cm3 respectively. A reduction in myometrial bleeding was observed compared to the monopolar electrode method with minimal charring of tissues. The pediatric surgery team determined the use of LD as comparable to the effect of using a monopolar electrode.

Conclusion

The use of LD in OFS raises the level of safety for both the mother and the fetus.

Good hemostatic effect with minimal charring of tissues allows a proper wound healing process with minimal blood loss.

The effect of using LD in OFS is encouraging, however the study requires a larger number of comparative groups of patients.

Attitude of polish students towards controversial gynecological procedures.

Mateusz Porwolik, Maciej Gaździk, Iga Florczyk, Maciej Bugajski

Medical University of Silesia

Presenting author: Mateusz Porwolik
e-mail: pporwolik@gmail.com
Tutors: Tomasz Męcik-Kronenberg,

Introducion

Intervention in contraception and prenatal life is nowadays very controversial topic. In vitro fertilization(IVF) is one of the possible option in case of infertility, whereas when there is fetus defects it is possible to terminate the pregnancy.

Aim of study

The aim of study was to evaluate factors limiting attitude of Polish university students towards IVF and pregnancy termination.

Material and methods

10478 students took part in our survey (79,5% women and 20,5% men) in the age bracket 19-35. They were asked to fill the original questionnaire which consisted questions including their personal and demographic data as well as their attitude towards IVF and pregnancy termination.

Results

55,9% of students declared as Roman Catholic believers. More women than men consider that IVF should be legal in our country (89,31% vs 80,79%; $p<0,001$). More non-believers than Roman Catholic believers(83,1% vs 56,7%; $p<0,001$) and more woman than man(89,2% vs 80,8%; $p<0,001$) would decide to undergo IVF in case of own infertility. More woman than men consider that abortion should be legal in the situation of threat to mother's life (90,1% vs 85,1%; $p<0,001$) and the same in the hard financial situation of mother(46,5% vs 35,3%; $p<0,001$). Much more non-believers accept abortion while there exists a threat to mother's life (89,7% of non-believers vs. 54,1% believers; $p<0,001$).

Conclusion

Majority of students thinks that IVF and abortion should be legal methods as in the present law. The main factors conditioning the opinion are gender, Roman Catholic belief and branch of study. Most of them would decide on IVF in case of their infertility.

Analysis of trends in using vitamin supplements in pregnancy.

Aleksandra Kukla, Anna Franecka

Medical University of Warsaw

Presenting author: Aleksandra Kukla
e-mail: olakukla5@gmail.com
Tutors: Magdalena Bizoń, MD Habib Alkhalayla

Introduction

Vitamin supplements are taken by the majority of women in reproductive age before, during and after pregnancy. According to Polish Society of Gynecologists and Obstetricians vitamin supplements e.g. folic acid, vitamin D, DHA fatty acids, iron and iodine have a proven positive influence on pregnant women.

Aim of study

The purpose of the study was to assess trends in vitamin supplementations among primigravidas and multigravidas who newly delivered a baby.

Material and methods

The study involved 84 patients after delivery aged 18 to 43 hospitalized in 2018 in the Chair and Department of Obstetrics, Gyneacology and Gyneacological Oncology of II Faculty of MUW. The data was based on questionnaire our own authorship regarding demographic data, health issues and the use of vitamin preparations. The patients were divided into two groups: group A consist of primigravidas (48,8%) and group B consist of multigravidas (51,2%). The average age of all patients was 31 (±4,99).

Results

In the group A the vast majority (97,56%) of women claim that taking vitamin preparations during pregnancy has a positive influence on both mother's and child's health, while in the group B it stands for 79,07%. No opinion has 2,44% pts from group A and 9,3% pts from group B. Only women from group B (4,65%) find no positive effects of supplementation.

From group A 4,88% patients and 4,65% from group B admitted to not taken vitamin supplements. Combined vitamin preparations was used by 24,39% pts from group A and 20,93% pts from group B. The percentage of taken combined preparations and single vitamins was 34,15% (group A) and 32,56% (group B). Single vitamins were chosen by 36,59% pts from group A and 41,86% pts from group B.

The source of information was mainly doctors (68,29% pts from group A and 60,47% pts from group B), then doctors and friends (17,07% pts from group A and 23,26% pts from group B). Others source of information were in 14,64% cases (group A) and 16,27% cases (group B).

The average birthweight of children of patients who taken vitamins were 3412,44g (group A) and 3434,048g (group B). Without vitamin supplementation in pregnancy the average birthweight of children was 3165g (group A) and 3900g (group B).

Conclusion

Vitamin preparations are taken by the majority of pregnant women, especially in younger ones and primigravidas. In both groups of women combined supplements with vitamins are more often taken. Doctors encourage pregnant women to vitamin supplementation. There is no correlation between vitamin supplementation and birthweight.

Low ovarian reserve as a consequence of galactose metabolism disorder

Adrian Skoczylas, Karolina Skalska

Medical University of Warsaw

Presenting author: Adrian Skoczylas
e-mail: adrianx21x@wp.pl
Tutors: Monika Grymowicz , Prof. Roman Smolarczyk MD, PhD

Introduction

Galactosemia is a rare, autosomal recessive metabolic disease. It is caused by the deficiency of a galactose-metabolizing enzyme (galactose-1-phosphate uridylyltransferase– GALT or galactokinase – GALK), which results in accumulation of galactose and its metabolites, which are toxic to many organs (liver, kidneys, brain and eye lens). One of the complications of galactosemia is primary ovarian failure manifested by hypergonadotrophic hypogonadism. The ovarian damage begins already in the fetal period.

Case report

A 19-year-old patient with ovarian dysfunction and galactosemia due to complete lack of GALT activity, was admitted to the Clinic of Gynecological Endocrinology at the Medical University of Warsaw.
The first symptoms of the disease (hyperbilirubinaemia, haemorrhagic diathesis, ascites) occurred in the neonatal period. In the first month of life, galactosemia was diagnosed and dietary treatment was implemented.
In laboratory tests performed when the patient was 13 years old, a significant increase in FSH concentration (83.30 mIU / ml) and LH concentration (25.30 mIU / ml) was observed.It was indicative of hypogonadotropic hypogonadism. Clinically, this was manifested by the primary lack of menstruation. During hormone therapy, normalization of FSH, LH, estradiol and testosterone levels in the patient's blood was observed. Furthermore, very low concentration of Anti-Müllerian hormone (AMH) was also detected.

Conclusion

Galactose metabolites, which are responsible for the clinical signs of galactosemia, may cause primary ovarian failure. Furthermore, in the patient reproduction is not possible due to the lack of ovarian reserve, as evidenced by the low concentration of AMH.

To prevent further complications of galactosemia, a dairy-free diet should be respected. Chronic estrogen substitution is necessary for the prevention of osteoporosis.

HUMAN SCIENCE IN MEDICINE

COORDINATORS
Zofia Misztal
Katarzyna Wierzbicka

JURY
Professor Maciej Kokoszko
Anna Alichniewicz, PhD

Sense and sensibility: comparing Codes of Student Conduct

Katarzyna Staniecka, Zuzanna Nowicka

Medical University of Lodz

Presenting author: Katarzyna Staniecka
e-mail: kasiastaniecka.ks@gmail.com
Tutors: Janusz Janczukowicz,

Introduction

Professional identity formation and development of ethical conduct are embedded in the medical curriculum. Throughout their learning process, medical students get involved in patient care and gain privileged access to patients and their clinical data. It is therefore essential that the students behavior justifies the trust placed in medical profession. Concerns regarding unprofessional student behavior may arise in several key areas that depend partly on culture-specific context. To correctly formulate and address these concerns, an explicit and implementable Code of Student Conduct is required.

Aim of study

We aimed to analyse Codes of Student Conduct from medical schools of different geographical and cultural backgrounds, with special regard to applicability of the code and culture-specific themes.

Material and methods

Using search terms related to student conduct and ethics we identified documents from 82 medical schools, located on 6 continents. Of these, 56 met our inclusion criteria (full text available in English, document refers to students of Faculty of Medicine). We selected 20 that we deemed representative of different cultural backgrounds. We assessed them according to the General Medical Council (GMC) professionalism guidance for medical students and other recent works in the field of medical education.

Results

Selected documents varied considerably, both in content and volume. Although most codes described disciplinary processes and possible sanctions, the regulations were not always specific. Only 2 presented with measures for student guidance and support in addition to sanctions. Less than half of the analyzed documents presented rules referring to 'modern' areas of concern, like social media and electronic information. We also identified a number of culture-specific themes, most of them related to religion and dress code.

Conclusion

Faculty of Medicine, due to specific sources of concern regarding student conduct - such as confidentiality of patient information - calls for specific Code of Student Conduct, distinct from general university rules that apply to all students. Absence of regulations that describe the process of addressing ethical concerns, or that specify sanctions and support following disciplinary process, raises questions about applicability of the Code.
Code of Student Conduct should be comprehensive, implementable and ought to cover several key areas of concern in order to facilitate professional identity formation in different cultural settings.

Students as change leaders in medical education: current condition and perspectives for further development of medical education in Poland

Mateusz Marynowski, Aleksandra Likonska

Medical University of Lodz

Presenting author: Mateusz Marynowski
e-mail: mateusz.marynowski93@gmail.com
Tutors: Janusz Janczukowicz, Lukasz Adamus

Introduction

Medical students are becoming active change-agents in their education. Our project explores Polish students` perceptions of current condition of Polish medical education and roles they might employ to influence its development.

Aim of study

Our aim was to explore students' understandings of excellence and reality of medical education in Poland, including their engagement as change leaders.

Materials and methods

The maximum variance sampling was applied to identify medical students from 15 Polish medical schools to share during the focus group interviews their educational experiences, reasons for their involvement in medical education and how their own universities encourage students' engagement. To analyze the data qualitative methodology was applied. Their narrations were recorded, transcribed and coded using Atlas.ti.

Results

Students defined the perfect medical school as an institution educating good doctors, integrating theoretical knowledge and practical skills, following the student-centred strategies, and encouraging to learn in a good educational climate. Many of the modern methods used in medical education trends were identified as not fully implemented at participants` universities yet. Currently, students feel being figure-head type members of curriculum committees. They want to become real change leaders but active encouragement and support from the university is seen as a condition to fully engage in medical education. Ideas of required changes, e.g. improvement of evaluation methods and more educational guidance during clinical rotations were indicated.

Conclusions

There is often a vicious circle of students not feeling ready to participate in medical education and their school not providing them with appropriate support for such activities. Some students present unrealistic expectations towards possible development of curricula due to the lack of knowledge in medical education. Moreover, students complain about lack of such knowledge amongst faculty members. Both students and faculty should further develop their knowledge in medical education in order to act together as a change leaders and implement informed educational changes. This process should be formally encouraged and endorsed by universities.

The legal nature of the reviews and the status of the Bioethical Commission in Polish pharmaceutical law

Małgorzata Bilińska, Bartosz Marcinkiewicz

Medical University of Warsaw

Presenting author: Małgrzata Bilińska
e-mail: m.b.bilinska@gmail.com
Tutors: Dariusz Szafrański

Introduction

Bioethical Committees act a very important role in the protection of the interests and rights of participants in clinical trials. Their task is to evaluate and supervise the conduct of scientific research on humans. Their goals to pursue, inter alia, by issuing opinions, which must be positive to be able to perform a clinical trial.

Aim of study

The work is to determine the powers of the parties in the proceedings before the Bioethical Commission and the duties of the Commission correlated with these powers, which largely depend on the discretion of the Bioethical Commission for the administrative decision. In addition, the aim is to postulate de lege ferenda in the field of improvement of the quality of the rules in force.

By analyzing this issue concerning administrative law, to two basic questions had to be answered: Are the Bioethical Committees public administration authorities in accordance to article 5 of the § 2 point 3 of the administrative procedure code? Whether the opinion of the Committee is the administrative decision?

Materials and methods

The provisions relating to clinical trials on the Polish law in the administrative substantive and procedural law as well as pharmaceutical law and regulations governing the profession of doctor were analyzed and commented. Also the jurisdical doctrine was examined with particular regard to convergence presented by it. Not less important part of the development was a reference to the judicial decisions in this field.

Results

The legal nature of the Bioethical Commission and their legal status as public administrations authorities is ambiguous acting in the jurisdical doctrine issue moot point. Similarly has a situation of judicial decisions, which are not in the scope of the uniform, and each decision differ from each other significantly, both with respect to the verdict and with the argument.

Conclusion

The question of the legal nature of the Bioethical Commission requires Regulations Act. Recognition of this opinion by the administrative decision carries some benefits after the sponsor, primarily in the form of a right of appeal to the administrative court. On the other hand, raises some concerns of a constitutional nature and the system.

Doctor's obligation to denunciate patients in the light of recent amendment to the Penal Code

Mateusz Jeżewski

Medical University of Warsaw

Presenting author: Mateusz Jeżewski
e-mail: matjezewski@wp.pl
Tutors: Bartosz Marcinkiewicz,

Introduction

Medical confidentiality forms one of the foundations of relationship between patient and doctor. It has been initially mentioned in Hippocratic Oath and is contemporarily listed in Act on the Medical Profession and Code of Medical Ethics. Notwithstanding, revealing a criminal offence in course of medical practice is a basis for rescinding the duty of confidentiality. From medical point of view, the obligation of denunciation defined in Article 240 of the Penal Code has been remarkably extended by recent amendment.

Aim of study

This work elaborates on extent of cases obliging medical professionals to disclose confidential details and denunciate their patients in the light of recent amendment to the Penal Code. It asks a question if the current legislation does not collide with patient autonomy.

Material and methods

Discussion of subject is based on the analysis of the Penal Code with commentary and review of related literature. Research is concluded with authors' reflexions.

Results

Amendment to the Penal Code of 13th of July 2017 remarkably extends list of crimes, whose revealing has to be announced to law enforcement authorities, including grievous body harm and crimes against sexual freedom. From doctor's perspective it means now obligation to denounce in more cases, regardless of patient's accordance and despite common conviction of discretion. In particular, changes distinctively affect victims of domestic violence and sexual abuse.

Conclusion

Far-reaching extension of Article 240 of Penal Code embraces relatively common cases in medical practice. On one hand, it is a result of legislator's endeavour to protect interests of crime victims. On the other, it requires doctors to act more frequently disregarding will and privacy of their patients.

INTERNAL MEDICINE

COORDINATORS
Weronika Gawor
Szymon Lis

JURY
Professor Adam Antczak, MD, PhD
Professor Marlena Broncel, MD, PhD
Łukasz Durko, MD, PhD
Paulina Gorzelak-Pabiś, MD, PhD
Izabela Grabska-Kobyłecka, M
Joanna Makowska, MD, PhD

Complications following bronchoscopy - Retrospective analysis of patients hospitalized In Department of Lung Diseases, Tumors and Tuberculosis, Nicolaus Copernicus Universty, Ludwik Rydygier Collegium Medicum in Bydgoszcz in 2017

Martyna Wielgoszyńska, Ludmiła Kaczanowska, Łukasz Cała, Karol Pilichowski, Wojciech Świerczyński

Nicolaus Copernicus University, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Poland

Presenting author: Martyna Wielgoszyńska
e-mail: m.wielgoszynska@gmail.com
Tutors: Grzegorz Przybylski

Introduction

Bronchoscopy is one of the most frequently used diagnostic tool in pulmonary medicine. It allows for macroscopic evaluation of the bronchial tree and taking material for microbiological and histopathological examination. Generally, bronchoscopy is safe, minimally-invasive technique but it might cause some complications. Previous reports have confirmed nonsignificant and serious complication as well, even death.

Aim of study

The aim of this study was to characterize the frequency and the types of complications that might occur during and after bronchoscopy.

Material and methods

The study comprised 385 patients hospitalized between 1 January'17 and 31 December'17 in the Regional Centre of Pulmonology in Bydgoszcz, who underwent 468 bronchoscopy procedures. The study group included 231 (60%) males and 154 (40%) females, aged 19-91 (average age 60.34 years). 171 (44.4%) patients were 65 years old or older and 214 (55.6%) were under 65 years old. The study was based on a retrospective analysis of data from electronic medical records.

Results

Some complications occurred in 88 out of 468 procedures performed, slightly more common in case of women than in case of men (19.7% versus 18.3%). Among 65 years old patients and older 20.8% and below 65 years 17.2% during bronchoscopy some complication occured. More than one complication occurred after 17 procedures (3.6% of all procedures). The most common complications, which appeared, were: increased body temperature (8.3% of all procedures) and haemoptysis (4.9%). Other, less frequently reported complications include: sleeping disorders at night after the examination, malaise, headache, cough, dyspnea, high or low blood pressure, chest pain, loose stools, confusion, dizziness, rash, vomiting, hypercapnia with hypoxemia, abdominal pain, tachycardia.

Conclusion

Complications connected with bronchoscopy technique occurred relatively often (18.8%). There were no serious complications such as death or pneumothorax. The most common problems were: temporarily increased body temperature and haemoptysis. Complications occurred significantly more often in the elderly patients. Due to the fact that adverse events may appear during and after bronchoscopy, attention should be paid to an in-depth analysis of the indications for the procedure in terms of age and comorbidities.

Impact of the percentage of muscle and fat tissue and muscle strength on the quality of people over 60 years of age.

Anna Ziółkowska, Paweł Wojtczak, Remigiusz Sokołowski, Wojciech Stemplowski, Karolina Klimkiewicz-Wszelaki, Eliza Oleksy, Paula Kasperska

Collegium Medicum UMK

Presenting author: Anna Ziółkowska
e-mail: ziolkowska.anna94@gmail.com
Tutors: Kornelia Kędziora-Kornatowska,

Introduction

Physical activity is crucial in a person's life. It has an impact on maintaining health, motor and mental fitness. The human body has been constructed in such a way that it's movement and physical activity is essential in everyday life for proper functioning and avoiding diseases. According to WHO recommendation, every person should engage in moderate physical activity for at least 30 minutes 5 days a week or more intensive activity for at least 20 minutes 3 days a week. In people over 65 years of age, strength and coordination training is particularly important – 2 or 3 times a week – to reduce the risk of falling.

Aim of the study

Analyze the influence of the percentage of muscle and fat tissue and muscle strength on the quality of life of people over 60 years of age.

Material and methods

The study was conducted amongst 86 patients (the average age: 72) of the Geriatrics Clinic qualified for Geriatric Comprehensive Assessment in scheduled mode. Measurements of anthropometric parameters were perfumed: (1) body composition using TANITA weight, (2) muscle strength measurement of the upper limbs using a hand dynamometer and (3) quality of life measurement using the FACIT scale with subscales. Three factors were calculated: mean muscle strength, muscle strength / BMI, average muscle strength / muscle mass.

Results

The average body weight of the examined patients is 71 kg, the average height – 159.32 cm, the average content of muscle mass – 61.25% and the average body fat content – 35.49% of body weight. The higher the percentage of adipose tissue, the lower the muscular strength of the patients and the higher the percentage of the muscle mass, the higher the muscular strength of the patients. Dependence of mean muscle strength (kg) on the quality of life (4 domains measured by FACID scale) was clear and amounted respectively: physical domain $R=0.34$ ($p<0.001$), social domain $R=0.25$($p=0.031$), emotional domain $R=0.27$($p=0.021$), functional domain $R=0.35$($p<0.001$).

Conclusion

The results clearly show that the higher muscle strength of older people, the better quality of life. Therefore, it is necessary to make adults aware of this in order to care for the indicated amount of physical activity in order to maintain as much muscle mass and strength as possible – ensuring the best possible quality of life.

Diagnostic imaging of unspecified abdominal pain. Sonography makes it easier -the case report of the wandering kidney.

Elżbieta Kołeczek, Michalina Horochowska, Jacek Jagiełło, Jacek Łazeczko

Wroclaw Medical University

Presenting author: Elżbieta Kołeczek
e-mail: elakoleczek@gmail.com
Tutors: Tomasz Szczepański,

Introduction

Nephroptosis, also known as floating kidney is a rare urological condition, defined as displacement of the kidney of more than 5 cm or two vertebral bodies. Due to unspecified symptoptoms such as chronic and dragging pain and infrequent occurence this diagnosis became unfamiliar to many physicans. Sonography is a quick and non-invasive modality, which can recognize many pathologies in the human body, especially one located in the abdomen.

Case report

The patient was 37 years old, slenderly built woman who complained of periodic pain in the right ipsilateral abdominal area. Symptoms has been relapsing for 12 years. Throughout this time patient was under gastroenetorological care. Her urological history was unremarkable. No trauma was noticed in the past. Colonoscopy were performed a few times, always revealed no pathologies. An x-ray of the lumbosacral spine showed no evidence of any significant bony lesion. After long period of ineffective diagnosic and treatment, abdominal ultrasound was performed and showed low positioned right kidney with abnormal axis of renal hilium. Correct blood supply and lack of urinary retention were proven. After deep inspiration in the upright position, the R kindney sank to hypogastric area, underneath the aortic bifurcation. The difference of kidneys levels was more than 10 cm. Puting pressure on the right hypogastric area produced the same type of pain, which patient had previously complained on.

Conclusions

Congenital or acquired internal organs defects may provoke many types of unclear symptoms, which delay correct diagnosis. Sonography should be first line imaging method used preferably at the time of physical examination. As „an extention of the stetoscope" allows detecting many abnormalities promptly.

Acute gastrointestinal bleeding as an acute-on-chronic-liver failure (ACLF) trigger in patients with cirrhosis.

Alicja Kozań, Maria Mazur , Marta Zaborowska, Żaneta Jankowska, Edyta Mermer

Medical University of Białystok

Presenting author: Alicja Kozań
e-mail: alicjakozann@gmail.com
Tutors: Paweł Rogalski ,

Introduction

Acute-on-chronic liver failure (ACLF) is a syndrome characterized by acute decompensation of chronic liver disease associated with organ failures that develop in patients with acute decompensation of cirrhosis. In contrast to decompensated cirrhosis, ACLF has a high short-term mortality. The relationship between acute gastrointestinal bleeding and ACLF development in cirrhotic patients is not fully understood.

Aim of study

The aim of the study was to assess the incidence and factors predisposing to ACLF in patients with liver cirrhosis hospitalized due to acute gastrointestinal bleeding.

Material and methods

We collected and retrospectively analysed the data of 63 consecutive patients (41 males, 22 females, mean age 54 12,3 years) with cirrhosis (mean MELD score 16,1 6,89, Child-Turcotte-Pugh 9,87 1,95) of various etiologies, and acute gastrointestinal bleeding (43 variceal bleeding, 19 non-variceal bleeding, 1 bleeding of unknown source) hospitalized from August 2015 to March 2018 at the Department of Gastroenterology and Internal Medicine in Bialystok. ACLF was diagnosed based on EASL-CLIF definition.

Results

Of the patients assessed, 19 (30%) had ACLF [5 (7,9 %), 9 (14,29%) and 5 (7,9%) patients had ACLF grade 1, grade 2, and grade 3 respectively)] during hospitalization. The most frequent organ failures as defined by the EASL-CLIF score in the studied group were kidney (15 patients, 23,8 %), and respiratory failure (14 patients, 22%), followed by circulation, cerebral, coagulation and liver failures. Among patients with organ failures 17 (60 %) had single organ failure 8 (28 %) had 2 organ failures and 3 (10,7 %) had 3 or more organ failures.

The MELD score ($rS = 0,46$, $p < 0,05$), presence of ascites ($rS = 0,28$, $p < 0,05$), hepatic encephalopathy ($rS = 0,32$, $p < 0,05$), diuretics administration ($rS = 0,25$, $p < 0,05$) and serum sodium ($rS = -0,312$, $p < 0,05$), C- reactive protein ($rS = 0,40$, $p < 0,05$) and creatinine ($rS = 0,32$) concentrations on admission to the hospital correlated with the occurrence of ACLF during hospitalization.

Conclusions

The incidence of ACLF in patients with cirrhosis hospitalized due to acute gastrointestinal bleeding is very high, despite effective endoscopic therapy. The assessment of MELD score, serum C- reactive protein, sodium and creatinine concentrations allows early identification of patients at risk of ACLF in bleeding cirrhotic patients.

Poor adherence of hemodialysis patients to dietary restrictions.

Aleksander Kowal, Marta Lasota

Medical University in Lodz

Presenting author: Aleksander Kowal
e-mail: a.kowal94@gmail.com
Tutors: Michał Nowicki, Elżbieta Trafalska

Introduction

Being focused on modern medicine, the significance of a simple treatment, which is a proper diet seems neglected. Diet plays undoubtedly a major supportive role in the management of chronic kidney disease (CKD) and has a great impact on quality of life and survival. The monitoring of protein, sodium, potassium, and phosphate consumption and water intake poses a serious dietary challenge in CKD.

Aim of study

Assessment of dietary habits of chronic hemodialysis patients and their attitude towards the required dietary restrictions.

Material and methods

The study involved 74 patients (28F, 46M) from three public dialysis units, age 59.4 ±14.2 years treated with hemodialysis (HD) three times a week, BMI 26.6 ±5.5 kg/m^2, time on dialysis 3,6 ± 3,7 years. Patients took part in a survey which included 16 open and 39 multiple choice questions. Patients were asked about the history of kidney disease, awareness of dietary restrictions and adherence to the diet. Second part of the survey addressed the frequency of consumption of specific food items. Nutritional data were analysed in cooperation with the Department of Nutrition and Epidemiology. The subgroup of 19 patients (9F, 10M age 61.5 ±13.5 years, BMI 25.6 ±4.2 kg/m2, time on dialysis 4.4 ± 5.2 years) who reported full adherence to dietary restrictions was compared to the rest of the study population.

Results

Only ¼ of the patients reported to meet all dietary recommendations for CKD, however, the irregularity of meals was the main problem. 61.8% patients had 3 or fewer meals per day compared to 42.1% in the diet-adherent subgroup. High consumption of phosphate-rich food, i.e. meat was also common, 70.8% for breakfast and 55.4% for dinner. Nearly half of the patients avoided milk products completely, including 45.9% in the whole study population and 52.6% form the subgroup, respectively. Fruit consumption which poses a risk of hyperkalemia was too high, 35.1% and 52.6%, respectively consumed at least one portion of them a day. In contrast, consumption of vegetables was low 31% and 31,6% respectively ate vegetables once a week or less. Patients consumed sodium-rich pickles at least once a week, 39.2% and 50%, respectively. Addition of salt when cooking was reported by 56.2% and 63.2%, respectively. Sweets was consumed by 48.6% of patients at least once a week, 13.5% at least once a day. Average daily intake of fluids was 920 ml ± 510 ml. 70.3% of patients claimed that a hemodialysis patient-oriented mobile application would help to follow dietary recommendations.

Conclusion

The study showed that the majority of chronic dialysis patients failed to follow multiple dietary restrictions specific for kidney disease. A quarter of patients tried to control nutrients, but their diet was unbalanced and monotonous. In patients opinion there is a need to create a mobile application to improve an adherence to dietary guidelines for chronic kidney disease

Compliance to continues positive air pressure treatment among patients suffering from obstructive sleep apnea syndrome

Agata Gabryelska, Marcin Sochal, Bartosz Wasik

Medical University of Lodz

Presenting author: Agata Gabryelska
e-mail: agata.gabryelska@gmail.com
Tutors: Piotr Białasiewicz,

Introduction

Obstructive sleep apnea syndrome (OSA) is a chronic condition characterized by recurrent pauses in breathing caused by repeated collapse of the upper airways. The non-invasive treatment of the disorder is application of continues positive air pressure (CPAP) to upper airways in order to inhibit their collapse.

Aim of study

The aim of the study was to determine the rate of compliance to CPAP treatment among OSA patients as well as to determine reasons of non-adherence.

Material and methods:

The study included 305 (80,3% male) patients diagnosed with OSA (Apnea-Hypopnea Index 5) following polysomnography examination. All individuals underwent a trial night with CPAP treatment, while the mask and air pressure of the treatment were determined alongside the effectiveness of the CPAP.

Results

66,6% of all patients began CPAP treatment. There were no statistically significant differences between the treatment vs no-treatment groups regarding age, sex, BMI, excessive daily sleepiness and severity of the disorder. The most common reason for not undertaking the CPAP treatment (32,4%) was the price of the appliance.

From the group that started the treatment, 56,7% continues it regularly (at least 5 nights/week, at least 4 hours/night), 9,5% continues the treatment irregularly and 33,8% discontinued the treatment. The median time of the CPAP treatment before the discontinuation was 27 (interquartile range [IQR] 4 - 67,5) weeks. There were no statistically significant differences between the regular, irregular and discontinued treatment groups regarding age, sex, BMI, excessive daily sleepiness and severity of the disorder. The most common reason for discontinuation of the CPAP treatment (52,7%) was its intolerance.

Conclusion

The compliance to CPAP treatment, which is a non-invasive form of treatment of OSA patients is low at start, mainly caused by high expense of the necessary appliance. Additionally, over half of patients do not tolerate this form of treatment long term, which shows that despite CPAP being non-invasive it's still not an ideal form of treatment for a vast group of individuals. Nevertheless, the disadvantages of CPAP, the study underlines that there is the need for more substantial refunding of the CPAP treatment within Polish healthcare insurance system.

Is excessive daytime sleepiness associated with phenotype of Obstructive Sleep Apnea rather than the severity of the disorder?

Agata Gabryelska

Medical University of Lodz

Presenting author: Agata Gabryelska
e-mail: agata.gabryelska@gmail.com
Tutors: Piotr Białasiewicz,

Introduction

Obstructive sleep apnea (OSA) is a chronic condition characterized by recurrent pauses in breathing caused by repeated collapse of the upper airways. Excessive daytime sleepiness (EDS) is one of main complaints in this patient group.

Aim of study

The aim of the study was to compare REM-dependent and non-sleep stage dependent, position-dependent obstructive sleep apnea syndrome (OSA) patients in relation to their daily sleepiness assessed by Epworth sleepiness scale (ESS).

Material and methods

The study included 1863 consecutive patients, who were referred to Sleep and Respiratory Disorders Centre with a presumed diagnosis of OSA. Following polysomnography, 369 patients fulfilled criteria for either REM-dependent OSA (REM-OSA, n=111) or non-sleep stage dependent, position dependent OSA (NSS-P-OSA, n=258).

Results

Both study groups were matched regarding sex and age. REM-OSA group had two and a half times lower median ($p<0.001$) of apnoea-hypopnea index (AHI) compared to NSS-P-OSA, yet day-time sleepiness measured by ESS was similar: median score 9 (6-11) and 8 (5-11), $p=0.055$, respectively. Post-hoc ANCOVA analysis with BMI, percent of time spend in REM stage and percent of time spend in supine position as confounding variables, showed similar result with day-time sleepiness measured by ESS not differing significantly between groups ($p=0.308$) and severity of the disorder (AHI) differing significantly ($p<0.001$).

Conclusion

Patients with REM-OSA present with similar day-time sleepiness at a 2.5 times lower AHI level than those with non-sleep stage dependent OSA. This may have some practical implications as due to marked symptomatology in the former, CPAP treatment may be considered at a lower AHI level.

Sleep and inflammatory bowel diseases (IBD) - comparison of sleep disorders in patients in exacerbation and remission of IBD.

Marcin Sochal, Agata Gabryelska, Monika Krzywdzińska

Medical University of Lodz

Presenting author: Marcin Sochal
e-mail: sochalmar@gmail.com
Tutors: Ewa Małecka- Panas, Renata Talar- Wojnarowska M.D. Ph.D.

Introduction

Ethology of Crohn's disease (CD) and Ulcerative colitis (UC) has not been clearly defined and is multifactorial. One of such factors may be sleep disturbances. The frequency of diagnosis of sleep disorders is increasing in recent years, similar to the incidence of inflammatory bowel diseases (IBD). Sleep may modulate the activity of the immune system. Mouse model showed that sleep continuity disturbance exacerbated clinical and histopathological symptoms of disease. Irregular working hours, exposure to artificial light may increase the risk of developing IBD. However, it is unclear whether sleep disorders are the result of disease symptoms or their consequences, such as pain, depression or the type of treatment used.

Aim of study

The aim of the study was to search for the dependence of sleep patterns with clinical course of IBD (exacerbation/ remission) and pathomechanisms responsible for these disturbances.

Material and methods

Fifty patients with IBD were included in the study, 24 (48%) with CD and 26 (52%) with UC and completed questionnaires assessing sleep quality: Pittsburgh Sleep Quality Index (PSQI), Athens insomnia scale (AIS), Epworth sleepiness scale (ESS). The mood level (using Beck Depression Inventory (BDI)) and the level of pain (using Visual Analogue Scale (VAS) and Laitinen Pain Scale (LPS)) were measured. The disease activity was assessed through indicators: Partial Mayo Score (PMS) for UC and Harvey- Bradshaw Index (HBI) for CD. Information about the progress of the disease, methods of treatment and socio-demographic variables were also collected. The research was approved by the Ethics Committee of Medical University of Lodz (reference number: RNN/315/17/KE).

Results

The study group consisted of 25 individuals in remission and 25 in exacerbation. Fifty six percent of patients were men. Both study groups were match regarding age ($p=0.609$), sex ($p=0.091$), BMI ($p=0.331$) and type of IBD disease ($p=0.267$). Patients in exacerbation had presented decreased quality of sleep in both PSQI ($p=0.035$) and AIS ($p=0.001$) compared to remission group. Additionally, exacerbation group had scored higher on VAS ($p=0.006$), LPS ($p=0.004$) and BDI ($p=0.003$) scale. Subsequent ANCOVA analysis with covariates (VAS, LPS and BDI) has shown statistically significant difference between study groups regarding both sleep questionnaires PSQI ($p=0.010$) and AIS ($p<0.001$).

Conclusions

Patients with UC have similar sleep problems compared to with CD. Individuals in exacerbation of IBD disease present with decreased sleep quality (based on PSQI and AIS questionnaires) than in remission. Decreased sleep quality was independent from pain and depression, which are generally recognized as factors influencing sleep quality. The search for additional causes of sleep problems in this group of patients is important.

A case report of a patient with ulcerative colitis presenting with sever exacerbation and complications

Monika Wachowicz, Kinga Balińska, Przemysław Wojciechowski, Damian Wilk

Medical University of Lodz

Presenting author: Monika Wachowicz
e-mail: moni.wachowicz@gmail.com
Tutors: Maria Wiśniewska - Jarosińska, Anita Gąsiorowska

Introduction

Ulcerative colitis (UC) is a chronic inflammatory bowel disease of the colonic mucosa affecting about 700 Polish people per year. The pathogenesis of UC, contains the presence of a number of pathogenic factors such as microbial disorders, various genetic conditions and immune response dysregulation. Many investigations have tried to identify novel factors associated with UC but understanding of full process still remains unclear. Several risk factors were found to have major impact on UC development and exacerbation, namely: psychological distress, improper lifestyle, alcohol abuse and environmental changes. Due to severe exacerbations and numerous accompanying infections, which can be fatal, patients with UC should receive profound medical attention.

Case report

We want to present a case of 48-year old woman diagnosed with UC, admitted to the Department of Gastroenterology, Medical University of Lodz, in February 2014 because of abdominal pain, bloody diarrhoea and oedemas of lower limbs. Colonoscopy revealed inflammatory lesions of colon mucosa and confirmed severe exacerbation of UC. Women was hospitalised multiple times due to recurrent flares of the disorder despite of biological treatment administration. During complicated treatment process there was a deterioration of the patient's clinical condition induced by *Clostridium difficile* infection causing pancolitis. Thereupon patient was qualified for colectomy with final ileostomy. In July 2014 patient condition worsened again, once more diarrhoea and fever emerged. After exclusion of postoperative complications, TEE and TTE echocardiography and hemoculture was performed, in which it was verified that the patient had endocarditis caused by *Staphylococcus aureus* with bacterial vegetations on tricuspid valve . Afterwards patient was relocated to Cardiosurgery Department for further treatment.

Conclusion

Case of this patient is an interesting and informative example how differential and demanding can be the diagnosis of infection in a patient with chronic disease like UC. The patient constituted symptoms like abdominal pain, bloody diarrhoea, oedema of lower limbs and fever, which may be specific for underlying pathology - in this case UC, but the condition is disturbing when the symptoms do not respond to the appropriate treatment. Moreover it is worth to take a closer look at an unconventional course of seemingly trivial infections in a patient treated with immunosuppressants for inflammatory bowel disease (IBD). Taking all the aspects into the point, knowledge about the infectious complicated UC is essential, as they occur increasingly. This fact should draw our attention to unorthodox diagnostics and difficulties encountered in multidisciplinary treatment of IBD patients in the future.

Is the change of body mass the key determinant of post-dialysis blood haemoglobin increase?

Jakub Hołyński, Olivia Cyran

Medical University of Lodz

Presenting author: Jakub Hołyński
e-mail: jaqubholynski@gmail.com
Tutors: Professor Michał Nowicki, Ewa Pawłowicz, MD

Introduction

Anaemia management is a cornerstone of the pharmacotherapy of end-stage renal disease. The target haemoglobin (Hgb) in hemodialysis (HD) patients treated with erythropoiesis stimulating agents (ESA) was set between 10-12 g/dL by the European Renal Best Practice Advisory Board. Both lower and higher haemoglobin concentrations are associated with worse survival in this population. It has been well documented that haemoglobin significantly increases after dialysis session, but clinical sequelae of this finding remain moot.

Aim of study

The objective of this study was to compare pre-dialysis and post-dialysis Hgb in relation to change of body mass (BM) in HD patients.

Material and methods

The study comprised 54 HD patients, 39 men (mean age 62±15.3 years) and 15 women (mean age 63±14.6 years) dialysed for at least 6 months, and receiving ESA for renal anaemia. Complete blood count and serum urea were measured before and after mid-week dialysis session. The patients were divided into 2 groups, i.e. with post-dialysis Hgb <12 g/dL (group 1) or ≥12 g/dL (group 2). 28 patients were examined with bioimpedance spectroscopy with Body Composition Monitor (Fresenius Medical Care) before and after HD session.

Results:

The mean pre-dialysis Hgb was 11±1.3 g/dL, the mean post-dialysis Hgb level was 11.6±1.8 g/dL. The %ΔHgb in group 2 was significantly greater than %ΔHgb in group 1 (2.8±6.5 and 9.8±9.7, respectively, $p<0.01$), while the %ΔBM was 2.6±2.7 in group 1 and 3±1.3 in group 2 ($p>0.05$). Significant correlations between %ΔBM and %ΔHgb in both group 1 ($r=0.41$) and group 2 ($r=0.59$) were found. Regression analysis showed that only 31% of Hgb variability may be explained with %ΔBM ($R2=0.31$).

Conclusion

The factors different than %ΔBM might play a role in the change of haemoglobin concentration. Further investigations in this area may be useful for more efficient anaemia management in HD population.

Fertility and pregnancy in patients with inflammatory bowel diseases.

Justyna Sobolewska , Artur Nowak , Aleksandra Sobolewska-Włodarczyk

Medical University of Lodz

Presenting author: Martyna Szewczyk
e-mail: just.sobolewska@gmail.com
Tutors: Maria Wiśniewska-Jarosinska

Introduction

Patients suffering from inflammatory bowel disease (IBD) usually have smaller families. They are less eager to plan offsprings for fear of the effect that drugs or disease itself can have on fetal development. These patients are also afraid of possibility of passing this disorder to their children. Health care workers who deal with IBD patients shape their level of knowledge and thus have an impact on the level of anxiety associated with the influence of illness on pregnancy.

Aim of study

The aim of our study is to compare IBD-specific pregnancy-related knowledge of family doctors, obstetricians/ gynecologists, surgeons and internists with gastroenterologists. For this purpose we used the validated Crohn's and Colitis Pregnancy Knowledge (CCPKnow) questionnaire which is comprised of 19 closed questions.

Material and methods

We prepared questionnaire based on the one that was used in study: " Inflammatory bowel disease-specific pregnancy knowledge of gastroenterologists against general practitioners and obstetricians" written by Soleiman B Kashkooli and co-workers. Doctors of different specializations in Lodz area were asked to complete the questionnaires that contained 19 closed questions concerning risk of IBD heredity, possibilities of congenital disorders, effect of medicines on pregnancy and also options of delivery.

Results

We have collected 40 correctly completed questionnaires. The study involved 8 family doctors, 4 gynecologists, 10 gastroentologists, 4 surgeons, 17 internists. Interns, gynecologists and surgeons had significantly lower knowledge than gastroenterologists. The average score was 7 (43%) points out of 17 possible to get. Only two people gave correct answers about biological treatment in pregnant women with inflammatory bowel disease. Nobody answered the question about breastfeeding well. All of the doctors answered well to the question about the risk of getting a child whose parents are ill.

Conclusion

Our research shows that doctors have insufficient knowledge about pregnancy associated with IBD, including the use of drugs on IBD. These results confirm the need to disseminate knowledge among physicians about fertility and pregnancy in people with inflammatory bowel diseases.

Does the age of hemodialyzed patients affect the frequency and severity of mineral and bone disorders?

Maciej Kocon, Kaja Powałkiewicz, Mariola Charysz, Aleksandra Lubieniecka, Jarosław Pestka

Nicolaus Copernicus University, Ludwik Rydygier Collegium Medicum in Bydgoszcz

Presenting author: Maciej Kocon
e-mail: kocon.maciej@gmail.com
Tutors: Paweł Stróżecki, Professor Jacek Mannitius, M.D., Ph.D.

Introduction

A group of hemodialyzed patients with end-stage chronic kidney disease (CKD) is growing older. Mineral and bone parameters are actively managed in CKD. Exceedingly important in the prevention and control of mineral and bone disorders in patients with chronic kidney disease (CKD-MBD) is an appropriate diet. Eating habits of the elderly are different from younger people, which may affect the CKD-MBD indicators.

Aim of study

The purpose of the study was comparing laboratory CKD-MBD indicators and treatment used in a group of hemodialyzed patients ≥65 years old and <65 years old.

Material and methods

This is a retrospective study including 123 patients hemodialyzed in the dialysis center of the Nephrology Clinic, Hypertension and Internal Diseases at the University Hospital No. 1 A. Jurasza in Bydgoszcz. We analyzed group of patients between 19 and 93 years old, women constituted a group of 45 people (37%) and male 78 (63%). 50 patients involved into the study were <65 years old (41% - group I) and 73 patients ≥65 years old (59% - group II).

Results

Patients ≥65 had lower concentration of phosphorus in compare to the group I (1.53±0.45mmol/l vs 1.94±0.60mmol/l; p<0.001). Hyperphosphatemia (P>1.52mmol/l) was less frequent in elderly patients (44%) than in patients <65 years old (74%); (p<0.001). Differences in the frequency of taking drugs affecting CKD-MBD between groups I and II are as follows: in the range of cinacalcet (20% vs 8%; p<0.001), paricalcitol (32% vs 4%; p<0.001), alfacalcydol (32% vs 42%; p<0.001) and calcium acetate (32% vs 10%; p<0.001). There was no difference in the frequency of taking calcium carbonate (86% vs 90%). Groups I and II did not show significant difference in the indicators of dialysis adequacy Kt/V (1.52±0.24 vs 1.51±0.22), as well as in terms of calcium concentration (2.18±0.17 vs 2,24±0.23) and parathyroid hormone (median and range) 358(17-1284)pg/ml vs 247(29-1258)pg/ml.

Conclusion

The concentration of phosphorus was better controlled in the elderly patients. They require less aggressive pharmacological treatment of mineral and bone disorders in chronic kidney disease. Whether this becomes from different eating habits or from more scrupulous adherence to medical recommendations it requires further research.

Serum adipokines level as a marker of inflammatory response to anti-tumor necrosis factor alpha agents in Crohn's disease patients.

Anna Zielińska, Anna Zielińska, Marcin Włodarczyk, Aleksandra Sobolewska- Włodarczyk

Medical University of Lodz

Presenting author: Paweł Siwiński
e-mail: ania.zielinska0122@gmail.com
Tutors: Maria Wiśniewska- Jarosińska,

Introduction

Alternation in body fat distribution, with accumulation of intra-abdominal white adipose tissue (WAT) is a well known feature of Crohn's disease (CD). Recent studies emerged WAT as a vital part of disease origin in CD patients. It produces and releases a great number of multifunctional proteins collectively referred to as adipokines among which leptin, adiponectin and resistin hold a fundamental role. An overexpression of leptin, adiponectin and resistin has been reported in CD suggesting that adipocytes may be involved in the pathogenesis of the disease and act as immunoregulatory cells.

Aim of study

We hypothesize that the level of adipose tissue and secreted adipokines in CD patients determines the course of treatment and influences the response to anti-TNFα therapy. This study aims at evaluating the change in fat tissue distribution and serum concentrations of leptin, adiponectin and resistin in patients diagnosed with CD qualified for biological therapy with anti-TNFα agents.

Material and methods

The research was conducted with funds acquired from "Grant UMEDu". This was a prospective, 2- year clinical study involving adult CD patients qualified for biological treatment and hospitalized at the Department of Gastroenterology, Medical University of Lodz, Poland. 31 patients with CD undergoing 52-week therapy with anti-TNFα agents were enrolled. In order to determine adiponectin, leptin and resistin levels in all patients', blood samples at 0, 14 and 52 weeks of treatment were collected. Additionally, at each time point a detailed body composition analysis with the use of "BODYSTAT 1500" body fat analyzer was performed and laboratory parameters including C- reactive protein (CRP) levels, standard morphology and lipoprotein profile were evaluated.

Results

Mean serum leptin level measured at week 0 of anti-TNFα therapy was 11.5±3.4 ng/mL(range: 2.8.–124.1ng/mL). Mean serum adiponectin level was 6998.2±541.2 ng/mL (range: 2148.4–18342 ng/mL) and mean resistin level was 16.4±1.8 ng/mL (range: 4.9–48.7ng/mL). Consecutive assessment at week 14 revealed a significant decrease in leptin and resistin levels (13.2 ng/mL; 17.4 ng/mL respectively). Adipocytokines serum level evaluation at week 52 confirmed the decreasing trend in resistin level (16.3 ng/mL), leptin and adiponectin levels revealed no significant differences. The serum levels of adipocytokines were not correlated to CRP concentration or the clinical indices of activity of disease.

Conclusion

Adipokines serum levels in CD patients present fluctuations during anti-TNFα. This observed dysregulation of protein secretion may play an important role in the disease pathogenesis. Modulators of adipose tissue function may represent interesting therapeutic targets in CD patients. Additional research is needed to further clarify the role of adipocytokines in the disease.

Severe osteoporotic fractures in young men with possible celiac disease

Karolina Sobańska

Poznan University of Medical Sciences

Presenting author: Karolina Sobańska
e-mail: karolinas110@gmail.com
Tutors: dr n. med. Iwona Krela-Kaźmierczak, dr n. med. Anna Wawrzyniak

Introduction

Osteoporosis in young men is always a sign of different pathological state. Malabsorption syndrome can appear with secondary osteoporosis. 15% of patients with celiac disease develop osteoporosis.

Case report

Patient was treated with dapsone for several years because of Duhring disease. In 2012, at the age of 41, he had fragile compression fracture of L2 vertebra. The same year DXA showed T-score -4.7, Z-score -4.6 at the lumbar spine L3-L4. In diagnosis of the cause of osteoporosis myeloma, metastasis to bone, kidney failure, Cushing disease, somatopause, thyroid and parathyroids glands diseases were ruled out. Diagnostic towards malabsorption began. Results of immunology tests showed TTGA IgA>200 RU/ml, positive AGA IgG, negative: EMA IgG, AGA IgA, EMA IgA. Based on positive serology tests and histological examination from material gained during gastroscopy from duodenum (Marsh 0), possible celiac disease was recognized. Under hospitalisation he took therapy with zoledronic acid. In 2014 lab test showed hypovitaminosis D 22 ng/ml, whereas 2013 level was 51 ng/ml. In 2015 he was given a third dose of zoledronic acid. At the beginning of 2016 patient fell down from stairs, which caused compression fracture of Th6. Vit.D, calcium supplementation and taking bisphosphonates were suggested. As a result of anti-osteoporosis treatment he developed kidney stones, doses reduction of vit.D, calcium and bisphosphonates were recommended. In May 2016 DXA with spine morphometry assessment revealed severe compression of Th6 and severe biconcavity of L1. In Jan 2017 test showed hypovitaminosis D 21 ng/ml, DXA T-score was -2.8, Z-score -1.8 at the left femoral neck. Despite of the high probability of celiac disease patient has never been on gluten free diet and hasn't had gastroscopy in the last 12 months. We invited the patient to the clinic on gastroenterology department on April 2018. We want to rule out another intestinal cause of his severe osteoporosis. We are planning to perform gastroscopy, genetic tests for DQ2 and DQ8 genotypes and mark faecal calprotectin.

Conclusion

Overt osteoporosis can be the first sign of celiac disease. In diagnostic process of secondary osteoporosis doctors should always exclude intestinal causes. The key treatment of secondary osteoporosis is dealing with primary disease. Both celiac disease and osteoporosis are characterised by lingering and oligosymptomatic beginning. In case of this patient, lack of proper diet could have influence on serial fractures. In patients with secondary osteoporosis, celiac disease should be considered and in patients with diagnosed celiac disease, disorders of bone metabolism should be prevented (osteoporosis/osteomalacia).

The association between inflammatory bowel diseases and selected psychological constructs

Mikołaj Kopka, Aleksander Kalukiewicz

Medical University of Lodz

Presenting author: Aleksander Kalukiewicz
e-mail: mikolajkopka7@gmail.com
Tutors: Tadeusz Pietras, Adam Dziki

Introduction

Inflammatory bowel disease (IBD) is a group of inflammatory conditions of the colon and small intestine.

Aim of study

The aim of the study was to determine the relationship of emotional intelligence, mindfulness, depression and chronotype with the course of the disease, taking into account the quality of remissions and the severity of exacerbations.

Material and methods

40 students of the Faculty of Medicine were surveyed with the battery of questionnaires: the Beck Depression Index(BDI), Emotion Intelligence Questionnaire (INTE), Chronotype Questionnaire, Five Facet Mindfulness Questionnaire (FFMQ) and author's questionnaire which assess the predictors of severity of the disease course.

A forward stepwise linear regression model was created for prediction of each parameter.

A rise of mindfulness score was predicted by decreased number of performed surgeries and decreased number of steroid treatments.

Results

A rise of BDI was predicted by increased number of steroid treatments, increased frequency of anal fissures, increased frequency of anal fistulae, increased frequency of weight loss over 5kg.

A rise of emotional intelligence was predicted by decreased number of frequency of anal fistulae and anal fissures.

Conclusion

A rise of evening chronotype was predicted by increased number of steroid treatments in last year, and increased frequency of anal fissures and anal fistulae.

Inflammatory bowel diseases are associated with emotional intelligence, mindfulness, chronotype and depression.

NEUROLOGY

COORDINATORS
Anna Lach
Agata Szymaszkiewicz

JURY
Bartosz Bielecki, MD, PhD
Professor Wielisław Papierz, MD, PhD
Professor Mateusz Stasiołek
Professor Magdalena Zakrzewska, MD, PhD

Bleeding blister-like and dissecting aneurysms - flow diverting stents as the therapeutic option

Szymon Baluszek

Medical Unversity of Warsaw

Presenting author: Szymon Baluszek
e-mail: szymonbaluszek@gmail.com
Tutors: Michał Zawadzki,

Introduction

Ruptured intracranial aneurysms are the leading cause of atraumatic subarachnoid haemorrhage (SAH). Aneurysmal SAH has a grim prognosis with 40% mortality and 30% morbidity. Nonetheless, current guidelines support treating all those patients by either clipping or coiling.
Flow diverting stents (FDS) have been initially used to treat complex, unruptured internal carotid artery (ICA) aneurysms but recently, FDSs were studied in other anatomical locations. Implantation of FDS aims at causing immediate or delayed thrombosis of the aneurysm lumen and epithelialization of the stent surface, usually with preservation of perforating vessels. Unfortunately, the use of FDS can be complicated by aneurysm rupture, stent thrombosis and perforators infarcts and haemorrhagic complications associated with use of dual antiplatelet therapy (DAT). SAH causes significant change in the physiology of intracranial circulation, which is relevant to use of the FDS, increasing the bleeding risk and intraluminal pressure during vasospasm phase. Therefore, FDS implantation is considered only in specific clinical scenarios of aneurysmal SAH, mainly small, uncoilable lesions.

Aim of study

Aim of this study is to describe clinical scenarios in which FDS implantation in the cases of SAH is acceptable in terms of benefit to risk ratio. Blister-like aneurysms (BLAs) are example of such lesions, they account for 0,5 to 2 % of intracranial aneurysms and cause significant morbidity and mortality. Due to their fragility, numerous strategies were applied in their treatment and the recent use of FDS is regarded beneficial. Moreover, we intend to share illustrative cases, including those of aneurysms growth and morphological evolution.

Material and methods

Clinical records since 2013 to 2018 were screened for patients who underwent FDS implantation as treatment of bleeding aneurysm. Thirteen such patients with 15 aneurysms were identified.

Results

The majority of patients had Fisher Grade 3 SAH and median WFNS score was 2 with 4 patients were in groups 4 and 5. The mean age was 57 (range of 44-70) and all aneurysms were located on the ICA (9 in C6/C7 segment, 3 in C5 and 2 in C4), except one arising at origin of posterior inferior cerebellar artery (PICA).All the ICA cases were primarily treated with FDS implantation without coiling. The case of the dissection at the origin of PICA was treated with FDS implantation with coils. The patients were pre-treated with DAP and the therapy was continued for 6 months. In the clinical follow-up 10 patients had modified Rankin scores 0-2, two had 3 and one died. The angiographic follow-up was available for 11 patients / 13 aneurysms. Eleven aneurysms were secluded from circulation and 2 were still filling but have decreased in size.

Conclusion

We present series of clinical cases associated with good outcomes in challenging cases of BLAs. Hopefully, this will lead to the improvement in care and outcomes in those challenging cases.

Memory-improving, GABA-regulating and anti-neuroinflammatory effects of diazepam at very low and moderate doses in a rat model of Alzheimer's disease

Vladimirs Pilipenko, Karina Narbute, Jolanta Pupure, Juris Rumaks, Baiba Jansone, Vija Klusa

University of Latvia

Presenting author: Vladimirs Pilipenko
e-mail: vladimirs.pilipenko@lu.lv
Tutors: Vija Klusa,

Introduction

The earliest pathological features of Alzheimer's disease (AD) are neuroinflammation and depletion of gamma-aminobutyric acid (GABA) levels that lead to memory impairment. These changes start before the amyloid-beta cascade and are ideal time points for therapeutic interventions before the actual start of AD. Although GABAA and GABAB receptor agonists possess memory-impairing effects at doses above 1 mg/kg, at very low doses (0.01-0.05 mg/kg) they improved spatial learning/memory and decreased neuroinflammation in a non-transgenic AD rat model that replicates early sporadic AD-related changes that also occur in human beings (Pilipenko et al., 2018). The effects of GABAA receptor positive allosteric modulator diazepam (DZP) in this model have not yet been described. Beneficial effects of DZP at very low dose were only demonstrated in Osaka knock-in mice transgenic model, where DZP protected memory processes and decreased amyloid-beta accumulation (Umeda et al., 2017).

Aim of study

To examine the effects of DZP at a very low (0.05 mg/kg) and moderate (1 mg/kg) dose on spatial learning/memory, neuroinflammation and GABA synthesis in a non-transgenic AD rat model.

Material and methods

Rat model of AD was obtained by bilateral injection of intracerebroventricular (icv) streptozocin (STZ). Rats were treated with DZP intraperitoneally (ip) 3 days prior to and 18 after the STZ injection. Controls received ip saline and icv artificial cerebrospinal fluid. Spatial learning and memory performance was tested using Morris water maze and locomotor activity – using open field test. Biochemical assessment was performed using markers for astroglial neuroinflammation (glial fibrillary acidic protein, GFAP) and GABA synthesis (glutamate decarboxylase-67, GAD67) in the anterior cortex and hippocampal CA1.

Results

The injection of STZ resulted in significantly longer escape latency, time spent in the platform zone and platform crossings in the water maze but did not alter total distance walked and time spent in the center zone in the open field test. STZ also markedly increased astroglial expression of GFAP and decreased GAD67 density. Administration of DZP in STZ rats at both doses improved spatial learning/memory, significantly lowered GFAP and increased GAD67 density in both structures.

Conclusion

DZP treatment at sub-sedative doses protected spatial learning/memory processes, alleviated astroglial inflammation and normalized GABA levels in STZ-treated rats. The observed neuroprotective effects probably occur via binding of DZP to nonspecific allosteric sites on the GABAA receptor or other, unidentified regulatory proteins. The obtained data indicate the usefulness of DZP at low doses as a neuroprotective drug for the treatment of AD in its early stages.

An eight year-old with encephalocraniocutaneous lipomatosis and pilocytic astrocytoma - a case study with genetic analysis

Joanna Kordacka

Medical University of Lodz

Presenting author: Joanna Kordacka
e-mail: joanna.kordacka@stud.umed.lodz.pl
Tutors: Magdalena Zakrzewska,

Introduction

Encephalocraniocutaneous lipomatosis (ECCL) is a neurocutaneous disorder with only about 100 cases reported since the first description in 1970 by Haberland and Perou. It is characterized by usually unilateral cutaneous, ocular and central nervous system anomalies. The most common lesions of the CNS are intracranial and intraspinal lipomas; however, reports about low-grade gliomas in ECCL patients exist and up till now six patients with LGGs have been described. Therefore, it has been suggested that patients with ECCL may have a predisposition to this tumors.

The etiology of ECCL remains to be confirmed beyond doubt. It has been proposed that ECCL is caused by an otherwise lethal mutation, which can survive in a mosaic state. A recent study by Bennet et al. identified two mutations in *FGFR1* gene, K656E and N546K in the affected tissue of 5 patients with ECCL. In a study by Boppudi et al., a A146T mutation of the *KRAS* gene has been found in one patient. In order to confirm that those are the causative genetic changes of ECCL, more molecular studies have to be performed.

Case Report

An 8 year old boy with ECCL was referred to Polish Mother's Memorial Hospital Research Institute in Lodz with symptoms of elevated intracranial pressure, which included headache and vomiting and had persisted since last three days. CT performed in the clinic in his place of residence showed a mass located in the posterior part of the third ventricle, originating from the left thalamus, obstructing the aqueduct and causing an active hydrocephalus. An urgent endoscopic third ventriculostomy was performed combined with a biopsy of the tumor. Histopathological examination revealed a pilocytic astrocytoma and the patient underwent complete tumor resection in the next surgery. He was discharged home in a good state, without neurological deterioration and clinical signs of intracranial hypertension. Tumor and blood samples were sent to the Department of Molecular Pathology and Neuropathology of Medical University of Lodz were they were examined for the presence of the most common molecular changes in pediatric LGGs as well as *FGFR1* K656E and N546K and *KRAS* A146T mutations.

Conclusion

There is a possibility that the comorbidity between ECCL and LGGs is a coincidence; nevertheless *FGFR1* K656E and N546K mutations, proposed to be the cause of ECCL, one of them also found in the tumor of our patient, have almost exclusively been reported in LGGs, which suggest a possible relationship. An international database of ECCL patients, with prospective follow-up on the symptoms and secondary diseases would help in elucidation of this matter.

The presence of *FGFR* K544E in the tumor tissue of our patient provides further evidence for its causative role in the development of ECCL. However, molecular analyses of tissues from more patients need to be performed before such conclusion could be drawn.

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How can systemic lupus erythematosus mimic neurological disorders? Neuropsychiatric manifestations in Polish cohort of patients – a retrospective study

Wiktor Schmidt, Małgorzata Tąpolska, Maciej Spałek
Poznan University of Medical Sciences
Presenting author: Wiktor Schmidt
e-mail: wiktorpawelschmidt@gmail.com
Tutors: Katarzyna Pawlak-Buś,

Introduction

Neuropsychiatric symptoms can affect up to 80% of patients with SLE, but the exact prevalence is hard to be estimated due to the profusion of clinical symptomatology. There is a wide range of neurological and psychiatric symptoms that emerge from inflammation and ischemic processes in the nervous system. NPSLE should be taken into consideration in differential diagnosis of many neurological and psychiatric disorders, thus knowledge about the neuropsychiatric manifestations of SLE is crucial for practicing neurologists.

Aim of study

The aim of the study was to identify and classify the group of NPSLE patients with evaluation of disease activity and instituted treatment.

Material and methods

We analyzed retrospectively a cohort of 128 Polish patients with SLE. All patients with suspicion of NP symptoms had neuropsychological and imaging examinations. Central and peripheral NPSLE symptoms were recognized and categorized in accordance with The American College of Rheumatology nomenclature. All patients were assessed according to Systemic Lupus Erythematosus Disease Activity Index by SLEDAI.

Results

Symptoms of NPSLE were observed in 38 (30%) patients (34 female and 4 male) with average age 38 ± 6 years (range 18-61 years), average disease duration 6,6 ± 5,6 years (range 1,0 - 18,0 years). All (38) NPSLE patients presented symptoms from central nervous system, but only 16% (n=6) of them had peripheral lupus manifestations. The most common manifestations were cognitive dysfunction (n=22, 58%), mood disorders (n=14, 37%), cerebrovascular disease (n=12, 32%), headaches (n=8, 21%), anxiety disorder (n=8, 21%) and seizure disorders (n=7, 18%). All patients were treated with oral and pulse glucocorticoids (GC) and 89% of them had standard immunosuppressive drugs instituted (CYC, MMF, AZA,MTX, CsA). As a background therapy 82% of these patients were on chloroquine or hydroksychloroquine (CQ/HCQ). Mean SLEDAI score at NP event was very high 29±9,6, but mean SLEDAI score without NP symptoms was 15 ± 8,3 and was connected with musculoskeletal, mucocutaneous, renal and hematological domains respectively n=29,76%; n=23,60%; n=11,29%; n=8,21%. Low disease activity was estimated at 3% of patients examined. Most of lupus patients (n=37, 97%) had moderate or high disease activity regardless of NP symptoms. In our cohort NPSLE symptoms were associated with immunological activity with increased anti-dsDNA antibodies (n=30, 78%) and/or lowered complements C3 and/or C4 levels (n=21, 55%).

Conclusion

In Polish lupus cohort we observed more frequent lupus-related primary neuropsychiatric symptoms from central nervous system than from peripheral, especially cognitive dysfunctions, mood disorders, cerebrovascular events, anxiety, headaches and seizures. Clinical activity of NPSLE patients was rather high and definitely most of patients were immunologically active despite aggressive immunosuppressive treatment with standard background therapy.

Molecular landscape of diffuse gliomas associated with seizures

Szymon Baluszek

Medical Unversity of Warsaw
Presenting author: Szymon Baluszek
e-mail: szymonbaluszek@gmail.com
Tutors: Jakub Mieczkowski,

Introduction

Gliomas are the most common intra-axial brain tumours in most countries and age populations. Seizures associated with low grade gliomas (LGG) are common (70-80%) often constitute a presenting symptom and decrease life quality. Unfortunately, glioma associated epilepsy (GAE) is pharmacoresistant in up to 70% of cases. Furthermore, oligodendroglioma and WHO grade II tumours correlate with both seizures and favourable prognosis.

Aim of study

To date, genetic polymorphisms in the genes responsible for interleukins and neurotransmitters signalling were associated with focal seizures. Nonetheless, genetic and molecular features of epilepsy associated with diffuse gliomas remain largely unstudied. This study aims at identifying genetic, epigenetic and immunological factors associated with seizures in those tumours.

Material and methods

Data analysis was performed with R programming language. The next generation sequencing (NGS), methylation, copy number alteration (CNA), mRNA and protein expression data of 493 patients with WHO grade II and III diffuse gliomas were downloaded from The Cancer Genome Atlas. The differently expressed genes were identified using Bayesian, Monte Carlo and edgeR quasi-likelihood pipeline methods. The biological entities (downloaded from KEGG, GO, Reactome, NCI) affected in GAE were identified using FGSEA and ESEA packages. The identified targets were correlated with NGS, CNA and methylation data. Furthermore, cell subpopulations in the samples were assessed using xCell – a novel bioinformatic tool based on mRNA expression in cells sorted by flow cytometry.

Results

The GAE tumours were less infiltrated by CD4+ lymphocytes ($p=5E-4$) and clustering based on Th lymphocytes, macrophages and neuronal populations yielded groups strongly associated with seizure history, survival, tumour grade and histopathological diagnosis (all $p<.001$). Differentially affected entities included interleukin, neurotransmitter signalling, extracellular matrix proteins, axon guidance, T lymphocytes kinases, protein kinace C and bone morphogenic protein (all $p<.001$). Interestingly, genes targeted by neuron-restrictive silencer factor were differentially expressed in GAE. Furthermore, seizure-free cases were more often associated with hallmarks of malignancy like tumour necrosis factor α, TP53 and hypoxia signalling. No single mutation or CNA was clearly correlated with seizures which illustrates complex immunological and biological landscape of GAE.

Conclusion

This study identified molecular and immunological features characteristic for GAE. It supports the notion that the favourable prognosis in the cause of GAE can be explained by biological differences in addition to the prompt diagnosis and treatment. We hope that molecular and immunological factors identified here will aid both symptomatic and causative treatment of GAE in the future.

Spectral power as predictor of subjective sleep quality in healthy individuals

Agata Gabryelska

Medical University of Lodz, University of Freiburg

Presenting author: Agata Gabryelska
e-mail: agata.gabryelska@gmail.com
Tutors: Piotr Białasiewicz, Elisabeth Hertenstein, PhD; Prof. Dieter Riemann, PhD

Introduction

Subjective sleep quality (SSQ) is considered a key aspect of healthy sleep. The determinants of SSQ remain unclear as there is no unequivocal relation between objective and subjective quality of sleep, in both healthy individuals and patients suffering from sleep disorders.

Aim of study

The aim of this study was to assess the relationship between EEG power spectral density and subjective sleep quality in healthy individuals.

Material and methods

The sample was selected from the archival database of the Sleep Center at the Department for Psychiatry and Psychotherapy, Medical Center - University of Freiburg, and consisted of 206 healthy adults aged 19 to 73 years (85 males, 121 females) who underwent a polysomnographic examination for two consecutive nights.

Results

A MANOVA with spectral power variables as dependent variables and subjective sleep quality, night number, age, and gender as independent variables was statistically significant for subjective sleep quality, age and gender, but not for night number. In subsequent separate ANOVAs, higher subjective sleep quality was significantly related to decreased NREM Sigma 2 and REM Delta 1. The effect sizes of both correlations were small (r = -0.1).

Conclusion

In contrast to common assumptions, the amount of variance in subjective sleep quality that can be explained through EEG power spectral density variables is small. This finding indicates that subjective and objective sleep are different constructs whose interrelations are not yet well understood. However, there is a small association between spectral power variables (most likely, a decrease of NREM Sigma 2 and REM Delta 1) and subjective sleep quality.

Eye-tracking in the assessment of neurodegenerative disorders – cognitive scoring.

Anna Podlasek

Medical University of Lodz

Presenting author: Anna Podlasek
e-mail: podlasek.a@gmail.com
Tutors: Karol Jastrzębski,

Introduction

Dementia and cognitive impairment are raising due to extending lifespan. The diagnostic process is still demanding, especially when transition phase is considered. Eye-tracking is a developing technology which enables for objective, repetitive, non-invasive eye movement and gaze patterns examination.

Aim of study

The aim of the study was to unveil the existence and/or type of gaze patterns differences between participant with different stages of cognitive impairment.

Material and methods:

60 participants were included in the study (20 – D, dementia; 20 – M, mild cognitive impairment; 20 – C, control). The study protocol follows: anamnesis, short Geriatric Depression Scale (GDS), Montreal Cognitive Assessment test (MoCA) and eye-tracking examination. Study protocol for mobile eye-tracking glasses (bilateral eye-cameras, world camera, frequency 120Hz) include: novel object recognition task, trail making, smooth pursuit task, saccade task. Raw data was analyzed statistically.

Results

The novel object recognition test proves that MCI and control group were exploring second set of pictures with a new object unevenly (coefficient of variation difference between sets: C = 16,18%, M = 16,91% D = 11,25%; single-factor repeated-measures ANOVA, p=0,0079). 60% of Participants preferred eye-tracking examination over MOCA.

Conclusion

Eye-tracking examination (especially novel object recognition task) can be a useful addition for routine cognitive impairments assessment, which will enable recognition of pre-symptomatic phase of dementia in the patient-friendly manner.

A case of the central nervous system demyelination during treatment with anti-TNF α (adalimumab).

Izabela Cieciora

Medical University of Lodz, Poland

Presenting author: Izabela Cieciora
e-mail: izabelacieciora@gmail.com
Tutors: Monika Gałecka-Kowalska, Katarzyna Turoboś, Sylwia Janiak, Małgorzata Pawełczyk, Andrzej Głąbiński and Bartosz Bielecki

Introduction

Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system (CNS). MS pathogenesis is not fully understood but it is considered to be an autoimmune disorder. Tumor necrosis factor (TNF) α is a potent proinflammatory cytokine playing an important role in various autoimmune diseases including MS. Different TNFα inhibitors became therapeutic options in rheumatoid arthritis (RA), spondyloarthropathies, psoriasis and Crohn's disease. However, they did not show beneficial effect in MS. Moreover, as TNFα antagonists became frequently utilized, side effects affecting CNS among patients treated with anti-TNFα agents are reported.

Case report

A 37-year-old Caucasian woman with a history of RA was admitted to a local hospital because of: recurrent paresthesias of right side of the face, right arm and right leg. Moreover she complained about recurrent, paroxysmal tonic muscle spasms of right arm, impaired vision in the right eye, tinnitus and impaired hearing in the right ear. All symptoms developed progressively within a month. Of note, 11 months earlier she started treatment with recombinant monoclonal human anti-TNFα antibody (adalimumab / ADA). Brain MRI showed multiple periventricular hyperintense lesions on T2-weighted and fluid attenuated inversion recovery images. None of the lesions enhanced after gadolinium injection on T1-weighted images. Cervical MRI (same sequences): two non-enhancing lesions at the C3 and C4 level were detected. Cerebro-spinal fluid analysis revealed the presence of oligoclonal bands with IgG index <0.7. Following an extensive differential diagnosis the diagnosis of inflammatory CNS demyelination was suspected.

Intervention: Decision about discontinuation of ADA was made and treatment with a pulse of intravenous glucocorticoids was introduced. Following therapy all neurological symptoms resolved completely. In a control brain and cervical spinal cord MRI no new lesions were detected. However, diagnosis of MS is still possible according to 2010 McDonald criteria (with 2017 modifications) when all tests necessary for a complete differential diagnosis are complete and negative.

Conclusion

TNFα has a strong proinflammatory effects but it may be also necessary for the CNS regeneration. It could be due to the fact, that it exerts its functions through TNFR1 and TNFR2 receptors with distinct functions and expression pattern. A correlation between anti-TNFα and newly onset of MS has been reported but is still rare, since more than 2 million patients with various disorders have been treated with TNFα blockers. Moreover, there is no proof, if these demyelinating events are causally associated with the use of TNFα inhibitors. Despite lack of evidence, it seems that in case of emerging neurological deficits suggestive of the CNS demyelination during therapy with anti-TNFα, treatment discontinuation should be considered and close clinical and MRI monitoring should follow.

Comorbidities in patients with multifocal white matter injury suspected of multiple sclerosis

Marta Betka, Magdalena Oset

Medical University of Lodz

Presenting author: Marta Betka
e-mail: marta.betka96@wp.pl
Tutors: Mariola Świderek-Matysiak, Mariusz Stasiołek MD PhD

Introduction

Multifocal white matter injury of CNS is a non-specific manifestation of numerous medical conditions, of which one of the most common is multiple sclerosis. Multiple sclerosis (MS) is a demyelinating disease with various clinical and radiologic manifestations. As a result, many of MS mimics are not easily distinguished. Moreover, symptoms of other conditions can influence the course of MS. Therefore, the assessment of co-existing factors such as the prevalence of comorbidities in MS patients are vital for precise diagnosis.

Aim of study

Assessment of the prevalence of comorbidities in patients with multifocal white matter injury of CNS.

Material and methods

We included patients admitted to the Department of Neurology, Barlicki University Hospital in Lodz from January 2017 to March 2018 with suspicion of multiple sclerosis based on multifocal white matter injury observed in MRI of the brain. We searched their documentation for final main and additional diagnoses. Afterwards we described the association of comorbidities (divided into: autoimmune, cardiac, cerebrovascular, peripheral vascular, psychiatric, infectious, other [than demyelinating] neurological and other disorders) with main diagnosis of MS or non-MS diseases and with demographic data: age, sex.

Results

Mean age of included patients was 41 years (SD=13.69), above 75% were female. The most widespread final diagnosis was multiple sclerosis (37.5%), then unspecified demyelinating disease of central nervous system (27.27%) and other disorders of central nervous system (15.91%). As for comorbidities, 28.49% of people had other (than demyelinating) neurological disorder, 22.73% suffered from cardiac disease and autoimmune or psychiatric disorder had 17.05% respectively. The group diagnosed with MS was on average 37.70 years old (SD= 12.50) with female:male ratio approximately 3:1. Prevalence in this group was the same for autoimmune, cardiac and other (than demyelinating) neurological diseases (9.09%), followed by psychiatric disorders (6.06%). In the group without confirmed MS diagnosis the mean age was 42.96 (SD= 14.10), approximately 75% of patients were female. In non-MS patients, comorbidities were more often described than in MS patients. The most common were other (than demyelinating) neurological disorders (40.00%), then cardiac diseases (30.91%) followed by psychiatric conditions (23.64%).

Conclusion

To conclude, because of complicated aetiology and variety of symptoms of central nervous system demyelinating diseases, fast and proper diagnosis of MS still remains an unresolved problem. As a result, meticulous description of comorbidities in patients with multifocal white matter injuries may lead to better holistic management, during diagnostic process and therapy.

Idiopathic inflammatory myopathies - not only musculoskeletal problem

Aleksandra Opinc, Olga Brzezińska

Medical University of Lodz

Presenting author: Aleksandra Opinc
e-mail: aleksandra.opinc@stud.umed.lodz.pl
Tutors: Joanna Makowska,

Introduction

Idiopathic inflammatory myopathies (IIM) is a heterogeneous group of autoimmune connective tissue disorders with the mean global prevalence of 17/100000. IIM, including among others dermatomyositis (DM), polymyositis (PM) and inclusion body myositis (IBM) affect predominantly musculoskeletal system, yet frequently observed internal organ involvement leads to non-specific symptoms and significantly alters the course of IIM.

Aim of study

The aim of the study was to identify frequency of various symptoms in patients with different subtypes of IIM in order to emphasise the similarities and discrepancies, as well as compare the burden of the disease observed in IIM subtypes. We also aimed to assess if internal organ involvement leads to higher disability and which symptoms have the strongest impact on patients' condition.

Material and methods

The study was based on online questionnaire distributed to English-speaking patients with IIM and completed by 378 respondents - 146 with IBM, 133 with DM and 65 with PM. Respondents were asked about musculoskeletal, cutaneous and organ-specific symptoms as well as to fill the Health Assessment Questionnaire, then were divided into groups and compared according to presenting symptoms, reflecting probable internal organ involvement.

Results

About 2/3 of patients with DM and PM suffered from muscle pains while only 1/3 of patients with IBM reported continuous myalgia. The intensity of the pain was higher in DM and PM patients as compared to IBD (respectively 4,11 for DM, 3,69 for PM and 2,47 for IBM in 1-10 scale). In contrary patients with IBM more often complained of muscle weakness which was more intense than in DM/PM groups. Arthralgia and systemic symptoms were more frequent in patients with DM (febrile, subfebrile states) and PM (weight loss). Cutaneous symptoms not surprisingly were reported in DM group, but it need to be underlined that such symptoms affected also 1/10 patients with IBM and PM. Palpitations or irregular heartbeat occurred at least few times a week in 1 out of 4 PM/DM patients, but only in 10,96% of IBM patients. In contrary ankle oedema was more common in IBM than DM/PM patients. Dyspnoea at least few times a week, possibly originating in cardiac or pulmonary involvement, was reported by circa 1/3 of DM/PM patients at rest, 42% during daily activities and about 60% at exercise - twice as often as in IBM. Standard Disability Index was higher in IBM than other IIM subtypes (0,92 for DM, 1,26 for PM and 2,0 for IBM), yet the average pain related to myositis was the lowest in IBM patients, succeeding DM and PM (38,54 for DM, 36,42 for PM and 20,97 for IBM).

Conclusion

Internal organ involvement is less prevalent in IBM, although intense muscle weakness leads to higher disability. Involvement of the heart, lungs, oesophagus, vocal cords and neuropathy deteriorate patients' condition. Systemic symptoms, articular, vascular and cutaneous lesions do not exacerbate disability.

Anterior Communicating Artery Complex Variations in Predicting Risk of Aneurysms Rupture: A1 and A2 segment considerations.

Aneta Myszka

Jagiellonian University Medical College

Presenting author: Aneta Myszka
e-mail: anetamyszka95@gmail.com
Tutors: Roger Krzyżewski, Jarosław Polak

introduction

The anterior communicating artery (ACoA) aneurysms are the most common aneurysms encountered in neurosurgical practice. Anatomy of the ACoA complex plays a significant role in the surgical treatment of anterior cerebral circulation. Relation of specific anatomical variations with aneurysm rupture is not well documented.

Aim of study

The aim of this study was to assign the frequency and types of variations of the anterior cerebral circulation in patients with ruptured and unruptured ACoA aneurysms and determine variants predisposing to the rupture of aneurysms.

Material and methods

In this retrospective review we enrolled 247 patients were presenting with ACoA aneurysms. All patients underwent head computed tomography angiography. Patients were divided based on presence subarachnoid haemorrhage (SAH) into ruptured (n=135) and unruptured (n=112) group. Maximum Intensity and Volume Rendering Projections were used to evaluate anatomical variations of ACoA complex. We used Pearson's chi-square test to assess the correlation between anatomical variation and rupture of ACoA an aneurysm.

Results

Unilateral A1 hypoplasia was more prevalent in ruptured ACoA aneurysm group (17.78% vs. 9.82%; p=0.07) as well as unilateral A2 aplasia (2.96% v 0.00%; p=0.07) and unilateral A2 hipoplasia (2.96% v 0.00%; p=0.07). We did not observed any association of presence of unilateral A1 aplasia (8.96 vs. 8.11; p=0.81), presence of median artery of corpus callosum (6.67 vs. 3.51; p=0.28) and duplicated ACoA (1.48 vs. 0.00; p=0.20).

Conclusions

Rupture of the ACoA an aneurysm might be associated with A1 hypoplasia, A2 aplasia or hypoplasia. A1 aplasia, the presence of median artery of corpus callosum or duplication of ACoA is not associated with ACoA aneurysm rupture.

ONCOLOGY & HAEMATOLOGY

COORDINATORS
Marta Betka
Hanna Kuśmierczyk

JURY
Urszula Czernek, MD, PhD
Professor Janusz Piekarski, MD, PhD
Małgorzata Stolarska, MD, PhD

Adenoid Cystic Carcinoma of the Breast – an uncommon malignancy of unpredictable clinical behaviour - a case series of five patients

Julia Sołek

Medical University of Lodz

Presenting author: Julia Sołek
e-mail: julia.solek@gmail.com
Tutors: Radzisław Kordek,

Introduction

Adenoid cystic carcinoma (ACC) is a common tumour of the minor salivary gland, infrequently seen in on other anatomical localisations. In the breast, ACC is classified as a special type of invasive breast carcinoma (IBC) (according to the WHO 2012 classification) and accounts for <0,1% of patients diagnosed with breast cancer. Breast ACC shares the histologic pattern with that of its counterpart in the salivary gland, however it is characterised by a significantly different prognosis, i.e. an excellent survival (5-, 10-, 15- year survival rates are: 98,1%, 94,9%, 91,4%, respectively) with rare involvement of lymph nodes and infrequent metastases. Here we report our institutional experience with 5 cases of breast ACC diagnosed between 2009 and 2017.

Cases study

Mean age of women included in the study was 53 (ranged from 41 to 62). They presented a localized disease, without any specific features in physical examination and imaging. In two cases, ACC showed the solid growth pattern. In one case, ACC presented with a component of invasive ductal carcinoma (IDC). The mean size of lesions was 1,6cm (T1). At diagnosis, there were no cases with either nodal involvement or distal metastases. Estrogen receptors (ER), progesterone receptor (PR) and human epidermal growth factor receptor 2 (HER2), assessed immunohistochemically, were negative in all cases. Immunohistochemistry for epithelial and myoepithelial markers showed characteristic organisation around true glandular spaces and pseudolumina, confirming the diagnosis.

Three patients have undergone surgical resection of the tumour - mastectomy or lumpectomy. One patient received adjuvant radiotherapy and chemotherapy, one chemotherapy without radiotherapy and one received no adjuvant therapy. Information about the treatment were not available for two patients. Median follow up of patients was 21 months (range 11 to 83). Two patients developed a metastatic disease, however no deaths were recorded.

Conclusion

ACC is a rare neoplasm of the breast and there are no robust recommendations for the treatment. ACC of the breast is regarded as an indolent disease, in contrast to ACC from other localisations. However, our case series shows that, despite its apparent indolent malignancy, it could present an aggressive course with distal metastases, which calls for a deep awareness of both pathologists and the clinicians in diagnosis and selection of appropriate therapeutic strategies.

JUVENES PRO MEDICINA
ŁÓDŹ, POLAND

Changes in coagulation profile at the moment of diagnosis of Acute Lymphoblastic Leukemia

Radosław Kober, Bartosz Wolański, Arkadiusz Michalak,

Medical University of Łódź

Presenting author: Radosław Kober
e-mail: r.k170795@wp.pl
Tutors: Joanna Trelińska, Wojciech Młynarski

Introduction

It is known that patients with acute lymphoblastic leukemia face increased risk of bleeding, associated not only with the disease but also with the treatment. Although thrombocytopenia at onset is common, not much is known about coagulation abnormalities at this stage of the disease and their relationship with other laboratory findings.

Aim of study

We tried to find any abnormalities in coagulation profile at the moment of diagnosis ALL and establish if these abnormalities correlate with the age, blood test, liver function tests.

Material and methods

A retrospective review was conducted in patients treated in Department of Pediatrics, Oncology, Hematology and Diabetology, Medical University of Lodz between 2013 and 2017. Collected data included type of leukemia and basic laboratory tests (coagulation, liver and biochemical panel, complete blood count) performed before the start of treatment.

Results

We found 67 patients (F - 31, M – 36; B-cell ALL – 52, T-cell ALL - 15) eligible for analysis. In 92.5% of patients we found at least one abnormality in coagulation profile, the most common being lowered APTT (31,34% of patients), increased INR (22,31% of patients) and increased fibrinogen (41,92% of patients) and D-dimers (73,13% of patients). INR was positively correlated with age ($R=0.49$, $p<0.001$), WBC ($R=0.33$, $p=0.007$), bilirubin concentration ($R=0.49$, $p<0.001$), LDH ($R=0.27$, $p=0.039$) and ALT ($R=0.26$, $p=0.034$). APTT was correlated only with prothrombin time ($R=0.39$, $p=0.001$) and D-dimers showed weak positive correlation with CRP ($R=0.29$, $p=0.020$). Fibrinogen was positively correlated with CRP ($R=0.38$, $p=0.002$) and total protein ($R=0.28$, $p=0.035$) and negatively correlated with ALT ($R=-0.4$, $p<0.001$) and AST (-0.3, $p=0.015$). We noted significantly higher INR in boys vs girls [median 1.12 (IQR: 1.06-1.21) vs 1.08 (0.99-1.14), $p=0.018$), higher D-dimers in patients with T-cell vs B-cell leukemia [2680 (890-4180) vs 937 (549-1919), $p=0.047$).

Conclusion

Abnormalities in coagulation profile occur commonly at ALL onset. They may be related to leukemia severity (leukocytosis and cell turnover) and reflect liver function.

Congenital optic chiasm glioma - malignant transformation. An infant case report.

Olga Śliwicka

Medical University of Warsaw

Presenting author: Olga Śliwicka
e-mail: o.sliwicka@gmail.com
Tutors: Jolanta Strzelecka, MD, PhD,

Introduction

Failure to thrive, vomiting and irritability are the nonspecific symptoms of numerous diseases of infancy and can be easily missed as the only signs of intracranial malignancies. CNS tumours occur second among the group of paediatric cancers, within which optic gliomas are the most common neoplasms of the anterior visual pathway. They can involve the optic nerve, chiasm, tract, and optic radiations. Due to its specific location, despite the benign nature, optic gliomas display the variety of symptoms and their severity.

Case report:

9-week-old female infant with projectile vomiting and feeding difficulties was admitted to the hospital due to the failure to thrive and lack of weight gain. Blood test revealed decrease of TSH, physical examination revealed decreased muscle tone in the limbs. Patient was referred to physical rehabilitation centre and other specialists for an extended diagnostic investigation. When 4-months-old, she was referred to neurologist due to right eye's rotatory nystagmus with no ocular abnormalities affirmed by ophthalmologist. MRI confirmed a suprasellar 35x38x60mm optic chiasm glioma without occurrence of hydrocephalus and raised intracranial pressure. Patient was disqualified from neurosurgical treatment due to location of the tumour and possible exacerbation of symptoms. The LGG chemotherapy protocol was started along with parenteral nutrition due to accompanying vomiting. Emergency VP shunt was implanted 20 days later due to raised intracranial pressure and neurological deterioration. MRI examination following increased vomiting and nystagmus revealed expansion of the tumour and qualified her to CTX chemotherapy protocol for below 3yos. Tumor central necrosis and hemosyderin deposists were observed. After 4 cycles, due to slow progression, patient was qualified to etoposide and DTIC which succeeded in slow regression of the tumour in MRI after 4, 8 and 12 cycles. Although oncologic treatment slowly succeeds, 22-month-old patient is developmentally delayed, displays milestones of 6-month-old and remains blind, without light perception.

Conclusion

Expansion of optic gliomas within intracranial cavity cause compression of the brain structures and result in increased intracranial pressure which can be resolved by implantation of ventriculoperitoneal shunt. Choice of treatment should take into account clinical picture of neurological symptoms and be highly individualized based on multidisciplinary approach. Malignant transformation may occur and requires adjustment of the treatment. Parents should be informed of possible developmental delay and be referred to physical rehabilitation centre and obtain child psychologist assessment and support.

The vegf expression features in the serous adenocarcinoma tissue of the fallopian tubes

Anna Zahrebelna, Natalia Hyriavenko, Mykola Lyndin, Dmitrii Hyriavenko, Vladyslav Sikora

Sumy State University

Presenting author: Anna Zahrebelna
e-mail: anlefroy@gmail.com
Tutors: Anatolii Romaniuk,

Introduction

There is the intensive germination and the formation of new blood vessels (angiogenesis) in malignant tumors of the fallopian tubes. Neoplastic cells begin to form and release angiogenetic factors that stimulate the multiplication of endothelial cells and the growth of capillaries. The important role in the regulation of this process is played by the vascular endothelial growth factor (VEGF).

Aim of study

Study of the features of VEGF expression in the tissue of the serous adenocarcinoma of the fallopian tubes (SAKMT) at different degrees of neoplasia differentiation.

Material and methods

The study is performed on the 66 samples of the tumor tissue of the fallopian tubes, which, in the histological study, was diagnosed with "Serous adenocarcinoma of the uterine tube". Rabbits polyclonal antibodies (the dilution level was 1: 200) are used to study the expression of VEGF.
The level of its expression is evaluated by using a semi-quantitative method (from 0 to 3 points), according to the next indication conditions: 0 point value corresponds to the absence of VEGF cytoplasmic expression, 1 point value – weak cytoplasmic coloration is less than 10% of cells, 2 points – weak or moderate expression in 10-50 % of cells, 3 points - pronounced and moderate expression in more than 50 % of cells, respectively. Mathematical calculations were performed using the Microsoft Excel 2010 spreadsheet software package in addition with the Attestat 12.0.5 application. This research was supported by the Ministry of Education and Science of Ukraine (Grant № 0116U006814 “Development of the diagnosis method of the reproductive system organs tumors using CEACAMs”).

Results

The cytoplasmic expression of VEGF is detected directly in both tumor cells and vascular endothelium. In 58 cases studied (87.9 %), moderate or significant cytoplasmic reactions were detected in all endothelial cells and in more than 70% of tumor cells, which were diffused in all vision range. It has been estimated a correlation between the indices of angiogenesis and degree of neoplasia differentiation ($r = 0.24$, $p < 0.05$). Thus, at the comparing the level of expression of VEGF in varying degrees of neoplasias differentiation, it was found that during its decreasing, the expression level of VEGF increases and equals to 2.4 ± 0.7 points in G1 tumors and 2.8 ± 0.1 points in G2 tumors, respectively. The highest expression level of VEGF was observed in low-differentiated tumors and its value was 3 points.

Conclusion

As a result of this study it should be noted that angiogenesis in the tissue of the serous adenocarcinoma of the fallopian tubes proceeds constantly and very intensively, which is caused by their rapid growth and spread. It has been determined that the tumors angiogenic influence of this localization depends on the level of endogenous expression of prohangiogenic proteins of VEGF and on the neoplasias differentiation.

Study of ceacam1 in normal and tumor breast tissue

Taras Palii, Mykola Lindin, Marina Miroshnichenko, Anna Korobchanska, Volodymyr Panchenko, Bernhard B. Singer

Sumy State University

Presenting author: Taras Palii
e-mail: taras97mail@ukr.net
Tutors: Anatolii Romaniuk,

Introduction

Recently, there is a tendency to increase morbidity of breast cancer. The use of novel molecular markers for diagnostic purposes leads to an earlier detection of the neoplastic process and the ability to predict its course. While the carcinoembryonic antigen-related cell adhesion molecule 5 (CEACAM5) is a well-established tumor marker, CEACAM1 is not yet recognized for the diagnosis of malignancies. In general, CEACAM1 can be expressed in epithelia, endothelia and most leukocyte subpopulations and altered CEACAM1 expression was described if cells transform to cancer cells.

Aim of study

Characterization of the CEACAM1 expression in normal and malignant breast tissue and analyzes of its potential impact as reliable tumor marker.

Material and methods

The research was conducted on 30 samples of invasive breast cancer (15 – nonspecific type, 15 – lobular cancer) and 10 samples of normal breast tissue. After verifying of the morphological diagnosis immunoenzyme and immunofluorescence analyzes of CEACAM1 expression was performed using mouse monoclonal antibody C5-1X/8. After the thermal retrieval of the receptors, the antigen-antibody response was visualized using the UltraVision Quanto Detection System HRP DAB Chromogen detection system.

The work was carried out with the support of the research theme "Development of the diagnostic method of reproductive system organs in tumors using CEACAMs".

Results

During morphological study of tissue it has been established that intact breast tissue has a typical duct-glandular structure. There is a violation of the organ architecture with the emergence of cellular atypia of neoplastic tissue while tumor transformation. Our immunohistochemical examinations revealed the presence of apical localization of CEACAM1 in luminal epithelial cells of ducts and glands, which separate the cell surface from cavities. There is a variable fluorescence of receptors in endothelial cells of single stroma vessels and an intensive reaction in granulocytes of inflammatory infiltrate and among formed blood elements.

Furthermore, we found a gradual decrease in the CEACAM1 expression on the apical surface of cancer cells specifically in malignant tumors of the mammary gland (associated with the gradual loss of the tumor cells ability to form ducts and glands), the spread of its localization across their entire surface, the appearance in the cytoplasm. Variable expression of CEACAM1 in single vessels and immunocytes of the tumor microenvironment is observed as well. Comparing with the control it has been established a multi-directional variation of the amount of CEACAM1 in neonplastic cells, depending on the tumor type and degree of differentiation.

Conclusion

Tumor transformation accompanies by reduction of the CEACAM1 expression on the apical surface of cells in highly differentiated breast cancers with a gradual spread throughout the cell surface and in the cytoplasm in low differentiated neoplastic cells.

Multiple myeloma in an unusual localization- gastric plasmacytoma.

Aleksandra Jasik

Poznan University of Medical Sciences

Presenting author: Aleksandra Jasik
e-mail: aleksandra.jasik10@gmail.com
Tutors: Krzysztof Lewandowski, Emil Durka

Introduction:

Plasmablastic myeloma (multiple myeloma- MM) is a disseminated plasma cell neoplasm affecting predominantly the bone marrow. Most cases are characterized by synthesis of a monoclonal globulin, a Bence Jones protein, or both. It represents 1% of malignant and about 14%
of hematologic neoplasms. MM can be also presented as a single tumor- solitary plasmocytoma, that can be located in bone (less than 5%) or extramedullary (1-2%).

Case study

A 83-year-old man presented with bleeding from the upper gastrointestinal tract. He underwent gastroscopy and computed tomography examination, which revealed undermucosal tumor. The histopatological analysis suggested MALT-lymphoma with very high expression of CD138 in immunophenotype. Due to these circumstances, the trephine biopsy was done- showed no features of infiltration or fibrosis in the bone marrow. In urinalysys and blood test light kappa chains were detected. The totality of examinations suggested the extramedullary form of plasmablastic myeloma, consequently the chemioterapy treatment was enforced. During the first course there was found a hypoechogenic mass in the right groin - histopatological analisys validated the presence of plasmocytes, flow cytometry detected cells with the phenotype of plasmablastic lymphoma.

Conclusion

Extramedullary plasmocytoma (EP) is usually localized in head and neck region, the second most-common location is gastrointestinal tract. The diagnosis of EP is difficult, because the manifestations are not specific and it often imitates another tumors (GISTs, MALT lymphomas, adenocarcinomas) and therefore the identification is mostly grounded in pathological analysis of biopsy material.
This case is representative for a group of very rare disorders and furthermore demonstrates complicated and interesting history of diagnostics.

A rare diagnosis with poor prognosis - primary angiosarcoma of the spleen - case report

Agnieszka Sanetra

Medical University of Lodz

Presenting author: Agnieszka Sanetra
e-mail: agnieszka.sanetra@stud.umed.lodz.pl
Tutors: Marlena Broncel, MD, PhD Paulina Gorzelak-Pabiś

Introduction

Primary splenic angiosarcoma (PSA) is an immensely rare, highly aggresive tumor which is thought to arise from the epithelium of splenic sinusoidal vessels. The incidence of PSA is ranged from 0.14 to 0.23 cases per milion with mild male predominance. Nonspecific clinical symptoms in association with rapid progress make the disease a diagnostic challenge with an inauspicious prognosis.

Case report

The patient is a 78-year-old man admitted to the Department of Internal Diseases and Clinical Pharmacology with shortness of breath and left upper quadrant abdominal pain lasting for few past days. Physical examination presented pain on palpation in the left epigastric region. Abnormalities on laboratory tests were mild anemia (Hb 10,9 g/dl), thrombocytopenia ($98x10^3$ ul), ESR 160 mm, ALP – 277 U/I, D-dimers - 5055 ng/ml. To investigate the cause of the abdominal pain, patient had an USS done. It showed hyperechogenic areas (45x46 mm the largest) suggesting angiomas located in enlarged spleen. In the follow up USS after 2 weeks time the lesions were nearly twice as big (81x54x68 mm the largest). CT scan of the abdomen and thorax was also performed. According to persistent thrombocytopenia bone marrow biopsy was taken. The patient was moved to the Department of Vascular surgery, where he underwent splenectomy. Finally, the postoperative histopathological examination unraveled the proper diagnosis of splenic angiosarcoma. After three weeks the patient was admitted to the Department of Chemotherapy, where a CT scan was performed. It revealed the spread of angiosarcoma to the liver and peritoneal cavity. The patient was not qualified for chemotherapy to avoid the futile medical treatment. He was referred to the Department of Palliative Care to improve his life quality.

Conclusion

Although splenic angiosarcoma is extremaly rare, it should be taken into account in differential diagnosis of non-specific pain in the left upper abdominal area and splenomegaly, due to its extremely aggressive character.

Primary Splenic Angiosarcoma and orbital lymphoma: very rare malignancies in 72-year old woman.

Aleksander Ślusarczyk, Magdalena Dolecka,

Medical University of Warsaw

Presenting author: Aleksander Ślusarczyk
e-mail: slusarczyk.aleksander@gmail.com
Tutors: Magdalena Dolecka,

Introduction

Primary angiosarcoma of spleen (PAS) is a very rare and highly malignant neoplasm that originates from the endothelial cells of the splenic blood vessels. Little is known about the aetiology and management possibilities due to very few case reports. The early diagnosis remains a challenge due to unspecific symptoms and rare prevalence of the disease.

Case report

In December 2015 a 72- year old woman with arthralgia and unspecific pain in the abdomen presented to the Clinic of Internal Medicine of Wojewódzki Szpital Zespolony in Kielce. On CT scan three slightly hypodense nodules interpreted as angiomas were found in non- enlarged spleen. It was decided to monitor the lesions and patient was discharged from the hospital in a good condition. The patient presented again in July 2016 with pain in the upper left abdomen and lower limbs. Based on Doppler Ultrasonography of lower limbs right fibular vein thrombosis was diagnosed. MRI demonstrated no change in the dimension of splenic lesions in comparison to the previous scan. Tumour markers remained unchanged, however F-18 FDG PET-CT done in December 2016 showed a few lesions with high glucose uptake- in the lower pole of the orbit, in the left suprarenal gland and in the spleen. In May 2017 the patient was admitted for a resection of the orbital lesion. Histopathological examination revealed mucosa associated lymphoid tissue lymphoma. It was decided to monitor the size of the lesions in the spleen and suprarenal gland without implementing the chemotherapy. In August 2017 the patient presented with general weakness and subcostal pain radiating to the left shoulder. The woman was admitted for a splenectomy. Based on histopathological examination primary angiosarcoma of spleen was diagnosed. Three weeks after surgery on F-18 FDG PET-CT metastases to the liver, lumbar vertebrae, both femoral bones, left humerus, both suprarenal glands were detected. Chemotherapy with paclitaxel once weekly and radiotherapy for bone metastases were implemented. Last follow-up CT scan performed in January 2018 showed no progression of the disease and slight reduction of liver lesions' size.

Conclusion

Although two different malignancies occur in one patient extremely rare, such differential diagnosis should be always considered. Any undefined changes in the spleen should be always observed very cautiously with the suspicion of malignancy. Tumour markers are always within normal ranges or only mildly elevated in PAS. As management of PAS remains poor, early diagnosis is crucial for increasing the survival rate. Diagnosis of this malignancy is also an Achilles heel as it can be basically determined only after splenectomy as spleen needle biopsy risks intraabdominal bleeding.

The influence of photodynamic therapy with curcumin as a photosensitizer on human Glioblastoma multiforme SNB19 cells

Aleksander Kiełbik, Aleksander Kiełbik,

Wroclaw Medical University

Presenting author: Piotr Wawryka
e-mail: akielbik6@gmail.com
Tutors: Julita Coolbacka,

Introduction

Glioblastoma multiforme (GBM) is a highly invasive (WHO grade IV) brain tumour that has a very poor prognosis for patients (median survival 14.2 months). In the study we treated glioblastoma multiforme with curcumin (CUR), as it was proved to reduce proliferation of several types of cancer before. Curcumin, polyphenol compound extracted from turmeric, exerts anti-proliferative and apoptotic effects via multiple molecular targets, changes activity of various enzymes and increases reactive oxygen species production in cancer cells. Moreover it was proven that curcumin can be used as a photosensitizer in photodynamic therapy (PDT). Photodyamic therapy is rarely performed in clinical therapy. It is rather used against different types of skin cancer. The main adventage of PDT is it's selectivity and control via manipulation of light source.

Aim of study

Main aim of the study was to measure and analyze the cytotoxic effect of curcumin alone and in combination with PDT on gioblastoma cells and define the optimal concentration, which affect the tumor cells leaving normal cells untouched.

Material and methods

The research was performed on Glioblastoma cell line SNB19. The cells were grown in sterile condition in culture bottles as a monolayer. The SNB-19 cells where incubated in different concentration of curcumin. To measure the cell viability the flow cytometry was carried out and the mitochondrial activity was tested by MTT cytotoxicity assay after 24h and 48h. The same tests ware performed after PDT and both results were compared.

Results

The curcumin treatment decreased cell viability compared with untreated cells. After incubation for 24 h, CUR remarkably reduced cell viability in higher concentrations, whereas after 48h incubation, a decent viability decrease was observed also in medium and lower concentrations. PDT with curcumin as a photosensitizer additionaly increased mortality of the cancer cells.

Conclusion

As results show, properly chosen parameters eliminate glioblastoma cells. We conclude that curcumin alone and with photodynamic therepy may have a positive influence on tumor therapy. Futher research on glioma cells and normal cells are required to get more informations about direct cellular effect and side effects of curcumin and PDT.

The work was created as part of the activity of the student scientific club "Cancer cell biology" (SKN No. K149).

Case report of an extremely rare esophageal neoplasm with metastasis in the liver.

Aleksandra Derwich, Jan Mikołajewicz

Poznań University of Medical Sciences

Presenting author: Aleksandra Derwich
e-mail: ola.derwich@gmail.com
Tutors: Olga Milbrandt,

Introduction

Primary small cell carcinoma of the esophagus (SCCE) is an extremely rare tumor whose occurrence is estimated at 0.4-2.5% of all esophageal neoplasms. It is characterized by an aggressive behavior and poor prognosis. Histopathologically it is indistinguishable from the pulmonary equivalent (SCLC). Its histogenesis still remains unclear.

Case report

A 42-year-old female was admitted to the Department of Oncology in Poznań with the diagnosis of anaplastic small cell carcinoma of the esophagus for qualification for chemotherapy. In the medical history, the patient complained of dysphagia six months earlier. The endoscopy examination was performed, which showed extensive and profound ulceration covering approximately half of the esophagus circumference between 30 and 40 cm. The CT revealed numerous, heterodense meta lesions in the liver, circular thickening of the esophagus from the Th8 level to the thickness of approximately 12 mm extending over the length of 73 mm and pathological lymph node in the supraclavicular area. The biopsy showed visible preserved fragments of the formation of small-cell malignant tumor among necrotic masses. Due to the clinical picture, the patient was qualified for chemotherapy in the PE (cisplatin + etoposide) protocol (administered every 21 days for 3 days, i.v.). After two cycles of chemotherapy abdominal CT shown reduction of the metastatic lesions in the liver. Next cycle of chemotherapy was postponed due to moderate neutropenia.

Conclusion

Esophagus is the most common extrapulmonary localization of small cell carcinomas in the gastrointestinal tract, with a frequency of <1.5%. It usually occurs in the sixth to the eighth decade with male dominance. This cancer is highly chemosensitive (like SCLC), however, the clinical course is much more aggressive and the response to the treatment is worse because in most cases tumor has metastasized at the time of diagnosis.

Systemic sclerosis treated with autologous hematopoietic stem cells transplant - procedural success and clinical outcome in 7-year follow-up

Wiktor Schmidt

Poznan University of Medical Sciences

Presenting author: Wiktor Schmidt
e-mail: wiktorpawelschmidt@gmail.com
Tutors: Katarzyna Pawlak-Buś,

Introduction

Autoimmune disorders comprise a relatively new field in autologous hematopoietic peripheral blood stem cell transplantation and the first transplants undertaken for these indications were initiated in the mid-1990s. The most common indications are multiple sclerosis and systemic sclerosis. In 2014 the final results from ASTIS trial demonstrated that aPBSCT confers better long-term survival than monthly intravenous cyclophosphamide pulses for the treatment of rapidly progressive systemic sclerosis.

Case study

This paper presents a case of 42-years-old patient with progressive diffuse systemic sclerosis treated with autologous peripheral blood stem cells transplant (aPBSCT). She was diagnosed with systemic sclerosis in 2005 due to typical skin lesions, Raynaud phenomenon and antibody profile. The symptoms also included finger contractures, dysphagia, exertion intolerance and increased pulmonary blood pressure. In spite of intensive immunosuppresive therapy with cyclophosphamide pulses the improvement of skin lesions was unsatisfactory and progression of interstitial lung disease was shown in HRCT. After analysis of prognostic factors prognosis was stated as poor. As there were no absolute contraindications patient was qualified to be treated with high dose-chemotheraphy with cyclophosphamide and anti-thymocyte globulin followed by aPBSCT. The procedure was performed on 17.01.2011 and was complicated with haemorrhagic cystitis successfully treated with reduction of cyclophosphamide dose, bladder irrigation and platelet concentrate transfusion. Seven years passed and no immunosuppressive therapy has been needed so far. Improvement in exertion tolerance, skin lesions, decreasement in pulmonary blood pressure, stabilization of interstitial lung disease were noted. Currently the main concern is dysphagia and esophagus dilatation.

Conclusion

Progressive diffuse SSc has poor prognosis and is associated with a significant mortality estimated to be 40-50% in 5 years. aPBSCT is currently the most effective method in this condition, improving quality of life, organ function and enabling to reduce or discontinue immunosuppressive therapy. The method shows significant treatment-related mortality in early stages. Therefore it is crucial to perform comprehensive cardiopulmonary screening and pre-transplant evaluation of heart, lung and kidney function to exclude patients at high risk.

Preliminary analysis of CEBPA gene expression level in patients with acute lymphoblastic leukemia.

Aneta Wiśnik, Magdalena Dąbrowska, mgr anal.med. Dagmara Szmajda, mgr anal.med. Adrian Krygier

Medical University of Lodz

Presenting author: Aneta Wiśnik
e-mail: wisnik.aneta@gmail.com
Tutors: Ewa Balcerczak,

Introduction

The following presentation will provide a description of CEBPA gene and its relation with acute lymphoblastic leukemia (ALL). The acute lymphoblastic leukemia is a cancer of the lymphoid line of blood cells characterized by the development of large numbers of immature lymphocytes. This type of cancer usually gets worse quickly if it is not treated. Past treatment for cancer and certain genetic conditions affect the risk of having ALL. The etiology of ALL is unclear, but genetic factors seem to play a significant role in this cancer development. The CEBPA gene (CCAAT/enhancer-binding protein alpha) is located on human chromosome 19q13.1. CCAAT-enhancer-binding proteins promote the expression of certain genes through interaction with their promoters. The CEBPA protein is known to regulate the balance between cell proliferation and differentiation during early hematopoietic development and myeloid differentiation. Overexpression of apparently normal *CEBPA* RNA or protein was observed and that is the reason why that genemay exhibit oncogenic properties in human leukemogenesis.

Aim of study

Estimation of CEBPA relative gene expression level in patients diagnosed with ALL.

Material and methods

The research group consisted of the 55 patients with acute lymphoblastic leukemia, 35 women and 20 men. Peripheral blood (remaining after routine tests) was used in the investigations. A quantitative assessment of *CEBPA* gene expression level was performed by Real-Time PCR. The results were statistically analyzed and then relative level of*CEBPA* gene expression was estimated.

Results

All samples presented qualitative expression of *CEBPA* gene and were taken under quantitative assessment. Relative *CEBPA* expression level varied among selected cases, it ranged from 0.01 to 23.40, with median value 1.11. Statistical analysis revealed significant differences in relative gene expression according to gender. Levels were higher and more varied among men (P=0.02). Relative gene expression level was also compared to ALL subtypes, no statistically significant differences between gene expression level and B-ALL (43 cases) and T-ALL (12 cases) subtypes was observed (P=0.86). Other selected clinicopathological features contain blast percentage and leukocytosis among patients.

Conclusion

The findings suggest that gender can affect the expression level of *CEBPA* gene and probably influence the process of ALL development among women and men. *CEBPA* gene expression level is probably not connected with ALL subtypes. Lack of association may be caused by a relatively small group of investigated patients.

This study was supported by Statutory Funds of the Department of Pharmaceutical Biochemistry and Molecular Diagnostics, 503/3-015-02/503-31-001 and Funds of the Faculty of Pharmacy, Medical University of Lodz 502-03/3-015-02/502-34-089 and 502-03/3-015-02/502-34-088

In silico drug-repurposing for augmenting K-Ras inhibitor treatment in pancreatic cancer

Marcin Stańczak, Beata Małachowska

Medical University of Lodz

Presenting author: Marcin Stańczak
e-mail: marcin.stanczak@stud.umed.lodz.pl
Tutors: Wojciech Fendler,

Introduction

KRAS mutations are known to be an important factor in the pathogenesis of pancreatic adenocarcinoma – a highly aggressive tumor with one of the poorest survival rates. Therefore, drugs to inhibit oncogene were sought – thus far ineffectually. Our research, performed in collaboration with the Dana-Farber Cancer Institute, on potential selective inhibitors of K-Ras protein showed initial efficacy, which inexplicably declined over time.

Aim of study

Identification of intracellular changes indicating K-Ras inhibitor resistance and identification of substances that could potentially reverse them to make K-Ras inhibitor treatment effective.

Material and methods

Proteomics analysis was performed with tandem-mass-tagged mass spectrometry on MIA PaCa-2 cells cultured in 5**µ**M K-Ras inhibitors resolution for 1 hour, 4 hours, 24 hours, 72 hours, 7 days and 2 months and on cells incubated in dimethyl sulfoxide as a control. For identification of up-regulated and down-regulated biologically-important pathways we performed Gene Set Enrichment Analyses. Connectivity Maps were used for further aggregation of changes of pathway expression. The FunRich bioinformatics tool database revealed biological association between deregulated pathways.

Results

A total of 17 significantly enriched gene sets (nominal $p<0.05$) showed three different patterns of changes over time. In the first one (2 sets) genes remained constantly down-regulated (Normalized Enrichment Score NES< -1.4). They are responsible for controlling translation initiation factor activity, translation factor activity and RNA binding. The second group contains 12 sets, where genes were down-regulated for first 7 days of drug admission (NES< -1.3), but after 2 months of treatment became up-regulated (NES> 1.3). Their products appear to be structural constituents of ribosome and to control RNA binding. The last group consists of 3 gene sets up-regulated in every measurement during the first week (NES> 1.4) and down-regulated after 2 months (NES< -1.8). Proteins that they code control NADH dehydrogenase activity and electron transfer activity. Connectivity Map concerning changes in expression between 7 days and 2 months shows strong positive connectivity with effects of proteasome inhibitors (connectivity score tau=98). Chemicals that show strong negative connectivity, which may potentially reverse KRAS inhibitor resistances included danorubicin (tau= -98), mitoxantrone (tau= -98) and pidorubicine (tau= -97).

Conclusion

Cells treated with K-Ras inhibitors firstly down-regulated protein synthesis pathways and enhanced respiratory electron chain pathway activity, but after prolonged treatment the pattern inverted. We hypothesize that cells enhanced other members of pathways responsible for proliferative signaling and reinstated Warburg effect. It could be a sign of developing drug resistance, which might potentially be overcome by topoisomerase inhibitors, yet in vitro tests need to be done.

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ŁÓDŹ, POLAND

Peripheral blood stem cell collection outcomes in related and unrelated donors – single center study.

Adam IL, Anna Kołodziejek, Krzysztof Bartnik, Elżbieta Urbanowska, Wiesław Wiktor Jędrzejczak, Emilian Snarski

Medical University of Warsaw

Presenting author: Adam IL
e-mail: 94adamil@gmail.com
Tutors: Emilian Snarski,

Introduction

Leukapheresis is the most common way to collect hematopoetic stem cells (HSC) for transplantation from both: related and unrelated donors. The procedure is carried out after HSC mobilization from the bone marrow into the bloodstream by granulocyte colony stimulating factors (G-CSF). Searching for a donor begins with the patient's family. However, it is rare to find a suitable donor among the relatives. Since there are no studies that compare the results of related and unrelated donors, we decided to analyze the collection outcomes in those two groups.

Aim of study

To compare the results of peripheral blood stem cell collection (PBSC) in related and unrelated donors undergoing leukapheresis after mobilization with different GCS-F.

Material and methods

In this retrospective, single-center study there were included medical records of 156 unrelated and 31 related hematopoietic stem cell donors. PBSC were performed during the period from January 2014 to January 2018 at the Clinical Hospital of the Medical University of Warsaw. Donors in both groups underwent different mobilization regimens which consisted of original GCS-F in unrelated and biosimilar generic in related donors.

Results

Pre- and post-procedure laboratory values (WBC, HGB and platelet count) did not differ significantly between those two analyzed groups ($p>0,05$). Both groups of donors had similar pre-apheresis CD34+ ($x10^3/\mu L$) (114 $x10^3/\mu L$ vs 113 $x10^3/\mu L$ in related and unrelated group, respectively [$p=0.5$]). The mean number of collected CD34+ cells: were 6.46×10^6/ kg of donor body mass 8.18×10^6 / kg for related and unrelated donors, respectively ($p=0.007$). The platelet loss ratio (PLR) was: 32.7% for unrelated donors, 36.9% for related donors ($p=0.08$). Only one apheresis was needed for collection of requested cell number in 89.7% individuals in unrelated donors group and in 87.9% in related donors group ($p=0.79$).

Conclusion

The efficiency of the leukapheresis in both groups was at a similar level. Type of G-CSF had no influence on the collection results. Both donor groups were discharged with satisfactory, non-endangering blood test results – which leads to conclusion, that the procedure is a safe and effective way to obtain stem cells form both related and unrelated donors.

Myocardial infarction during 5-Fluorouracil treatment

Dominika Raźniewska, Agnieszka Świątek

Medical University of Lodz

Presenting author: Dominika Raźniewska
e-mail: d.raz@wp.pl
Tutors: Joanna Połowinczak-Przybyłek, Prof. Piotr Potemski

Introduction

5-fluorouracil is a fluoropyrimidine antimetabolite, widely used in the treatment of cancer. Main adverse effects include myelosuppression, diarrhoea and various cardiotoxicity.

Three patients were admitted to the Department of Cancer Chemotherapy of Medical University of Lodz, in order to start or continue treatment by chemotherapy regimens that included 5-fluorouracil. Despite a lack of cardiovascular history, during the therapy patients had symptoms of myocardial infarction.

Case report

Patient W.L was a 66 y.o woman with no prior history of cardiac disease, treated with a LF4 regimen (5-fluorouracil in continuous infusion with folinic acid) for colon adenocarcinoma with metastases in peritoneum and liver. During the first cycle, in the second day of therapy in early morning hours, the patient reported stenocardial pain radiating to forearms and wrists. ECG and troponin levels confirmed STEMI, the patient was treated with nitrates and ASA, and consulted by a cardiologist. Coronary arteries was nonstenotic in coronary angiography. With supportive care, the patient cardiac function return to normal.

Patient A.K was a 57 y.o male without cardiovascular history, treated with PF (5-fluorouracil in continuous infusion with cisplatin) regimen for squamous cell carcinoma of unknown origin with metastases in liver and cervical lymph node. During the first cycle in the third day of therapy in early morning hours, the patient reported stenocardial pain radiating to the left elbow and dyspnea. ECG and troponin levels confirmed STEMI, the patient was treated by anti-ischemic and anticoagulant drugs, and consulted by a cardiologist. A coronarography did not show significant stenosis in main coronary arteries, an echocardiography did not show contractility disorders and a subsequent ECG did not show any ischemic changes.

Patient E.L was a 48 y.o woman treated with FOLFIRI (5-fluorouracil with folinic acid and irinotecan) regimen for colon adenocarcinoma with metastases in liver and lung. During the third cycle in the first day of therapy, the patient developed STEMI confirmed in ECG and by troponin levels. The patient was consulted by a cardiologist and a coronarography shown closed anterior intraventricular branch. She was treated with enoxaparin and didn't didn't allow to perform an angioplasty

Conclusion

Due to increasing number of diagnosed cancers and more common use of 5-fluorouracil, doctors should be more aware of its potential adverse effects that may occur during chemotherapy. Increased vigilance is necessary to prevent life-threatening cardiotoxicity effects, that may also appear in patients without a cardiovascular history. After such an incident, it is recommended to exclude 5-fluorouracil from further treatment if possible, because repeated exposure to 5-FU after documented cardiotoxicity carries a recurrence rate of 82–100% with a death rate of 18%.

Coexistence rate of multiple myeloma and renal cell carcinoma: one center, retrospective analysis of 714 patients with multiple myeloma.

Zuzanna Rzetelska, Tadeusz Kubicki, Marta Barańska, Dominik Dytfeld, Adam Nowicki, Renata Kroll-Balcerzak, Joanna Rupa-Matysek, Lidia Gil, Mieczysław Komarnicki

Poznan University of Medical Sciences

Presenting author: Zuzanna Rzetelska
e-mail: rzetelskazuzanna@gmail.com
Tutors: Marta Barańska, dr hab. med. Dominik Dytfeld

Introduction

Multiple myeloma (MM) accounts for 1% of all cancers and 10% of all hematological malignancies. In 2010, 1247 new cases of MM were reported in Poland. Renal cell carcinoma (RCC) occurred in 4644 cases. Reports about the coexistence of MM and RCC are rare with the first such case published in 1977.However, a large population-based study, small case series, and some case reports advocate for the idea that patients diagnosed with MM are susceptible to RCC and vice versa, as for today the substantial etiopathogenesis associating both diseases has not been presented. Herein, we present 8 cases along with the epidemiological analysis of incidence ratio.

Aim of study

The aim of the study was to evaluate the rate of the coexistence of MM and RCC.

Material and methods

The database of MM patients referred to the Department of Haematology and Bone Marrow Transplantation at Poznan University of Medical Sciences in Poland, between 1 January 2006 and August 2017 was reviewed. 714 patients with newly diagnosed MM were identified in this period, eight of them have had a concomitant diagnosis of MM and RCC. The median age at diagnosis of MM was 65, and 53.4% of the patients were men. The medical records of these eight patients were obtained, and all relevant data related to each diagnosis were abstracted. In fourth of the eight patients, the diagnosis of MM preceded the diagnosis of RCC. The other four patients were diagnosed with RCC before the diagnosis of MM.

Results

Taking the 59 patients seen each year with newly diagnosed MM followed for the length of follow-up observed in the 4 patients with dual malignancies (1, 12 and 60 months), the expected numbers of renal cell carcinomas in this group would be 0.0006, 0.0071 and 0.0357 respectively, as compared with the 4 cases actually observed (overall chi-square test = 1911.6 $p < 0.001$). The incidence rate of RCC in patients with MM diagnosis was higher than in Polish population in a male and female cohort (Z-statistic:26.32, $p < 0.000001$ for men and Z-statistic: 6.75 $p=0.003714$ for women by a one proportion Z-test).

Conclusion

With this case series, we would like to underline that all physicians should be aware that MM patients are more susceptible to develop RCC than the general population and respectively patients with RCC are of greater risk of MM. This awareness should be present in every period of care, from diagnosis to follow-up. The presence of lytic lesions in a patient with the previous history of RCC may be misdiagnosed as metastasis instead of MM lesions, consequently leading to possible negative clinical effects. From the other side, all kidney lesions should be carefully examined in MM patient as well. Regular ultrasonographic control of MM patients can lead to early diagnosis of RCC and therefore result in good outcome with the 5-year survival rate higher than 80% for early stage RCC.

Multiple myeloma in clinical practice – single center study

Monika Korta, Agata Zienkiewicz, Monika Korta, Sylwia Szydłowska, Damian Mikulski

Medical University of Lodz

Presenting author: Agnieszka Obracaj
e-mail: monika-korta@wp.pl
Tutors: Paweł Robak,

Introduction:

One of the most frequent haematological malignancy is multiple myeloma, which represent 1% of all cancers. In recent years the number of available therapies has increased and since the implement of the novel adjents and the autoSCT patients survival has significantly improved. Nevertheless, the data presenting the treatment management and the patients outcome in clinical practice are limited. This single center study provides the patients characteristic and clinical treatment outcomes.

Aim of study:

The purpose of this study was to show the local epidemiological situation, the patients clinical profiles, treatment patterns and some complications occurrence (kidney failure, polyneuropathy).

Material and methods

The results of this research are based on a cross-sectional analysis multiple myeloma population. The study was conducted at the Department of Clinical Hematology, Medical University of Lodz and Copernicus Memorial Hospital. The duration of the study: 1st September 2015 – 31th August 2016. The study involved 97 participants between 37-87 years of age with different stage of the multiple myeloma, who have been treated in the Hematology Clinic during the research.

Results

At the time of diagnosis patients profiles were similar, the most frequent presentation was bone symptoms. All the population achieved the first line treatment, two-thirds of which was based on the bortezomib (67%). The majority of patients achieved the partial or the complete remission (60%), the maximal progression-free survival amounted 11mounths. Over half of the participants was treated with the second line of the therapy, one quarter of all received the third line, 10% of all obtained the forth line and only 2% - fifth line of treatment.

Conclusion

Although the variety of the treatment pathways is considerable, the most commonly therapies contained bortezomib. With the subsequent line of therapy the amount of patients with positive response to treatment decrease and the progression-free intervals shorten. Nevertheless, the patients benefit even from advanced lines of therapy.

Treatment of autologous stem cell transplant-eligible multiple myeloma patients- a Polish single centre experience.

Agnieszka Świątek, Emilia Sęczkowska, Marta Kalwas, Mateusz Pryt, Damian Mikulski

Medical University of Lodz

Presenting author: Agnieszka Świątek
e-mail: aga93swiatek@gmail.com
Tutors: Paweł Robak, Agnieszka Wierzbowska, MD, PhD

Introduction:

High-dose therapy with melphalan (HDT) followed by autologous stem cell transplant (ASCT) is the standard treatment approach in transplant-eligible multiple myeloma (MM) patients.

Aim of study

The aim of this study was to analyse transplantation clinical course, disease response and the outcome in MM patients treated at our institution.

Material and methods

We retrospectively analysed 179 medical histories of the MM patients treated with ASCT between January 2011 and December 2017.

Results:

The study group consisted of 90 women and 89 men (mean age 57.2±7.9). According to the International Staging System (ISS), 26.2% of patients were at stage I, 35.3% at stage II and 38.3% at stage III. The predominant paraprotein was IgG kappa (39.1%), followed by IgG lambda (18.9%) and kappa light chain (14.5%). The most commonly used induction chemotherapy prior to ASCT was CTD (cyclophosphamide, thalidomide, and dexamethasone, 67%), followed by VCD (bortezomib, cyclophosphamide and dexamethasone, 13.4%). After induction therapy, 25.9% of patients achieved a complete remission (CR), 40.2% of patients had very good partial response (VGPR) and 32.8% of patients were in partial remission (PR).

Patients received a mean CD34+ cell number of 6.6×10^6 /kg during ASCT. The median duration of grade 4 neutropenia was 8 days (range 3–22 days) and the median time to engraftment was 15 days (range 10–28 days). The median length of hospital stay from the day of ASCT was 20 days (range 14–34 days) and it was significantly longer among obese patients (p=0.049), patients with β2-Microglobulin level ≥3.5mg/l at diagnosis (p=0.02), ISS stage III at diagnosis (p=0.0025) and serum creatinine >2 mg/dl (p=0.01) at diagnosis. Patients received a median of 2 (range 0–6) platelet transfusions and a median of 0 (range 0–13) red blood cell transfusions. Fever developed in 114 cases (63.7%) after ASCT. In 4 patients (2.2%), a tandem (double) ASCT was performed. A second ASCT in the relapsed setting was performed in 28 (15.6%) patients. Only 1 patient (0.56%) was reported to have experienced a treatment-related death (TRD) within 100 days from ASCT. Following ASCT, 43.2% of patients were in CR, 44.4% in VGPR, 9.9% in PR and 2.5% in SD. Data on progression-free survival (PFS) were available for 122 (68.2%) patients. Median PFS was 23.6 months. Kaplan–Meier survival analysis showed that the PFS was significantly greater in the patients with stage I and II versus stage III according to ISS (p=0.017).

Conclusion

ASCT is safe and effective therapeutic option for MM patients. TRD rate for ASCT was low at 0.56%. The length of hospital stay from the day of ASCT was significantly longer among obese patients, patients with β2-Microglobulin level ≥3.5mg/l at diagnosis, stage III according to the ISS at diagnosis and serum creatinine >2 mg/dl at diagnosis. Patients with ISS stage I and II at diagnosis had a better outcome than patients with MM stage III.

OPTHALMOLOGY & OPTOMETRY

COORDINATORS
Sławomir Lis
Mateusz Niedzielski

JURY
Beata Dobrzańska-Najdyhor, MD, PhD
Sławomir Cisiecki, MD, PhD
Andrzej Michalski, MD, PhD
Paulina Pyżalska, MD, PhD
Arleta Waszczykowska, MD, PhD

Difficulties in management of simultaneous elevation and depression deficit persisting after posttraumatic orbital floor reconstruction.

Agata Joanna Ordon

Medical University of Lodz

Presenting author: Agata Joanna Ordon
e-mail: agata.j.ordon@gmail.com
Tutors: Piotr Loba, Marcin Kozakiewicz

Introduction

Ocular motility impairment associated with orbital trauma may present as several different patterns. The most common is limited elevation of the globe. However, in some cases it is accompanied by depression deficit. In such instance the patient reports diplopia in both up- and downgaze.

Aim of study

The aim of this study is to examine the results of treatment methods in cases of simultaneous elevation and depression deficit that persisted after posttraumatic orbital floor reconstruction.

Materials and Methods

The study was designed as a retrospective analysis of medical records of patients who had undergone surgical correction for diplopia associated with orbital fracture and which persisted after orbital reconstruction surgery. Eight cases (5 males, 3 females, mean age 34.1±7.2years) were identified. Data from the records concerning type of fracture, timing of reconstruction surgery, alloplastic materials used, number and timing of the strabismus surgeries were evaluated. All patients underwent orthoptic evaluation before surgery and postoperatively with various times of follow-up. In all cases the procedure of choice was contralateral inferior rectus recession combined with superior oblique recession and superior rectus posterior fixation.

Results

8 cases of blow-out fracture of the orbital floor were identified. Orbital rim involvement was present in 3 cases. In 5 cases titanium mesh was used in reconstruction surgery, in 3 cases polipropylen sheet. Delay of the reconstruction surgery: 34.6±31 days (7 to 90 days). Mean time that elapsed from the reconstruction surgery to the first strabismus procedure was 10.3±5,5 months (6 to 24 months). In all cases there were at least two procedures necessary. Postoperatively 4 patients (50%) were diplopia free, 2 (25%) presented diplopia in extreme upgaze and 1 (12.5%) in upgaze, by adduction and 1 (12.5%) in extreme upgaze, by adduction.

Conclusion

Diplopia persisting after reconstructive surgery of a fractured orbital floor may be corrected surgically. The results of this study suggest that at least two surgical procedures are necessary to achieve satisfying outcomes. In such cases contralateral inferior rectus recession combined with superior oblique recession and superior rectus posterior fixation appear to be effective procedures for use. However, despite many modifications and improvements of extraocular muscle surgeries it is still challenging to resolve diplopia persisting after posttraumatic orbital floor reconstruction.

Spotlight on nightmares structure. Analysis of dream reports from blind individuals.

Marta Świerczyńska, Ewelina Tobiczyk

Medical University of Silesia

Presenting author: Marta Świerczyńska
e-mail: m.swierczynska93@gmail.com
Tutors: Dorota Pojda-Wilczek

Introduction

Nightmares are intense, charged with negative emotion experiences that provoke sudden awakenings mainly from rapid eye movement (REM) sleep. The nightmares impair the quality of sleep due to frequent nocturnal awakenings and fear of falling or returning to sleep.

Aim of study

Assessment of the frequency and thematic content of nightmares among congenitally and late blind people.

Materials and Methods

The study was carried out on 19 congenitally blind (CB), 21 late blind (LB) and 42 sighted people forming the control group (SC). The mean age was 46,01 ± 13,96. Every day after waking up, the participants had to answer 4 questions: 1. Have you been suddenly woken up by the dream? 2. If so, have you remembered thoroughly the content of the dream? 3. Has the waking up taken place in the last part of the dream? 4. Have you been able to get back to sleep immediately after awakening? In the case when the answers to the questions 1, 2, 3 were affirmative and the answer to the question 4 was negative, the dream was qualified as a nightmare and the participants were asked to fill in the questionnaire concerning its content.

Results

The blind participants had a significantly higher proportion of nightmares than SC group (21% ± 24 vs 7% ± 8 respectively, $p=0.022$). A significant difference also was found when comparing CB, LB and SC ($H[2]=13.81$; $p=0.001$). Post hoc tests showed differences between the CB and SC ($p=0.0013$) and the CB and LB groups ($p=0.013$). Furthermore, more nightmares were reported by women ($p=0.001$). The themes occurring in nightmares of the blind persons mostly concern transport and moving around public spaces.

Conclusion

CB individuals experienced more nightmares in comparison to the other groups and their themes concern mainly daily lives threats. According to the threat simulation theory of dreaming it can been seen as a defense mechanism, where continuous experiencing of threatening events can increase the ability to cope with them during wakefulness.

Odontogenic endophthalmitis in a patient primarily treated for rhegmatogenous retinal detachment.

Ewa Goździewska, Agata Redos, Ewa Goździewska, Karolina Kaczorowska. Magdalena Karkocha

Nicolaus Copernicus University Collegium Medicum

Presenting author: Ewa Goździewska
e-mail: e.gozdziewska@gmail.com
Tutors: Karolina Kaźmierczak,

Introduction

The aim of this case report is to present odontogenic endophthalmitis in a patient primarily treated for rhematogenous retinal detachment.

Case report:

The patient without any signs of inflammation, without general complaints before the operation and despite negative bacterial cultures taken from the operating room and the patient room, on the second day after the initial phacovitrectomy with implantation of artificial lens and endotamponade with 15% C3F8 gas developed symptoms of fulminant endophthalmitis. The probable odontogenic origin was confirmed by X-ray and the dental examination.

Conclusion

Presented case study shows that it is important to stay vigilant with dental examination of the patients treated with invasive procedures to prevent later complications.

Risk factors - age, iris colour, body mass index and smoking among patients with age related macular degeneration

Līva Strucinska, Laura Grava, Beate Baumane

Riga Stradiņš University

Presenting author: Līva Strucinska
e-mail: liva.strucinska@gmail.com
Tutors: Egija Zole , Assist. Prof., Dr. biol. Renāte Ranka

Introduction

Age-related macular degeneration (AMD) is a progressive eye disease that is the leading cause of blindness in elderly in developed countries. AMD is associated with multiple environmental and genetic factors, but age is the strongest risk factor, occurring primarily among people over the age of 50. Although advancing age is the greatest risk factor associated with the development of AMD, environmental and lifestyle factors may significantly affect individual risk. Smoking is an important, modifiable factor that has been consistently associated with a twofold increased risk for developing AMD. Other factors that have been reported to influence risk for AMD include body mass index (BMI) and blue-colored irides.

Aim of study

The aim of this study was to quantify the relationships between categories of age,iris colour,body mass index (BMI),smoking and age-related macular degeneration (AMD) risk.

Materials and methods

The study included 47 patients with exudative form of AMD. 29 females and 18 males; an average age was 76.9 (54–94) years. The diagnosis of AMD was confirmed by macular ocular coherence tomography. Questionnaire was made and patients were asked about their weight and height (BMI- was calculated as weight in kilograms divided by the square of height in meters), smoking habits, age and eye color. Data were analyzed statistically using SPSS statistics analyzing software (Chi-Spuare test for association was used).

Results

AMD was significantly more prevalent in individuals with blue iris color (blue – 68.1%(n=32), green – 8.5%(4=n), brown – 10.6%(n=5), grey – 10.7%(n=5)). Mean BMI was 28.2 [SD= 4.1] (range 20.5–38.1). 21.3% (n =10) of patients were with normal weight, 51.1% were overweight (n=24), 19.1% (n=9) had class I obesity and 8.5% (n =4) had class II obesity. Other studies suggest that smoking is a strong risk factor in patients with AMD, but in our study only 10.6 %(n=5) among patients were smokers but 89.4% (n=42)-were non-smokers. Average age among patients was 76.85 years [SD 8.9] (range 54-94), which is a strong risk factor for AMD. There was no statistically significant difference found between these 4 risk factors ($p>0.05$).

Conclusion

We confirm previous findings of a higher prevalence of AMD in persons with increased BMI (>25) than in persons with normal BMI. We agree with those observers who claim that patients with blue-colored irides have a higher prevalence of AMD than those with other-colored irides (brown,grey,green). Although smoking is mentioned as major modifiable risk factor in many other studies, in our study smoking as a risk factor did not prove. Age was the strongest risk factor in our study - primary abnormalities in ocular perfusion worsen with age, secondarily causing dysfunction of the retinal pigment epithelial cells, predisposing eyes to AMD. These anatomical changes together with an individual's genetic make-up and environmental risk factors set the stage for the development of AMD.

Way of spending free time and sight defects in school-aged children

Bartłomiej Wójcik, Aleksandra Cieśla, Michał Bałuszyński, Michał Mokrzycki

Medical University of Silesia

Presenting author: Bartłomiej Wójcik
e-mail: bartiwoj@tlen.pl
Tutors: Dorota Pojda- Wilczek,

Introduction

A lot of factors influence the development of sight defects in the youngest. Besides genetic conditions, it is important to also distinguish environmental factors.

Aim of study

The aim of the study was to analyze the lifestyle and hygiene of visual work of school-aged children.

Materials and Methods

The study group was made of 285 people (148 F, 137 M) in school age (mean age 9.8 +/- 2.23). An anonymous, original questionnaire addressed to parents of primary school children was used. The questionnaire included questions about: the type of refractive error a child has, time spent outside during working days and free days, time spent in front of a computer. The results were analysed using the chi square test, the value of $p < 0.05$ was considered statistically significant.

Results

During business days, 91% of respondents (258 people) spend an average of 2 outside per day. Only 6% (17 persons) stay for over 2 hours in natural light conditions during working days. During the days off, the number of people who stay outside for more than 2 hours increases 6 times to 38% (107 people). 96% (273) of parents declare that their children spend an average of 2 hours per day in front of a computer. The negative eye condition of the child was confirmed by the parents of 59 children (21%), including 36 (61%) myopia; 11 (19%) hyperopia and 12 (20%) astigmatism. Analysing the time spent outside between a group of children without defects (group I) and visual impairments (group II), it was observed that during working days 13% (28) of group I exhibits outdoor activity> 2h / day compared to 3% (2) group II ($p = 0.048$). 3% of people in Group I spend in front of a computer> 2h / day, the same amount of time is spent on the computer by 15% of people in group II ($p = 0.003$).

Conclusion

Children with no vision defect stay longer under natural lighting conditions and spend less time on visual work closer to home than their peers with refractive error.

Arterial hypertension and it's correlation between body mass index and cardiovascular diseases among patients with age related macular degeneration

Laura Grava, Līva Strucinska, Beate Baumane,

University of Latvia

Presenting author: Laura Grava
e-mail: lauragrava11@gmail.com
Tutors: Egija Zole, Assist. Prof., Dr. biol. Renāte Ranka

Introduction

Age-related macular degeneration (AMD) is a progressive eye disease that is the leading cause of blindness in elderly in developed countries.Many studies have demonstrated that high blood pressure is associated with lower choroidal blood flow and disturbed vascular homeostasis in AMD patients. Most epidemiological studies have found essential hypertension to be a risk factor for AMD. However, although all agree that the strongest predisposing factors are age and smoking, overall there is some inconsistency regarding the exact role of hypertension in its pathogenesis. Also BMI and cardiovascular diseases such as arrhythmia, coronary heart disease, myocardial infarction and heart failure have been reported to influence risk for AMD.

Aim of study

Describe the correlation between arterial hypertension with BMI and cardiovascular diseases among patients with age-related macular degeneration.

Materials and methods

The study included 47 patients with AMD. 29 females and 18 males; average age was 76.9 (54–94) years. The diagnosis of AMD was confirmed by macular ocular coherence tomography.Questionnaire was made and patients were asked about their blood pressure, cardiovascular diseases, weight, height and age. Data were analyzed statistically using SPSS statistics analyzing software, using Chi-Square test for association.

Results

Average arterial blood pressure without medicine among patients was 154/87mmHg (stage I hypertension). Average arterial blood pressure with medicine among patients was 128/78mmHg (prehypertension). Patients with arterial hypertension average BMI was 28.67 (overweight; n=43) but patients without arterial hypertension average BMI was 23.17 (normal weight;n=4). There was statistically significant difference between 2 risk factors – arterial hypertension and BMI ($p<0.05$). Of all patients 23 (48.9 %) had cardiovascular disease (36.2 %-arrhythmia, coronary heart disease – 25.5%, myocardial infarction – 4.2%, heart failure – 4.3 %). Among patients 73.9 %(n=17) had only 1 cardiovascular disease, 21.7 %(n=5) had 2 cardiovascular diseases and 4.3%(n=1) had 3 cardiovascular disease. There was no statistically significant difference found between arterial hypertension and arrhythmia - $p=0.115$; arterial hypertension and coronary heart disease – $p=0.471$; arterial hypertension and myocardial infarction - $p=0.578$; arterial hypertension and heart failure – $p=0.659$.

Conclusion

This study suggests that high blood pressure can be associated with increased risk for AMD among patients who don't use medication then in patients who uses medication to prevent arterial hypertension. Our study show statistically significant difference between arterial hypertension and body mass index. Almost half of all the patients had cardiovascular disease which may be associated with higher risk factor for AMD, but further study must be done to prove that cardiovascular diseases are risk factor for AMD and also it's correlation with arterial hypertension

Comparison of three different intraocular pressure measurement techniques: Ocular Response Analyzer, Applanation Resonance Tonometer ART Servo Controlled and Schiotz tonometer

Kamila Ulatowska

Medical University of Lodz

Presenting author: Kamila Ulatowska
e-mail: kamilaulatowska@wp.pl
Tutors: Michał Wilczyński, Magdalena Kucharczyk-Pośpiech

Introduction

To begin with, measurement of intraocular pressure (IOP) is one of the basic examinations in ophthalmology. Nowadays we observe fast development of various methods of intraocular pressure (IOP) measurement. First of all Schiotz impression tonometer although still popular in Poland, becomes a historical method wordwide. Applanation Resonance TonometerART Servo Controlled is new slit-lamp mounted contact and electronic tonometer. Finally, Ocular Response Analyzer (ORA) is a new non-contact applanation IOP measurement device.

Aim of study

The aim of this study was to evaluate the agreement between results of three IOP measuring devices: Applanation Resonance Tonometer ART Servo Controlled (ART),Ocular Response Analyzer (ORA) and Schiotz tonometer.

Materials and Methods

The study was designed as prospective case series. Consecutive 68 patients (136eyes) were included in the study. 49 subjests were women, 19 men. The meanage 73.0 SD±10.3years. What is more, both eyes of 24 glaucoma patients and 44 healthy controls underwent IOP-measurements performed with ART, ORA and Schiotz tonometer. Finally, the central corneal thickness (CCT) of all patients was measured. Comparison between methods was performed using two-tailed independent samples t-test (P value<0.05, significant). Moreover Bland-Altman plots were used to assess agreement.

Results

Mean (±standard deviation) IOPcc (corneal compensated) measurements were 16.7±5.7mmHg and IOPg (Goldmann compensated)15.95±5.6 mmHg using ORA, 16.3±4.6 mmHg using ART, 14.1±3.6 using Schiotz tonometer. Mean CCT was 550.9 μm.

Conclusion

To summarize, IOP measurements obtained using the Ocular Response Analyzer (corneal compensated and Goldmann compensated) were not significantly different from Applanation Resonance Tonometer. On the contrary, Schiotz tonometer measurments were significantly different from 2 other evaluated methods.Therefore Ocular Response Analyzer can be a good, accurate alternative for applanation tonometry.

The use of 3D printer in prototyping pediatric trial frames

Ewa Łuczak

Medical University of Lodz

Presenting author: Ewa Łuczak
e-mail: ewa.luczak93@gmail.com
Tutors: Karolina Czarnecka, Ryszard Naskręcki, Dorota Pastuszak-Lawandoska

Introduction

The increase in the prevalence of vision defects in children is observed every year. Specialists call the current trend the “myopia epidemic”. Many scientists studying this phenomenon recognize that the current increase in the occurrence of visual defects is a reflection of the lifestyle of modern children. Pediatricians point out that diagnostic tools for examining children should be significantly different from those used to examine adults. The current stage of the development of medicine, especially pediatrics, is characterized by a large individualization of medical equipment. Ophthalmology and optometry are beginning to strive to personalize the equipment due to the diverse needs of patients and new opportunities for the medical staff. 3D printing becomes widely available, and therefore very cheap. This method allows for a large individualization of the created products, particularly different prototypes.

Aim of study

The aim of the paper is to demonstrate that the creation of personalized medical equipment for pediatric patients is advisable and brings benefits for both patients and doctors. The paper tries to answer the question of how 3D printing method may be useful to create new diagnostic tools and what are its advantages and disadvantages.

Materials and Methods

Both the specifics of the pediatric eyesight tests using standard trial frames and related problems were analyzed. In order to learn about these needs and to create a prototype of trial frames for children, the method of expert interviews was used. Interviews were carried out among optometrists, optometrists and ophthalmologists. A design of trial frames imitating teddy bear mask was prepared and a prototype was printed using a 3D printer. Standard and printed trial frames were shown to a group of 30 children and 30 parents. Surveys concerning these products and the process of children's sight examination were carried out among them.

Results

Standard trial frames are mostly made of metal, which makes them heavy, hard, cold and uncomfortable. Many children consider them as ugly. They are afraid of their appearance. A prototype of pediatric trial frames made for this work are in many aspects the opposite of standard ones. It is confirmed by the results of surveys carried out among children and parents. Surveys revealed both many advantages and many disadvantages of using trial frames printed on a 3D printer. It is difficult to objectively measure how significantly they improve the children's mental comfort during sight examinations.

Conclusion

It has been shown that 3D printing is a useful method for prototyping pediatric trial frames. The method of examining children's sight should significantly differ from the examination of adults' sight, therefore, it is necessary to ensure the creation of new diagnostic tools, visual implements and tests that will be adjusted to the individual needs of little patients. Despite the apparent complexity, the design and 3D printing process is relatively s imple and fast.

ORTHOPEDICS

COORDINATORS
Paulina Oczoś
Aleksandra Sibilska

JURY
Professor Marcin Domżalski, MD, PhD
Radosław Lebiedziński, MD, PhD
Konrad Malinowski, MD, PhD
Professor Marcin Sibiński, MD, PhD
Professor Marek Synder, MD, PhD
Sebastian Żabierek, MD

Results of questionnaire surveys of patients with two most common upper extremity compression neuropathies: Carpal Tunnel Syndrome(CTS) and Cubital Tunnel Syndrome(CuTS).

Bernard Solewski, Maciej Lis

Jagiellonian University Collegium Medicum

Presenting author: Bernard Solewski
e-mail: bsolewski@gmail.com
Tutors: Mateusz Koziej, Marek Trybus MD PhD

Introduction

Both CTS and CuTS are well described in the literature in terms of the effect they exert in patient's quality of life. As they both concern function of the hand, it seems necessary to compare them to see how they differ in the opinion of the patients.

Aim of study

The aim of the study is to compare how CTS and CuTS affect patients' lives, by measuring severity of symptoms in a subjective way, as perceived by the patients. Information gathered in the study may contribute in allocation of resources for these diseases.

Material and methods

The study included patients with CTS or CuTS, who came to the outpatient clinic over a one-year period and were treated surgically. The other inclusion criteria were: being older than eighteen years, no history of hand/wrist surgery, no history of neurological nor mental illnesses. Patients were given the Polish version of Michigan Hand Outcomes Questionnaire(MHQ) and the Disabilities of the Arm, Shoulder and Hand (DASH) Outcome Measure to fill. Afterwards, the results of the surveys were compared. The comparison between questionnaire outcomes of analysed groups of patients was performed using U Mann-Whitney test. Age differences between the groups were evaluated using a T-test.

Results

A total of 55 cases of CTS and 34 cases of CuTS were assessed. Both MHQ and DASH questionnaires scores showed significant statistical difference between described neuropathies. The MHQ results shows statistical significance in the domains related to work and pain issues.

Conclusion

The CTS group has lower outcomes in comparison with CuTS, when assessed by standardized general hand function questionnaires in an outpatient clinic. This study was designed to show how each mononeuropathy affects patients' lives with different severities.

Outcome responsiveness comparison between different Questionnaires evaluating recovery process after Cubital Tunnel Decompression.

Maciej Lis, Bernard Solewski

Uniwersytet Jagielloński Collegium Medicum

Presenting author: Maciej Lis
e-mail: maciej97.lis@gmail.com
Tutors: Mateusz Koziej , Marek Trybus MD PhD

Introduction

Cubital Tunnel Syndrome (CuTS) is the second most common peripheral compression neuropathy of the upper extremity. Mild symptoms can be treated nonoperatively, while severe nerve compression, which causes muscle weakness and damage should be released surgically. Three surgical methods are considered to be the most effective in this condition : simple decompression, anterior transposition and medial epicondylectomy, but none of these offer a significant advantage over another. The postoperative hand condition improvement can be evaluated objectively by nerve conduction studies, and ultrasonography, or subjectively with questionnaires (subjectively-rated outcome measures – PROMs). Currently there is no primary tool to asses outcome after CuTS surgery, thus finding a validated, inexpensive and non-invasive method is an important objective.

Aim of study

The aim of this study was to evaluate the usefulness of a variety of questionnaires related to general hand condition, general health status, and strictly to Ulnar Nerve in monitoring postoperative changes after simple Cubital Tunnel decompression.

Material and methods

Forty-seven patients with diagnosed Cubital Tunnel Syndrome were enrolled in the study. Data was collected three times: preoperatively, after three months, and after six months, using the following Questionnaires: Patient-Related Ulnar Nerve Evaluation (PRUNE), Michigan hand Outcome Questionnaire (MHQ), Disabilities of the Arm, Shoulder, and Hand (DASH) Outcome Measure, Short Form 12 and Pain Visual Analogue Scale (VAS) with activity. The calculation of responsiveness was done with standardized response means (SRM).

Results

All questionnaire scores significantly improved after six month time ($p < 0,05$) in comparison with preoperative outcomes. The strongest overall responsiveness was found in PRUNE, MHQ, and DASH questionnaires (SRM > 1.0).

Conclusion

The MHQ and PRUNE total scores showed highest SRM after six month period of recovery, and therefore should be considered most useful for evaluation of recovery process after simple Cubital Tunnel decompression.

Usage of different biomarkers in prediction of heterotopic ossifications

Piotr Stępiński, Michał Krawczyk, Łukasz Pulik, Sylwia Sarzyńska

Medical University of Warsaw

Presenting author: Piotr Stępiński
e-mail: piotr.stepinski01@gmail.com
Tutors: Paweł Łęgosz,

Introduction

Heterotopic ossifications (HO) are freqent complications after many orthopedic surgeries. They often occur around hip and elbow joints, which lead to pain sensations and decreased range of movement. During last decades scientist described many risk factors such as: gender or surgical approach. We still can not predict in wich case will HO occur.

Aim of study

The aim of our study is to evaluate if alkaline phosphatase, serum phosphorus and type I collagen crosslinked C-telopeptide could have predictive value or play a role in early diagnosis of heterotopic ossifications

Material and methods:

Our study group consisted of 54 patients qualified for unilateral total hip joint arthroplasty. group A (N=18)– patients without risk factors, group B (N=18) – patients with risk factors additionally subjected to pharmacological prophylaxis and group C (N=18) patients with risk factors, but no pharmacological prophylaxis

Results:

Statistically significant differences between the studied groups were noted on the 5th day, in the 24th week and in the 48th week.

Conclusion

The study proves that different biomarkers can have an important predictive value in prediction of heterotopic ossifications in patients after total hip joint arthroplasty

Hip replacement with short stem protheses in patients with inherited blood disorders

Piotr Stępiński, Michał Krawczyk, Sylwia Sarzyńska,

Medical University of Warsaw

Presenting author: Piotr Stępiński
e-mail: piotr.stepinski01@gmail.com
Tutors: Paweł Łęgosz,

Introduction

Haemophilic arthropathy is one of the most important problems in patients with inherited blood disorders. There occur degenerative changes which lead to serious impairment of the motor system functions, and often to disability even at a young age. Only few reports have been published to date concerning the application of a short stem endoprosthesis in total hip arthroplasty in this population.

Aim of study

To evaluate the clinical outcomes of total hip arthroplasty using short stem endoprostheses in patients with haemophilia.

Material and methods:

Between 2010 and 2016, 38 THA procedures were performed in patients with haemophilia including 12 cases with cementless short stem endoprostheses. The mean duration of observation was 34.3 months. The post-operative outcomes were evaluated using the HHS scale, WOMAC scale, and VAS scale to assess patient satisfaction with the surgery.

Results:

The preliminary results of THA using short stem endoprostheses are satisfactory and suggest that these implants are a reasonable and appropriate solution for patients with hip arthropathy

Conclusion

Usage of shirt stem protheses could be an interesting option in treatment patients with haemoarthropathy connected with inherited blood diseases.

Analysis of risk factors for upper limb acute and chronic injuries & pain in climbers.

Marcin Mostowy, Joanna Piwnik

Medical University of Lodz

E-mail: mostowymarcin1@gmail.com
Presenting author Marcin Mostowy
Tutor: Adam Kwapisz

Introduction

In the last few years rope climbing on artificially constructed walls has gained increasing popularity and commerciality. This tendency has been believed to continue due to climbing being included into Tokio's Olimpic Games in 2020. Because of the specificity of this sport, hand, wrist, elbow, shoulder and other upper extremity injuries are relatively often among climbers. Both acute and chronic injuries may lead to pain and disability of an athlete..

Aim of study

To determine the impact of various factors like age, sex, weight, BMI, training frequency, style of climbing (bouldering vs high wall climbing), being a climbing instructor and smoking cigarettes on the risk of injuries, reinjuries and, eventually on the level of pain and disability which those traumas may cause.

Material and methods

We collected the surveys among members of the climbing section of Lodz Medical University Academic Sports Club and the clients of a few climbing centers in Lodz. Self-designed questionnaire covering general information's like age, sex and weight as well as including injuries - related questions was used. We also used Quick-DASH questionnaire, tool that assess the level of upper limb disability. The obtained responses were further analyzed by a certified statistician.

Results:

We collected data from 93 respondents, 63 males, 30 females, 18 to 50 years old. Overall, 30 interviewees reported 51 climbing-related injuries, 72,5% of them were finger traumas, 11,8% shoulder traumas. From the preliminary analysis we do not report age, sex and weight as a risk factors. After excluding trainees with a history of non-climbing related injury in last three years or suffering from diseases that can induce pain in upper limb (rheumatoid arthritis, Sjögren syndrome), 34 of remaining 79 interviewees reported current or past pain disorders. Again, fingers were the most affected part of the upper limb - 18 out of 34 respondents complaining about pain indicated finger or fingers as a location. When referring to current pain, the correlations between present level of pain and: age, sex and weight were not confirmed. However, in the past, males experienced pain more often than females ($p=0,027$).

Conclusion

Due to multifactorial nature of climbing-related injuries and pain development, thorough data analysis is not complete up to date, but from preliminary analysis, we can confirm male sex as a risk factor for upper limb pain in climbing. This can be an indication that males should pay more attention to presence of pain in upper limb in order not to develop a chronic pain, but further data analysis is necessary. The obtained results suggest that further studies conducted on a larger group of climbers should be performed.

Assessment of quality of life in patients after hip arthroplasty

Katarzyna Kwiecień, Joanna Piwnik

Medical University of Lodz

Presenting author: Katarzyna Kwiecień
e-mail: kkwiecien92@gmail.com
Tutors: Marcin Piwnik,

Introduction

More than 48 000 total hip replacement are performed in Poland every year and this figure is predicted to increase. Furthermore, due to prolonging lifespan patient's mean age is higher than a decade ago. For these reason the quality of life and physical function may be diversified in patients after total hip replacement.

Aim of study

aim of the study was to investigate whether the selected factors have an impact the quality of life in patients after total hip replacement.

Material and methods

We collected a retrospective survey to evaluate the quality of life in a group of patients who were admitted to the Department of Orthopaedic and Posttraumatic Rehabilitation in Central Clinical Hospital of Medical University in Łódź. The survey consisted of 37 questions: 11 demographic, 4 pertaining to the time before surgery, 11 referring to the perioperative period and 8 pertaining to the time after surgery. The physical function of the patients was measured using WOMAC scale. The quality of life before and after surgery was evaluated using the subjective patient's assessment of the difficulties and pain in daily activities. The evaluation of the patient's mean physical function and feeling the pain was made using the 0-4 scale, where 0 meant no difficulties and 4 meant total inability to perform the activity. The statistical analysis was performed separately for each activity considering pain and accompanying difficulties. Patients rated their quality of life in 0-5 scale before and after surgery. 0 meant poor quality of life and 5 meant fully satisfactioning quality of life.

Results:

Pre-screening of 11 surveys showed that the patient's mean age was 69,5 years, while the median age was 67 years. The mean result in the WOMAC scale was 38,84 and the median result was 32,29. The mean pain in patients before surgery was assessed for 1,6 points versus 0,73 points after surgery. The difference between the level of pain before and after surgery measured with T-test was statistically significant (p=0,00049). The mean quality of life improved from 3 before surgery to 4 after. The result was also statistically significant (p= 0,025). The mean physical function before surgery was 1,76 versus 1,60 after surgery. The mean physical function in patients who underwent the preoperative rehabilitation was 1,76 while in patients who did not was 1,45. Both of these results were not statistically significant.

Conclusion

The preliminary results we collected until now show, that the mean quality of life enhances in patients undergoing total hip replacement probably due to reduced level of pain in their everyday life. The results pertaining to mean physical function and influence of preoperative rehabilitation on it could have not been statistically significant due to the small study group. In spite of that the study will be continued and the study group will be extended.

Electrophysiological activity of the sternalis muscle during movements of the upper limb girdle, neck and breathing

Artur Opasiak, MD PhD Justyna Pigońska, MD Artur Kusak

Medical University of Lodz

Presenting author: Artur Opasiak
e-mail: arturopasiak@gmail.com
Tutors: Adam Kwapisz, MD Jędrzej Lesman

Introduction

The sternalis muscle is an anatomical variation that lies parallel to the margin of the sternum and is found in about 8% of the population. So far, current literature mentions about its anatomical differences and accidental identification in various imaging studies, intraoperative findings as well as during autopsies. It is commonly believed that the sternalis muscle has no function, except when it compensates deficits of the pectoralis major muscle. It should be emphasized, that there is no functional examination of this muscle in the literature. In connection with the above, the aim of our study is to determine the activity of the sternalis muscle during the movements of the upper limb and neck of a patient with radiologically confirmed its occurrence.

Case Report

The study was performed on a 21-year-old man: 179 cm tall, 88 kg weight, body mass index (BMI) 27.46, body fat percentage (BFP) 13%. MRI imaging confirmed the presence of a well-developed sternalis muscle (bilateral type) with a significantly better developed belly on the right side. Surface electromyography (EMG) was made by placing an active surface electrode on the belly of the muscle and the reference electrode on its trailer. A ground electrode was also placed on the chest surface. During the surface EMG examination, other muscles of the shoulder girdle (deltoid muscle, pectoralis major muscle and sternocleidomastoid muscle) were similarly assessed. The patient with connected electrodes made the following movements: the glenohumeral joint - flexion, straightening, abduction, elevation, adduction, rotations in adduction and abduction 90 deg; sternococcus joint - arms raised, frontal translation, posterior translation; cervical spine - flexion, straightening , R / L lateral flexion, R / L rotation; chest - shallow and deep breathing movements. EMG examination showed the electrophysiological activity of the musculus sternalis in the movements described above, and the final results will be presented on conference.

Conclusion

To our knowledge, this is the first work assessing the electrical activity of the sternalis muscle depending on the movements of the upper limb and neck. We hope that the results of our study will significantly affect the understanding of the function of the sternalis muscle.

Assessment of the impact of ballroom dancing on hip joint loading. Comparision of differences between beginner and advanced groups.

Krystian Urzędowski, Joanna Piwnik

Medical University of Lodz

Presenting author: Krystian Urzędowski
e-mail: krystian.urzedowski@stud.umed.lodz.pl
Tutors: Adam Kwapisz, Jędrzej Lesman MD

Introduction

Ballroom dancing, by many dancers is considered as a form of artistic expression and often their performance pushes their bodies to the edge of anatomical limitations. Ballroom dancing is associated with the increased range of motions (ROM), as well as an increased risk of injuries within the hip joint. It's worth mentioning that the multitude of styles of ballroom dancing, the variety of positions and the dynamics of movements require significant adaptive changes in the dancers' hip joints. We also should have in mind that there may be substantial discrepancy between beginners and professionals.

Aim of study

To assess the impact of ballroom dancing on hip joint loading, defined as the occurrence of hip pain among dancers. We also believe that there are differences between beginner and advanced groups.

Material and methods

We have conducted a survey research among dancers from various sports clubs and dancing schools that have ballroom dancing in their offer. The survey consisted of questionnaire that covered such factors like age, sex, BMI and questions related to dancing and hip pain. Furthermore, we used WOMAC Hip Score and first three movement patterns from Functional Movement Screen test alongside the self-made questionnaire. Dancers were divided into the beginner and advanced groups according to period and frequency of trainings.

Results

We have obtained answers from 28 dancers. Respondents were assigned to the beginner (20) and advanced (8) groups. In the beginner group only 5 reported having hip pain in conjunction with ballroom dancing, the pain was unilateral and rated from 4 to 5 on the Numeric Pain Rating Scale included in the questionnaire, these repondents have been dancing for at least 5 years, 2 to 4 hours per week. In the advanced group 4 out of 8 respondents confirmed having hip pain, they located the pain bilaterally and similarly rated (4-5). In this group all respondents have been dancing at least 5 years, two of them have been dancing for more than 10 years. Moreover, 2 of them train from 5 to 10 hours per week, while the other 2 train from 10 to 20 hours per week. The results of WOMAC Hip Score and all three movement patterns of FMS test were within the norm.

Conclusion

Basing on the preliminary results we can conclude that the most important factors in the occurrence of pain among ballroom dancers are duration of training and the frequency of training sessions. Moreover, there are differences between beginner and advanced groups. However, these are preliminary results, therefore further analysis is being performed to confirm these findings.

Influence of Kyokushin Karate on the psychomotor development of a children at the age of 8-15

Piotr Domański , Jędrzej Lesman , Joanna Piwnik

Medical University of Lodz

Presenting author: Piotr Domański
e-mail: piotr05karate@gmail.com
Tutors: Adam Kwapisz,

Introduction

The Kyokushin Karate is one of the most popular, contact sport all over the world, including Poland. This sport is practiced both by children and adults. Karate Kyokushin requires using specific techniques and exercises. In particular, this martial art is believed to enhance proper physical development, especially in children. Therefore, in the ages of generally decreased physical activity among the children and growing problem with youngsters' obesity, we sought to evaluate discrepancy between children practicing Kyokushin Karate and those,
with daily activity limited to the compulsory school classes.

Aim of study

The purpose of this study was to evaluate the level of psychomotor development in the children practicing martial arts, compared with the group of children whose physical activity was limited to the compulsory school classes.

Material and methods

Two studied groups were selected, first included children 8-11 yo, and second 12-15 yo. To each studied group, age-matched cohort of children attending only compulsory school classes was selected. Both, studied and control groups were asked to complete the self-designed questionnaire, it was done either by child or its legal guardian. Apart from questionnaire, each participant was asked to complete psychomotor test such as Alpha Fitness Test Baterry (excluding the test at a distance of 2km) and the Harvard test.

Results

Preliminary results show that children from the RG got better results in all tests carried out. First of all, a clear difference is evident in musculoskeletal fitness tests. The greatest advantage of training children is in the power of the jump, grip force and short-term endurance capacity of the upper extremity extensor muscles and the ability to stabilize trunk. The dynamic strength of the abdominal muscles and the arm-neck mobility test were more similar to the children from the CG than the other test results. Children practicing karate faster return to the resting heart rate in the Harvard test and have lower BMI and body circumferences values.

Conclusion

Basing on the preliminary results - we can suggest that children practicing Kyokushin Karate are stronger and have higher cardiorespiratory endurance. Regarding the fact that studied groups achieved better outcomes in each test we can conclude that practicing Karate Kyokushin may be beneficial for children psychomotor and physical development when added to the standard school classes.

OTOLARYNGOLOGY

COORDINATORS
Marlena Bodys
Karolina Kołodziejska

JURY
Dorota Czech, MD, PhD
Professor Magdalena Józefowicz-Korczyńska, MD, PhD
Professor Jurek Olszewski, MD, PhD
Professor Katarzyna Starska, MD, PhD
Professor Anna Zakrzewska, MD, PhD

Comparison of voice quality after classical laryngeal microsurgery in patients with Reinke's edema and vocal folds polyps depending on the operator's experience (specialist vs resident).

Aneta Durmaj

Medical University of Warsaw

Presenting author: Aneta Durmaj
e-mail: anet.durm@gmail.com
Tutors: Anna Rzepakowska,

Introduction

Phonosurgery is a group of procedures on the vocal folds and adjacent tissue intended to maintain or improve the voice's timbre, tone and quality. Classical laryngeal microsurgery is one of the primary techniques used for treatment of vocal folds benign lesions. Evaluation of voice quality is significant to assess the effectiveness of the treatment. Reinke's edema is an inflammatory disorder presenting with buildup of fluid in the superficial layer of lamina propria. It usually affects both vocal folds, but size of the edema may differ between each side. Vocal fold polyps are an abnormal growth of tissue mostly caused by acute or chronic trauma. They typically occur only on one side of the vocal fold in a variety of shapes and sizes.

Aim of study

Comparison of voice quality after classical laryngeal microsurgery in patients with Reinke's edema and vocal folds polyps depending on the operator's experience (specialist vs resident).

Material and methods

21 patients with Reinke's edema and 7 patients with vocal folds polyps were included into the study. Patients, who had previously performed laryngeal procedures, were excluded from the analysis. A videolaryngostroboscopy (VLS) and voice quality analysis were performed in all patients before laryngeal microsurgery and in 3th and 12th months after the procedure. In all patients phonosurgery was performed using classical tools for laryngeal microsurgery (microscissors and forceps). Patients were randomly assigned to the operator (specialist or resident). In each period, the patients' voice was measured perceptually on the GRBAS scale. Additionally, the acoustic analysis was carried out using the Multi-Dimentional Voice Program (MDVP) with the assessment of the basic frequency, jitter, shimmer and noise to harmonic ratio. The maximum phonation time (MPT) was also evaluated. The Voice Handicap Index (VHI) and Voice-Related Quality of Life (VRQoL) questionnaires were used to measure the self-assessment of the voice.

Results

Analysis of VLS results and voice quality parameters showed in both groups significant functional improvement of vocal folds mucosa, normalization of voice perception as well as normalization of the acoustic parameters and MPT. There was observed improvement of VHI and VRQoL after the treatment. The comparative analysis of the results of voice quality and VLS did not show statistically significant differences depending on the experience of the operator performing the surgery both in patients with Reinke's edema and with vocal folds polyps.

Conclusion

Classical laryngeal microsurgery performed by the specialist and by the resident allows to obtain comparable results of the voice quality in patients with Reinke's edema and vocal folds polyps after the treatment.

Characteristic of patients with Ménière's disease - correlation between otoneurological examination and clinical symptoms.

Anna Orłowska, Bartosz Marcinkiewicz, Agnieszka Jasińska, Katarzyna Pierchała, Magdalena Lachowska, Izabela Pobożny

Medical University of Warsaw

Presenting author: Anna Orłowska
e-mail: annaorlowska@yahoo.com
Tutors: Kazimierz Niemczyk, mgr Izabela Pobożny

Introduction

Ménière's disease is a rare disorder that affects the inner ear. It is caused by abnormal fluctuations in the inner ear fluid leading to buildup of endolymph in the labyrinth which can result in an endolymphatic hydrops. The exact cause of Ménière's disease is not known yet. Many theories have been proposed over the years, i.a.: endolymphatic sac dysfunction, overproduction of endolymph, infections, immune disorders, circulation abnormalities and genetic factors. Ménière's disease is slightly more common among women than men, especially middle-aged. A diagnosis of this disease is usually delayed which indicates a necessity to develop a set of tests in order to provide effective examination.

Aim of study

The aim of the study was to compare clinical symptoms characteristic for Ménière's disease with otoneurological examination.

Material and methods

The study included 41 patients (14 men and 27 women) who were hospitalized in the Department of Otolaryngology at Medical University of Warsaw. All of them underwent physical examination and had their medical history taken. A set of audiological and otoneurological tests was performed: pure tone audiometry (PTA), speech audiometry (SA), otoacoustic emission (OAE), auditory brainstem response (ABR), vestibular evoked myogenic potentials (VEMP), electrocochleography (ECochG), sensory organization test (SOT) and videonystagmography (VNG). Results were correlated with the patient's anamnesis using Spearman's and Pearson's tests. Additionally, correlation between the results of particular audiological tests was performed. Also correspondence between vestibular and audiological tests was analyzed.

Results

Age of the patients varied between 22 to 74 years (average: 53.9 years). Results of ABR tests indicated typical features of sensorineural hearing loss. Age of the patient seems to be an important factor leading to worsening of the results, especially of the audiological tests. The strongest correlations on the level of statistical significance ($p<0,05$) occur between duration of the disease, number of attacks during the year, level of hearing fluctuations and results of ECochG, OAE and PTA tests.

Conclusion

Performed analyses indicate that age, duration of the disease, frequency of the attacks strongly correlate with conducted tests, especially audiological. On the other hand, some of the examinations can be influenced by other factors which are not connected with endolymphatic hydrops.

Analysis of treatment effects and prognostic factors in idiopathic sudden sensorineural hearing loss

Jakub Wielgat, Magda Barańska

Medical University of Lodz

Presenting author: Jakub Wielgat
e-mail: jakubwielgat@gmail.com
Tutors: Oskar Rosiak, Wioletta Pietruszewska

Introduction

Idiopathic sudden sensorineural hearing loss (ISSNHL) is an otologic emergency that appears in 5-20 patients per 100 000 individuals annually. It is defined as a 30-decibel hearing loss over three consecutive frequencies for at least 72 hours. The condition is often accompanied by tinnitus, vertigo and a feeling of fullness in the ear. Etiology remains unknown, however, some authors indicate vascular disorders, viral infections, head injuries, autoimmune diseases, hypertension or hypercholesterolaemia as a trigger factor. There is no hard evidence in favor of any form of treatment, but most recommendations include oral or intravenous glucocorticiod therapy.

Aim of study

The aim of the study was to identify the prognostic factors and assess the hearing outcomes in ISSNHL.

Material and methods

A retrospective analysis of 135 patients(53,33% females, median age: 49 years) diagnosed with ISSNHL at the Department of Otolaryngology and Oncological Laryngology of the Medical University of Lodz between 2015 and 2017. The effectiveness of treatment assessed with ΔPTA(ΔPTA=PTA_{pre}-PTA_{post}; 500Hz, 1kHz, 2kHz, 4kHz) was compared with age, sex, the period of time between occurrence of symptoms and the initiation of treatment, presence of co-existing disease (hypertension, hypercholesterolaemia, diabetes mellitus, recently infection, head injures) and co-existing symptoms (tinnitus, vertigo and feeling of fullness in the ear). The criterion for hearing improvement was assumed as ΔPTA>0. The association between parameters and the efficiency of treatment was tested using univariable statistics.

Results

An improvement was observed in 103 patients (76,3%) after the glucocorticoid treatment. The median of pure-tone audiometry (PTA) of the four frequencies was 56,09 dB (SD=30,02 dB) before the treatment and 43,80 dB (SD=30,36) after the treatment. 59% of the patients reached ΔPTA of ≥10dB.

Conclusion

There is no association between analyzed parameters and the efficiency of treatment.
Intravenous glucocorticoid therapy in analyzed group provided satisfactory hearing outcomes.

The use of a CO2 laser in laryngological operations.

Marcin Grotowski

Medical University of Lodz

Presenting author: Marcin Grotowski
e-mail: m.grotowski94@gmail.com
Tutors: Wioletta Pietruszewska

Introduction

Co2 laser was introduced to endoscopic surgery of the larynx in the early sixties, by combining it with an operating microscope. Initially, it was not a method free from defects. At first the zone of carbonization caused by the laser beam was very large. With the advancement of technology, the carbonization zone has been minimized, and the tool has become more perfect. They have been used not only to treat cancer patients, but also in very precise microphonosurgery. In the Otolaryngology and Laryngological Oncology Clinic of the Medical University of Lodz, the CO2 laser has been used since September 2016 in the treatment of both benign disease conditions and malignant tumors.

Aim of study

The aim of the work is to assess the use of CO2 laser in selected larynx diseases.

Material and methods

The study involved 97 patients treated at the Department of Otolaryngology and Laryngological Oncology (45 women and 52 men). In the studies, 82 changes were described as benign (8 papillomas, 6 leukoplakias, 12 Reinke's edemas, 27 polyps, 8 cysts, 17 chronic hypertrophic laryngitis, 3 granulomas and 1 laryngeal nodule), and 15 as malignant (15 cancers).

Results

Along with the improvement of surgical skills, the doctor undertakes more and more difficult surgical procedures. This is evidenced by the operation of patients at T2 stage of laryngeal cancer, i.e. type IV chordectomy. The physician's learning curve is important, provided that surgery is performed frequently.

Conclusion

The laser method provides on the one hand a very precise cut and is perfectly suited for microphonosurgical procedures, which require the least possible damage to the vocal fold to remove the change (e.g., the nodule). On the other hand, the precision of the method allows fragmentary resection of large laryngeal carcinomas with the control of oncological and hemostatic purity in a given patient.

The misdiagnosis of external auditory canal carcinoma

Karolina Burda, Marek Jaxa- Kwiatkowski

Poznan University of Medical Sciences

Presenting author: Karolina Burda
e-mail: karolina_burda@wp.pl
Tutors: Joanna Jackowska,

Introduction

Carcinomas of external auditory canals are very rare and accounts for about 0.2% of all head and neck cancers. The most common is squamous cell carcinoma, which usually affects the pinna, but in 10% develops in external auditory canal. The first symptoms may be: smelly leaks, pain, conductive hearing loss and also facial nerve palsy. The diagnosis is often made intraoperatively. Ear cancer is found in 1 case on 5,000 operated ears - it makes even for the oto-surgeons a diagnostic challenge.

Case report

A 43-year-old female patient was admitted to the Department urgently due to the suspicion of worsening of chronic otitis media. The patient has reported smelly leaks from the right ear for 3 weeks and headaches for a week. The surgeons decided to perform an operation, during which, tumor sections of the right external auditory canal were removed. There was a tumor infiltration on the front wall of the auditory canal and on the eardrum in the front quadrants. In the intraoperative histopatological examination G2 squamous cell carcinoma was found. After one month the patient returned to the Clinic for reoperation with CT and MR scans. USG examination showed metastatic parotid gland and metastatic lymph nodes. The tumor of the external auditory canal was removed together with the external auditory canal, tympanic membrane, hammer and adjacent temporal bone on the right side. Subtotal parotidectomy and selective lymphadenectomy on the right side were performed. Postoperative radiotherapy was recommended.

Conclusion

Tumors occurring in the ear are a big challenge, both diagnostic and therapeutic. The diagnosis of cancer may be delayed due to the fact that the clinical examination has very similar symptoms as chronic otitis media. This should sensitize primary care physicians and oblige them to consult in specialist centers.

PEDIATRICS

COORDINATORS
Sylwia Skoneczna
Aleksandra Walter

JURY
Anna Jander, MD, PhD
Łukasz Przysło, MD, PhD
Professor Maria Respondek-Liberska, MD, PhD
Professor Katarzyna Siniewicz-Luzeńczyk
Professor Marcin Tkaczyk, MD, PhD
Professor Krzysztof Zeman, MD, PhD

Turner syndrome in children - variants of karyotype, accompanying defects and diseases

Ewa Witkowska, Magda Jakubczak, Michal Erazmus,

Medical University of Warsaw

Presenting author: Ewa Witkowska
e-mail: ewitk94@gmail.com
Tutors: Anna Kucharska,

Introduction

Turner syndrome (TS) is a genetic defect with a total or partial loss of the second X chromosome in all or part of the cell lines. Girls with Turner syndrome are characterized by short stature, dysmorphic features and gonadal dysgenesis. They suffer more often than the general population from congenital defects of the circulatory system, urinary tract, endocrine disorders, eye and hearing disorders, and autoimmune diseases.

Aim of study

The aim of the study was a clinical analysis of a group of girls with Turner syndrome under the care of the Department of Paediatrics and Endocrinology.

Material and methods

This was a retrospective study of 24 patients, treated for short stature in the course of Turner syndrome at the Department of Paediatrics and Endocrinology for last 10 years. The prevalence of different types of karyotype and the occurrence of typical defects and diseases associated with the Turner syndrome were analysed.

Results

Among the 24 patients, 54% (13) had a karyotype of 45, X, and 46% (11) had other chromosome abnormalities: mosaicism (7), ring chromosome (3) and deletion of the short arm of the X chromosome (1). Besides the short stature at least one characteristic dysmorphic feature was observed in all patients. More than the 3 features were observed in 83% of girls with a karyotype of 45, X and 55% with other karyotype variants. Defects and diseases associated with the syndrome were found in 83% (20) patients - 12 with karyotype 45, X and 8 with other variants. The most frequent congenital defects were cardiac defects, found in 38% (9) of patients. The largest percentage among them were aortic bicuspid valve (5 patients) and coarctation or subcoarctation of the aorta (4). In 29% (7) of patients there were hearing defects and diseases, in 17% defects of visual system and in 13% (3) urinary system defects. In 58% (14) autoimmune diseases were detected. The most frequent of them was Hashimoto's disease, next celiac disease, atopic dermatitis and inflammatory bowel disease.

Conclusion

Characteristic phenotypic features can be found in all patients with Turner syndrome. In the analyzed group, it was observed that girls with other variants of the karyotype than complete monosomy 45, X have less of these features. No correlation was observed between the type of karyotype and the frequency of congenital diseases and defects. The clinical vigilance of searching and monitoring accompanying diseases should not be reduced in case the Turner syndrome with the karyotype other than complete monosomy 45, X.

Vascular malformations in the gastrointestinal tract in Turner's syndrome

Ewa Witkowska, Anna Zapolska

Medical University of Warsaw

Presenting author: Ewa Witkowska
e-mail: ewitk94@gmail.com
Tutors: Aleksandra Banszkiewicz, Anna Kucharska

Introduction

Turner Syndrome (TS) is a genetic disorder occurring in female patients, caused by the total or partial loss of one of the X chromosomes. Patients affected by the syndrome could have a lot of health problems such as: short stature, gonadal dysgenesis, characteristic dysmorphology and - some of them - organ defects and autoimmune diseases. Vascular malformations in the gastrointestinal (GI) tract are the rare abnormality associated with TS. The aim of the presentation is to describe an anamnesis of a girl with TS, affected by that defect.

Case report

A 12-year old girl with diagnosed TS with congenital aortic stenosis and other phenotypic features was admitted to the Department of Pediatric Gastroenterology and Nutrition due to prolonged bleeding from GI tract. Past medical history revealed significant, long-lasting microcytic anemia with decreased indexes of iron metabolism. A blood smear indicated substantial anisocytosis of red blood cells with a majority of microcytes and poikilocytosis, distinctive hypochromia and inconsiderable anisocytosis of platelets. Two-time fecal occult blood test showed positive results whereas attempt of iron's absorption was within normal limits. Abdominal ultrasonography and Meckel's diverticulum scintigraphy were unremarkable. Additionally, gastroscopy and colonoscopy with biopsies, as well as capsule endoscopy were performed. Along the entire large intestine and in the terminal section of the ileum, the venous vessels, widened just below the macroscopically unchanged mucosa, were visualized. The greatest incidence of intestinal telangiectasias was observed in the caecum and the ascending colon. However, due to large number of vascular malformations and lack of features of the current bleeding, argon was abandoned. At the age of 15 years, because of hypogonadism the patient was started with estrogen supplementation. No overt bleeding from the GI tract was reported for the next 2 years. At the follow-up examination much less telangiectasias were found in the colon.

Conclusion

Vascular malformations in the GI tract are rare defects in patients with TS, but it should be considered as the cause of bleeding from the GI tract in these patients. In some TS patient the "spontaneous" improve might be observed during estrogen/ progestagen therapy.

Knowledge and awareness of vaccinations among parents

Ewa Witkowska, Martyna Tandejko-Burdyna, Aneta Gierlach, Angelika Brendota, Aleksandra Mokosa

Medical University of Warsaw

Presenting author: Ewa Witkowska
e-mail: ewitk94@gmail.com
Tutors: Anna Kucharska,

Introduction

Vaccination is one of the most effective prevention of infectious diseases in Poland. Mass vaccination has greatly limited child morbidity and mortality as a result of infectious diseases. Unfortunately, popularity of the anti-vaccine movement has increased in recent years, which can result in reemergence of the diseases that have been successfully eliminated.

Aim of study

The aim of this study was to assess awareness, behavior and attitude of parents towards their children's vaccination and to identify their information sources.

Material and methods

A questionnaire survey was conducted among parents of 6 and 7-year-old children. The research was carried out in locations of various sizes: in a village with population of 5 thousand , in a small town with population of 6 thousand, in two county towns with population of 20 and 50 thousand and in the capital city of Poland.

Results

306 participants were involved in the research. They fall into following age categories: 14% 20 to 30 years old, 69% 31 to 40 years old and 17 % 41 to 50 years old. The research shows that 99% of children have been vaccinated at least once in their lifetime and 96% have been following the vaccination schedule, 0,7% of parents refused to vaccinate their children due to safety concerns. The rest of respondents refused vaccination because of medical contradictions or complications after previous vaccinations. Side effects were observed among 30% (76) of children, the most common of which include fever (62), swelling (34), drowsiness (19), irritability (17) and rash (13). 83% of parents are of the opinion that vaccination should be mandatory. 64% of respondents preferred combination vaccines because of the lesser number of injections which consequently reduces children's anxiety and stress. 33% of parents admit going for additional vaccinations . In Warsaw 88% of parents chose additional vaccines to immunize their children (compared to average 61%) and 85 % decided on combination vaccines, while the average was 64%. The information about vaccinations is mostly acquired from doctors (80%) but also from television and internet (38%) and from friends (37%).

Conclusion

In spite of increasing popularity of anti-vaccine movements the majority of parents vaccinate their children and support the idea of mandatory vaccination. Both combination vaccines and additional vaccines were chosen more often by parents from larger locations. Healthcare personnel is still the most important source of information about vaccination .

Anemia associated with intravenous pamidronate administration in children with Osteogenesis Imperfecta

Zuzanna Nowicka, Wiktoria Pietras, Maja Nowicka,

Medical University of Lodz

Presenting author: Zuzanna Nowicka
e-mail: zuzanna.nowicka@stud.umed.lodz.pl
Tutors: Izabela Michałus,

Introduction

Osteogenesis imperfecta (OI) is a rare genetic disorder characterized by fragile bones, susceptible to fractures with little or no trauma. Bisphosphonates, though still not implicitly recommended in pediatric patients due to deficient efficacy and safety data, have been administered off-label to children with OI for over 20 years. Short-term adverse effects from bisphosphonate use are generally mild; however, severe reactions like respiratory distress were also reported. Although anemia is a known side effect of bisphosphonates in adults, no study has investigated effects of intravenous pamidronate on hematologic parameters in children with OI.

Aim of study

The aim of the study was to evaluate short-term adverse effects resulting from intravenous pamidronate administration in children with OI, with special regard to hematologic parameters.

Material and methods

We retrospectively analyzed clinical data from 277 pamidronate administrations in 56 pediatric patients diagnosed with OI, treated at Central Clinical Hospital Medical University of Lodz over 04.2014-02.2018 period.

Results

The study group comprised 28 girls and 28 boys. Average age was 6±4.3 years, with the youngest child being 11 days old and the oldest 17.2 years old at the moment of pamidronate administration. Most common adverse effects were fever and flu-like syndrome on first infusion and mild hypocalcemia. Most children experienced changes in blood morphology resulting from pamidronate infusion, with an average hemoglobin (Hb) level reduction of 0.79 g/dl (95% CI: 0.67-0.91, $p<0.0001$) consistent with lowering of red blood cell count of 0.29 mln/ul (95% CI: 0.24-0.34, $p<0.0001$). In 33/277 cases, Hb levels were below 10 g/dl following pamidronate administrations (compared to 13/277 cases before), with greatest Hb level reduction being 6.1 mg/dl. C-reactive protein (CRP) levels increased on infusion by 3.17 g/dl on average (95% CI: 1.70-4.64, $p<0.0001$) while calcium levels decreased by 0.76 mg/dl (95% CI: 0.69-0.82, $p<0.001$), despite anti-inflammatory treatment in some and calcium supplementation in most children.

Conclusion

Intravenous pamidronate administration is associated with lowering of red blood cell parameters in children with Osteogenesis Imperfecta. Since CRP levels rise during infusion, the mechanism involved may be 'anemia of inflammation' resulting from increased erythrocyte destruction. The precise mechanism and clinical relevance of these findings warrant further investigations.

Feeding disorders - a new face of the old problem - a clinical case

Kamila Ulatowska

Medical University of Lodz

Presenting author: Kamila Ulatowska
e-mail: kamilaulatowska@wp.pl
Tutors: Joanna Kudzin,

Introductiom

Anorexia also affects children in the earliest period of life. Unrecognized, incorrectly diagnosed abnormalities in food intake lead to serious deficits in psycho-somatic development. In addition, the inability to effectively feed offspring is undermined by parents' competences. The new classification of feeding disorders according to Krezner (2015) includes various disease states, feeding styles and abnormal relationships between the child and the carer.

Case report

A3-year-old boy was admitted to the Clinic with vomits from 4 days, balance disorders and apathy. The perinatal interview was irrelevant. From abnormalities in physical examination - general-to-severe general condition, dehydration features, throat congestion, and body mass deficiency. An infection of the urinary tract with the etiology of Klebsiella pneumoniae and upper respiratory tract infection was diagnosed. A clinical improvement was obtainedGastroenterological diagnostics were continued paying attention to malnutrition (BMI <3 pc) and anorexia. Celiac disease, metabolic diseases, lactose intolerance, inflammatory bowel diseases, food allergy and others were excluded. Then the nutritional survey was deepened - during the first 6 months the patient was breastfed and from 4 months the diet was gradually expanded. From 8 m. he reacted with vomiting to an attempt to introduce any new food. He gradually refused to consume previously introduced products. The boy's menu for the last 1.5 years included only homogenized cheese, juice of a specific type and wheat rolls. From 1 y. the boy's body weight was located in ever lower centile channels: at the age of 12 months - between the 50th and 75th percentile (pc), at 17 months of age (m.a.) - between 25 and 50 pc, and at 30 m. less than 3 pc. The patient didn't get on mass for more than a year - the mother nor the primary care doctor didn't try to diagnose the reasons. After consulting a multidisciplinary team (doctor, dietitian, psychologist, neurologopedist) diagnosis was established - feeding disorders associated with impaired sensory integration and submissive feeding style, resulting in a selective diet, too little caloric intake, no weight gain after 1 year of age. After applying comprehensive treatment in a hospital setting, the boy's diet, weight gain and strengthening parental competences in feeding the baby were achieved within 2 weeks.

Conclusion

1.The component of pediatric care should be careful monitoring of the nutritional status of the child and effective response to the deficits

2.In the treatment of anorexia with a child, a quick and precise diagnosis is important, including not only somatic problems, but also interactions with caregivers, which enables the classification of feeding disorders according to Krezner

3. The therapeutic success in working with the "eater" is the result of the work of a team consisting of a doctor, dietitian, psychologist and neurologopedist

Knowledge and attitudes towards vaccination among medical and non-medical students

Karolina Barczak, Paweł Biłas, Michał Oleszko, Barbara Ostrowska, Paulina Pałka, Aleksandra Puszkarz

University of Rzeszow

Presenting author: Karolina Barczak
e-mail: karolinvbarczak@gmail.com
Tutors: Hanna Czajka ,

Introduction

Depreciation of immunization through anti-vaccination movements has recently become noticeable. This phenomenon causes a serious public health risk and it is needed to determine its origin.

Aim of study

The aim was to study the attitude of students of the University of Rzeszow towards vaccinations, which may influence their choices as future parents.

Material and methods

The study covered 2548 students of medical and non-medical fields. The research tool was a voluntary and anonymous author's questionnaire with 6 demographical and 15 single-choice questions. The questionnaire checked knowledge and attitudes related to vaccinations.

Results

The response rate has reached 85.75%. 41.71% of the respondents were medical, and 58.29% non-medical students. The doctor was considered the most reputable source of information on vaccination. 76.08% of medical students and 52.92% of other people have opted for vaccination, although 85% are not vaccinated against influenza in both groups. There is a difference in the assessment of the credibility of information on vaccination disseminated by organizations or people against this form of prevention of infectious diseases. Students of medical faculties assess these sources in a six-grade school grades scale, on average at 2.39, and non-medical grades at 2.76. Negative opinions on vaccination in 49.43% has come from the Internet, but as much as 11.68% from doctors. In both groups of students only 2.6% had children, and the most common argument pro vaccines were the willingness to immunize against life-threatening diseases. The question assessing the knowledge about vaccines, concerning true smallpox elimination, was answered correctly by 42% of medical and 20.5% of non-medical students. 80.77% of medical and 56.17% of non-medical students did not associate autism with immunization. 40.68% of students of medical faculties believe that vaccinations cause illness, while among non-medical students the same sentence has 58.86%.

Conclusion

There are differences in the opinions of both groups, which may result from the level of education in the field of vaccination. Misconceptions about vaccines lead to wrong attitudes. It is important to improve the quality of information about vaccination by the form of different campaigns, in order to provide credible sources to the unaware.

Cow's milk specific IgE level as predictor of oral food challenge outcome with baked milk

Zuzanna Kwapińska, Weronika Paprocka, Katarzyna Rutkowska,

Jagiellonian University Medical College

Presenting author: Zuzanna Kwapińska
e-mail: zuzia.kwapinska@gmail.com
Tutors: Urszula Jedynak- Wąsowicz, Prof. Przemko Kwinta M.D., PhD

Introduction

Cow's milk allergy (CMA) is the most common IgE-mediated food allergy in children. Most of cow's milk (CM) allergic children can tolerate baked milk products.

Aim of study

was to establish a good predictor of the oral food challenge (OFC) outcome with baked milk.

Material and methods

Children with CMA presenting to an allergy clinic from 2014 through 2017 on complete CM elimination diet were assayed to OFC with baked cow's milk. Challenges were performed with incremental dosages to a total of 2 baked muffins containg 33 ml (equivalent of 1,3 g of milk protein).

Results

Oral food challenge to baked milk were carried out on 21 CM allergic children (15 boys, mean age 5,1 yrs; 95%CI 3,9 to 6,4). A total of 15 children (72%) passed the OFC and were able to expand their diet with baked milk. Among the patients who failed OFC (6 children, 28%) only one experienced severe anaphylaxis. The presence of asthma and CM sIgE level correlated with baked milk reactivity (p=0,0359; p=0.02; respectively), whereas skin prick tests with commercial milk allergen, the presence of atopic dermatitis, history of previous anaphilactic reaction and age of the child did not. Median CM sIgE was 17,0 kU/L (95% CI for the median 2,97 to 33,90) for passed challanges and 60,2 kU/L (95% CI for the median 23,0 to 100,) for failed ones (p=0,03). ROC curve analysis for milk specific IgE revealed an AUC of 0.856; p=0.001 with sensitivity and specificity of 83% and 73%, respectively for milk specific IgE level of 26,4 kU/L.

Conclusion

This study revealed that most children with severe CMA are able to tolerate baked milk. OFC with baked milk is rather a safe procedure, but should be done in the hospital setting. Asthma and high level of CM sIgE were the predictors of clinical reactivity to baked milk, but not previous episode of anaphilaxis.

Not every wheezing means asthma.

Katarzyna Rutkowska, Weronika Paprocka, Zuzanna Kwapińska, Anna Lubera

Jagiellonian University Medical College

Presenting author: Katarzyna Rutkowska
e-mail: mydlokasia@gmail.com
Tutors: Urszula Jedynak-Wąsowicz M.D., Ph.D, Izabela Głodzik M.D.

Introduction

Inspiratory-expiratory wheezing is an effect of airways' obturation and it is usually present in pulmonary diseases. But it can be also a symptom of airway compression, for instance by the dilated esophagus or vascular ring. Achalasia is an esophageal motility disorder presented typically with dysphagia, vomitus and regurgitations and failure to thrive.

Case report

A 13-year-old girl was evaluated for a five-year history of significant nocturnal breathing problems and inspiratory-expiratory wheezing. They were constant and also escalated during physical exertion and infections. Due to the intensity of symptoms she was forced to fall asleep sitting and had a decreased tolerance of physical activity. Additionally, she complained about dysphagia, regurgitations during almost every meal and sometimes chest pain, but no weight lost. The patient was initially diagnosed with asthma, however, her symptoms were refractory to conventional asthma treatment. On admission the physical examination revealed diffuse rales and inspiratory-expiratory wheezing. Spirometry demonstrated moderate to severe obstruction of bronchi with negative reversibility test. The expiratory-inspiratory plateau suggested persistent, pressure-independent obturation. The X-ray of the chest with barium swallow showed dilatation of the esophagus. Finally, the esophageal manometry confirmed the diagnosis of achalasia and the appropriate treatment was implemented.

Conclusion

In differential diagnosis of symptoms and signs strongly indicating asthma but not responding to treatment, achalasia should be considered. As it arises from our case report it may give such unpredictable symptoms as dyspnoea and wheezing.

Assessment of knowledge about body postural defects among parents.

Karolina Klimkiewicz-Wszelaki, Karolina Klimkiewicz-Wszelaki, Eliza Oleksy, Paulina Kasperska, Anna Ziółkowska, Anna Grochowska, Wojciech Stemplowski, Remigiusz Sokołowski, Natalia Sokołowska

Nicolaus Copernicus University Collegium Medicum in Bydgoszcz

Presenting author: Karolina Klimkiewicz-Wszelaki
e-mail: k.klimkiewicz87@gmail.com
Tutors: prof. dr hab. n. med. Kornelia Kędziora-Kornatowska,

Introduction

Postural defects became in recent decades significant problem, both medical and social. Many examinations show that faulty posture affect about 60-80 per cent of children. The rapid development of technology has led to limiting of physical activity which manifests itself by massive occurrence of faulty posture. Therefore it is extremely important to increase the parents knowledge and awareness of the prevention and correction of faulty posture as well as benefit from physical activity.

Aim of study

The aim of the present study was estimation parents knowledge about faulty posture and verification who knows more – parents who have children with correct posture or these who have children with postural defects as well as parents who encourage children to exercise or these who don't do this.

Material and methods

A survey was conducted in a group of 60 parents. First group: 30 parents of children attending the The Postural Defect Clinic, second group: 30 parents of children attending School Complex No. 8 in Bydgoszcz. The original questionnaire was used for the study. Questionnaire to the estimation of parents knowledge consisted of 19 questions: metric questins and knowledge test. The results were analyzed statistically ($p<0,05$).

Results

Parents who enroll children for extra sports are more knowledgeable than parents who do not ($p<0,05$). Parents whose children have postural problems have no higher knowledge than parents whose children have a correct posture ($p>0,67$). Parents with higher education have more knowledge about posture defects.

Conclusion

Parents knowledge on the prevention and correction of faulty posture is sufficient (mean: 56 per cent correct answers). Nowadays, knowledge should be at a higher level by looking at the frequency of postural defects.

Pulmonary hypoplasia with dural ectasia and prenatal overgrowth - an uncommon association.

Weronika Anna Chołopiak, Urszula Wojnarowska, Zuzanna Zakrzewska,

Jagiellonian University Medical College

Presenting author: Weronika Anna Chołopiak
e-mail: w.a.cholopiak@gmail.com
Tutors: Katarzyna Starzec,

Introduction

Pulmonary hypoplasia is a rare and usually lethal congenital disorder. It's incidence in general population ranges from 9 to 11 per 10,000 live births, with several studies reporting a mortality rate as high as 71 to 95%. [1] Pulmonary hypoplasia is usually described as a defect secondary to pre-existing condition, most frequently accompanying congenital diaphragmatic hernia, malformation of the chest wall or a neuromuscular disorder. [1,2]

Case report

A full-term female neonate delivered via cesarean section at 39 weeks of gestation was admitted to Neonatal Intensive Care Unit (NICU) on the first day of life with persistent respiratory distress originating immediately after birth, peripheral cyanosis and generalized oedema. The patient was admitted intubated, mechanically ventilated and sedated. The 1st minute Apgar score was 4. Physical examination revealed multiple abnormalities: hypertrophic posture, mild facial dysmorphic features including retrognatia and hypertelorism, generalized hypotonia, weak sucking reflex, wide umbilical stump and systolic murmur 2/6 by left sternal border. Imaging examinations (US, CT, MRI) revealed further anomalies: colpocephaly, Chiari I anomaly, bilateral pulmonary hypoplasia and dural ectasia in thoracic and lumbar region. No specific abnormalities in laboratory tests, no signs of generalized inflammation. Genetic evaluations (DNA microarray, WES) produced no revealing results.

Clinical management involved stabilizing the patient's condition, surgical management of umbilical hernia, excision of dural ectasia, antimicrobial therapy due to recurring urinary tract and pulmonary infections and rehabilitation. Our patient required constant mechanical ventilation via endotracheal tube. Non-invasive ventilation was ineffective. She was discharged home with tracheostomy, home mechanical ventilator and oxygen at the age of 8 months.

Conclusions

Investigation of possible existence of risk factors and associated congenital defects excluded typical presentation of a secondary pulmonary hypoplasia. Unusual concomitance of anomalies has led us to hypothesis of a yet undescribed association or syndrome. Owing to the fact that alterations in non-coding sequences also possess a pathogenic potential [3], unrevealing genetic background does not exclude genetic origin.

Coffin-Siris syndrome in a four-year-old boy .

Alicja Kozań, Maria Mazur , Aleksandra Furman,

Medical University of Białystok

Presenting author: Alicja Kozań
e-mail: alicjakozann@gmail.com
Tutors: Renata Posmyk,

Introduction

Coffin-Siris syndrome (CSS) (OMIM#135900) is a rare genetic disorder, that is characterized by developmental delay, severe speech impairment, distinctive facial features, hypertrichosis, aplasia or hypoplasia of the distal phalanx or nail of the fifth digit and agenesis of the corpus callosum. Recently, it was discovered, that mutations in the *ARID1B* gene are the main cause of CSS, accounting for 76% of identified mutations

Case report

A four-year-old boy was referred to a genetic counseling unit due to a delayed psychomotor development and dysmorphic features. A child was born to a young and unrelated parents, from the first pregnancy, by natural delivery at 38th week, with a body weight 3400g, length 52 cm, head circumference 32 cm, in the general good state (Apgar score 10). At the age of 17 days, the newborn was sent to the neonatal ward due to generalized laxity and increasing TSH level, stridor and hoarseness increasing during crying The patient was diagnosed with congenital hypothyroidism, zoonotic infections and metabolic diseases. At the admission to the genetic counseling, physical examination revealed numerous facial dysmorphic features, valgus of the lower limbs, looseness of the joints, condition after bilateral cryptorchidism, binocular impaired vision, silent murmur over the heart, growth below the third percentile. The patient lacks proper speech development, hyperactivity. In the MRI of the brain, dysgenesis of the corpus callosum. Family history was unremarkable

The patient's karyotype was normal (46, XY). After numerous specialist consultations and genetics testings, the patient was finally referred to an international genetic study. A heterozygous *de novo* mutation was detected in the *ARID1B* gene, what confirmed a clinical diagnosis of Coffin-Siris syndrome.

Conclusion

A child with psychomotor delay along with dysmorphic traits should always receive a genetic consultation. The right diagnosis is essential for a proper genetic counseling of the patient and the whole family.

Oesophageal atresia and CHARGE syndrome – what do they have in common? Case report.

Ewa Gabrys, Hanna Jarolim

Medical University of Silesia in Katowice

Presenting author: Ewa Gabrys
e-mail: ewa.gabrys28@gmail.com
Tutors: Andrzej Grabowski,

Introduction

Charge syndrom (CS) is very rare genetic disorder and occurs in approximately 1 in 8.500 to 10.000 newborns. It affects many areas of the body and requiresmultidisciplinary cooperation.

Case report

The medical history of child born in 2016 and then treated in the Department of Children's Developmental Defects Surgery and Traumatology in Zabrze due to oesophageal atresia was analyzed retrospectively.

The infant presented the CS manifestations such as colomba of the right eye (C); nasal choanal stenosis (A); genitourinary disorders (G) – micropenis, one testicle in the scrotal sac; ear abnormality (E) – thickened ear helix. No other disorders characteristic for CS were diagnosed. In echocardiography no heart diseases (H) except patent ductus arteriosus were found. The infant did not also present any symptoms of **r**etardation of growth and development yet (R). Beside abovementioned abnormalities infant had gothic palate with upper jaws' alveoloschisis. Dysmorphic facial features were not determined.

The right-sided thoracotomy was conducted on the second day of his life. Tracheoesophageal fistula was ligated and end to end anostomosis of the oesophagus on probe were performed. The infant was extubated on the 6 day after surgery. Patient did not present any postoperative compliactions except fever and was discharged after 32 days of hospitalization.

Conclusion

Oesophageal atresia occurs at 10-17% of children with CS. The infant was firstly diagnosed with OA as he presented typical symptoms but thanks to watchful doctors and their quick diagnosis the multidisciplinary care was introduced as soon as they noticed other abnormalities. Thanks to that it was possible to implement quick treatment and reduce the likelihood of complications.

High level of creatinine kinase in a three-month-old infant with RSV infection- case report.

Anna Lubera, Zuzanna Kwapińska, Weronika Paprocka, Katarzyna Rutkowska

Jagiellonian University Medical College

Presenting author: Anna Lubera
e-mail: anna.lubera26@gmail.com
Tutors: Izabela Szymońska,

Introduction

Creatinine kinase is an enzyme found in the heart, brain, skeletal muscle and other tissues. Elevated amount of CK generally indicates that there has been some recent muscle damage. Increased concentration of CK appears e.g. in muscular dystrophy, infections, metabolic and congenital miopathy.

Case report

A three-month-old infant boy was transferred to the hospital for further diagnosis due to bronchiolitis of the RSV etiology with an additional elevated CK and aminotransferases activity. On admission patient's medical condition was serious but stable. Observed symptoms included dyspnoea and tachypnoe, erythema of face, palmar surface and soles of feet. On auscultation occured wheezing and rales. Blood tests revealed lymphocytosis, high level of ALT (450,6 U/L) and AST (742,6 U/L), CK (42239,1 U/L) and troponine T (236,3 ng/l). ECG showed singular ventricular premature complexes. Echocardiography revealed 4 mm of fluid in the pericardium. Cardiac contractility was unaffected. Pompe disease, multiple viral infections, metabolic disorders were excluded. Genetic tests were done and duplication in the rsa(P034/P035)x2 mutation in DMD gene was found. Furthermore carriage of the same mutation was confirmed in the patient's mother. An overall view of this patient's case indicates the muscular dystrophy-Duchenne or Becker.

Conclusion

Muscular dystrophies are genetic diseases characterized by progressive degeneration of the skeletal muscles. This type of diagnosis is made when the patient is starting to have specific symptoms, not by finding out about mutation. Although the diagnosis was made such early, what is rare, it changes the path of treatment poorly.

The effect of laparoscopic Fowler-Stevens procedure on testicular atrophy in boys with abdominal cryptorchidism.

Kinga Balińska, Damian Wilk

Medical University of Lodz

Presenting author: Kinga Balińska
e-mail: kinga.balinska2@gmail.com
Tutors: Jerzy Niedzielski,

Introduction

Cryptorchidism is the most common congenital anomaly of the urogenital system in males, affecting 2% to 8% full-terms boys. Undescended testis in abdominal position (unpalpable testis) creates a technical challenge for a surgeon due to the distance between the internal inguinal ring and scrotum. The Fowler-Stephens (F-S) maneuver is recommended then as a routine procedure. The F-S operation is a laparoscopic intraperitoneal ligature and division of the testicular vessels which leaves the testis dependent on the vassal, cremasteric and gubernacular arteries. Success rate of two-stage F-S procedure for abdominal testes reported in literature was 74% to 90%.

Aim of study

The aim of our study was to evaluate the effectiveness of the laparoscopic F-S procedure in boys with abdominal cryptorchidism by means of determining the testicular atrophy rate.

Material and methods

The medical records of 19 boys (26 testicles) with abdominal cryptorchidism, treated in the years 2011-2017 were examined retrospectively. All patients underwent laparoscopic F-S operation for abdominal cryptorchidism. The ultrasound examination (Philips iU22, linear transducer 12MHz, Netherlands) was performed in all patients in the beginning of treatment, 3-6 months after laparoscopy, 3 months and one year after orchidopexy. Three dimensions of testes were recorded and next testicular volume (TV) and testicular atrophy index (TAI) were calculated. Results were compared in three time-points with the special regard to postoperative atrophy of treated testes.

Results

In the entire examined group postoperative testicular atrophy was observed in 2 out of 26 treated testes (7,69%). In 1 out of 19 boys (5,26%) laparoscopy revealed congenital atrophy of testis. The overall success rate in the examined group was 92,31% (24/26).

Conclusions

In our examined group laparoscopic F-S procedure proved to be a highly effective and safe method in treatment of abdominal testes in cryptorchid boys.

Safety and utility of Cooper`s 12-minute running test in assessing physical capacity of children and adolescents with type 1 diabetes

Arkadiusz Michalak

Medical University of Lodz

Presenting author: Arkadiusz Michalak
e-mail: arkadiusz.michalak@stud.umed.lodz.pl
Tutors: Agnieszka Szadkowska,

Introduction

Regular physical activity counteracts cardiometabolic risk factors in children and provides even more benefits for those with type 1 diabetes in terms of better glycemic control. However, youth with T1DM face disease-related barriers when engaging in exercise, which may affect their overall fitness. There is need for assessment of their physical capacity in real-life conditions.

Aim of study

To evaluate safety of performing Cooper`s 12-minute run test in children with type 1 diabetes and use it to assess their physical fitness.

Material and methods

The covered distances were calculated into z-scores based on national charts. Heart rate was measured at rest and after the run. Blood glucose was recorded before, immediately after and 30 and 60 minutes after the test. Additional collected data included body mass index (calculated into z-score), body fat percentage (measured with bioimpendance, expressed as z-score), glycated hemoglobin concentration.

Results

The run was completed by 80 individuals (33 boys, 45%; mean age 13.6±2.1 years; mean diabetes duration 6.3±3.5 years). During the follow—up 3 children presented blood glucose <3 mmol/L, 9 more reached alarming concentrations (3 to 3.9 mmol/L), none experienced severe hypoglycemia. The mean covered distance was 1914±298m, which was not significantly worse than results of reference population (z-score -0.12±0.71 vs 0, p=0.12). The study participants were more overweight than general pediatric population, both in terms of body mass index (Z-score 0.48+/-0.94 vs 0, p<0.001) and body fat [z-score: 0.37±0.85 vs 0, p<0.001). Age, body mass index z-score, body fat percentage z-score, heart rate and glycemia after the test were found to be independent predictors of children`s results.

Conclusions

Youth with type 1 diabetes present similar exercise capacity to sex- and age-matched population but exhibit increased body mass index and body fat percentage. Older age and increased adiposity negatively affected the tests results. Cooper test can be safely used in children with diabetes as routine test to assess physical capacity.

Analysis of the Congenital Heart Defects in children with Turner Syndrome.

Katarzyna Kalata, Anna Kapłon, Miłosz Lorek, Dominika Tobolska

Medical University of Silesia

Presenting author: Katarzyna Kalata
e-mail: kalata.katarzynaa@gmail.com
Tutors: Aneta Gawlik,

Introduction

Turner Syndrome (TS) is a genetic disorder caused by partial or complete loss of chromosome X. The risk of left-sided congenital heart lesions are 30-50 times more frequent in TS than in general population. Furtheremore congenital heart defects are a major cause of mortality in TS.

Aim of study

The aim of the study was to establish the frequency and type of congenital heart defects (CHD) in children with TS and evaluate its impact on the growth rate.

Material and methods

The study included 127 girls with TS treated in the Department of Pediatric Endocrinology GCZD in Katowice. Referring to the most common cardiac defects our patients were divided into 3 groups: patients with Biscupid Aortic Valve (BAV), patients with Coarctation with the Aorta (CoA) and patients with other congenital heart defects.The analysis was stratified by karyotypes grouped in 45,X and non-45,X. It was investigated using HSDS index - which is used to asssess the growth, whether the heart defect affects the growth of patients with Turner Syndrome and if the occurence of congenital cardiac defects speeds up the diagnosis of this genetic syndrome.

Results

Our study group consisted of 127 patients with TS, 27 patients in this group had heart defects, which is 21,3%. The most common heart defect was CoA which was found in 11/127 (8,7%). BAV was found in 6/127 (4,7%), other congenital heart defects were found in 9/27 (7,1%). One patient had an undetermined heart defect 1/127 (0,7%). In patients with CHD 14/27 (51,9%) had 45,X karyotype, 9/27 (33,3%) had non-45,X karyotype and 4/27 patients had unidentified karyotype.It has been noticed that the occurence of a heart defect does not accelerate the age of diagnosis of TS. Mean HSDS in our group of patients was (0,467+1,667) and no significant statistical effet of heart defects on the growth of patients was found.

Conclusion

Congenital heart defects are a relevent problem in patients with TS. There is a need of further research in this topic and consideration of the use of MRI in the diagnosis of heart defects in patients with TS.

Efficacy of recombinant growth hormone therapy in a girl w suspected Pallister-Hall syndrome

Łukasz Działach

Poznan University of Medical Sciences

Presenting author: Łukasz Działach
e-mail: l.dzialach@wp.pl
Tutors: Obara-Moszyńska M., prof. n. med. M. Niedziela

Introduction

Pallister-Hall syndrome (PHS) is an extremely rare genetic disorder that affects the development of many parts of the body. The most common characteristic features of PHS include polydactyly, syndactyly, hypothalamic hamartoma, hypopituitarism, malformations of the airways, kidneys abnormalities, heart defects and imperforate anus. Patients with PHS may also present facial dysmorphism. Disorder is inherited in an autosomal dominant pattern and usually is caused by *de novo* mutations in the *GLI3* gene.

Case report

A two-year-old girl from 1st pregnancy born in the 40 weeks of gestational age, with normal birth weight and length, was referredto Department of Paediatric Endocrinology due to episodes of hypoglycaemia and height and weight deficiency. Laboratory tests revealed central hypothyroidism (TSH: 0,262 µIU/ml, FT4: 0,59 ng/dl) and secondary adrenal insufficiency (ACTH: 10,8 ng/ml, cortisol: 22,0 ng/ml). IGF-1 concentration was undetectable (IGF-1: 0 ng/ml). Head MRI visualised characteristic triad: small pituitary gland with ectopic posterior pituitary lobe and lack of pituitary stalk. L-thyroxin and hydrocortisone therapy was administered.

Because of hypopituitarism, polydactyly, delayed psychomotor development, atrial septal defect, dentinogenesis disturbance and facial dysmorphia (sunken nose with upturned nostrils, low-set ears, prominent cheekbones, telecanthus) the girl was consulted by geneticist and due to clinical picture PHS was suspected. Since the age of two the height was classified below 3rd centile and deceleration of height velocity was observed.

At the age of four GH deficiency was recognized (max GH: 0,2 ng/ml). Bone age was 1 year. Recombinant GH (rGH) therapy was started at the age of 4,5 years (height: 84,5 cm, htSDS = -6.6). As the therapy was continued, htSDS was gradually increasing and after 5,5 years of treatment is -0,18 (height: 138,8 cm). No side effects of treatment were observed.

Conclusion

PHS is a multidisciplinary disorder. The rGH therapy in PHS can bring positive effects on growth process and is save. Increase of growth velocity in the patient gives a satisfactory prognosis for the further treatment.

Complications of the prenatal interventions in children with congenital defects of the urinary tract

Ewa Zabiegło, Wiktor Socha, Szymon Strączek,

Collegium Medicum Uniwersytet Jagielloński

Presenting author: Ewa Zabiegło
e-mail: ekzabieglo@gmail.com
Tutors: Barbara Dobrowolska-Glazar,

Introduction

The incidence of congenital urinary tract defects is estimated at approx. 0.5-1%. The spectrum of these defects: extends from asymptomatic to severe, requiring intervention taken prenatally to rescue the fetus.The urethral valve is an anatomical bladder outlet obstructio. Determination of the defect is possible already about 20 weeks of fetal life based on ultrasound examination, which shows: extention of the upper urinary tract, changes in kidney echostructure, large bladder and sometimes widening of the posterior urethra. Approximately 5-20% of patients are diagnosed with end-stage renal failure in late follow up. Oligohydramnios as a result of the posterior urethra leads to hypoplasia of the lungs and in these cases prenatal interventions should be considered – putting on the shunt between bladder and amniotic cavity. The complications associated with the shunt itself are: its abnormal position, dislocation of the shunt or occlusion. The aim of the study is to analyze prenatal intervention serious complications of the patients referred for treatment to The Children's University Hospital in Krakow.

Case report

1. A newborn male baby born in the 30th week of pregnancy, 4 times shunted due to oligohydramnios and bilateral hydronephrosis. Creatinine after birth - 251.4umol / l. None of the shunts were in the right position. One shunt protruded through the inguinal regions and was removed after delivery; two were in the uterine cavity, they were removed during delivery. One shunt was located partly in the bladder and peritoneal cavity, causing ascites, surgical removal in the first weeks of life was necessary. 2. A newborn male baby born at 31th week of pregnancy, 4 times shunted due to annhydramnios and GDM extention. Creatinine level after birth - 330umol / l. The first three attempts to decompress the bladder were unsuccessful - the drains fell after a few days into the uterine cavity. The last one lasted 5 weeks and moved to the area of the right hypochondrium. The patient was operated to evacuate the drain in the 5th week of life. 3. A newborn female baby born at 34th week of pregnancy, shunted due to right-sided hydronephrosis. Creatinine after birth - 115 umol / l. In the ultrasound examination, ascites were found, and the shunt was located between the collective system and the peritoneal cavity. Post-natal diagnosis was duplication of upper urinary tract and ureterocele on the right side. The cyst was incised resulting in decompression of hydronephrosis and normalization of creatinine level. The patient is qualified for further diagnostic tests to establish the proceeding.

Conclusion

Literature data indicate that prenatal interventions in reasonable cases of urinary tract defects improve the function of the respiratory system, but they have no effect on the kidney function. There is a risk of serious complications after such interventions, therefore they should be performed only in strictly defined cases.

PHARMACY

COORDINATORS
Aleksandra Pilarz
Sylwia Trela

JURY
Professor Jakub Fichna, PhD
Magdalena Jasińska-Stroschein, PhD
Michał Kołodziejczyk, PhD
Łukasz Kuźma, PhD
Bogusława Pietrzak, PhD
Professor Eligia Szewczyk, PhD

Novel peptide inhibitor of dipeptidyl peptidase IV (Tyr-Pro-D-Ala-NH2) with anti-inflammatory activity in the mouse models of colitis.

Agata Binienda

Medical University of Lodz

Presenting author: Agata Binienda
e-mail: agata.binienda@stud.umed.lodz.pl
Tutors: Maciej Sałaga , prof. Jakub Fichna

Introduction

PETIR (*PEptidase-Targeted ImunoRegulation*) is a novel therapeutic strategy which takes for the purpose restoration of the immune balance by limiting the activation of immune cells and by induction of endogenous protective mechanisms, such as TGFβ and glucagon-like peptide-2 (GLP-2) through inhibition of DPP IV-dependent pathways. Experimental data indicate that PETIR results in suppression of cell proliferation and reduced synthesis of pro-inflammatory cytokines without affecting cellular vitality.

Aim of study

The objective of this study was to synthesize and test the anti-inflammatory activity of a series of novel peptide DPP IV inhibitors in the mouse models of colitis.

Materials and methods

The inhibitory activity of all peptides was evaluated *in vitro* using fluorometric screening assay employing Gly-Pro-Aminomethylcoumarin (AMC) to measure DPP IV activity in the presence of the test compounds. Kinetic parameters of the reaction were measured using isothermal calorimeter. Consequently, one compound, DI-1 was selected and its therapeutic activity evaluated using mouse models of experimental colitis (induced by TNBS and DSS). Body weight, macroscopic score, ulcer score, colon length and thickness, as well as myeloperoxidase (MPO) activity were recorded. Expression of GLP-2 receptor, GLP-2 and DPPIV was measured by western blot or ELISA. In silico docking simulations have been conducted to study sterical interactions between DI-1 and DPP IV molecule.

Results

DI-1 blocked DPP IV activity *in vitro* (IC_{50}=0.76 ± 0.04 nM), lowered V_{max} and increased K_M value of the reaction. The intracolonic (i.c.) administration of DI-1 (0.3, 1 and 3 mg/kg, twice daily) attenuated acute, semichronic and relapsing TNBS- as well as DSS-induced colitis in mice as indicated by significantly reduced micro- and macroscopic parameters equally as MPO activity. Its anti-inflammatory action was associated with the increase of colonic GLP-2 but not GLP-2 receptor or DPP IV expression. Docking simulations revealed that DI-1 may directly interfere with the catalytic triad of DPP IV (Ser630, His740 and Asp708).

Conclusions

Our results validate DPP IV as a pharmacological target for the anti-IBD drugs and its inhibitors, such as DI-1, have the potential to become valuable anti-inflammatory therapeutics.

Capsules from Fish

Abu Talha Bin Fokhrul, Sirajum Munira

MAG Osmani Medical College

Presenting author: Abu Talha Bin Fokhrul
e-mail: talhagreat333@gmail.com
Tutors: Dr. Hasib Rahman,

Introduction

Can capsules (Pharmacy) from fish gelatin be a safe alternative to capsules from animal gelatin?

Aim of study

The aim of the study is to discuss the effectiveness of an alternative capsule from fish gelatin for all the people around the world which will be cheaper and greatly useful for our body.

Materials and methods:

Independent variables Boiled water

Dependent variables: Gum Tragacanth Titanium Oxide Fish scales, bones and fins Mortar and pestle Beaker Sorbitol At first, we have to take necessary quantities of fish scales and bones, boil them at a temperature of ***130-140 degrees*** and triturate the disinfected fish bones and scales with a mortar and pestle. Then we will mix the resulting powder with ***Gum Tragacanth*** and ***sorbitol*** to make it gummy or sticky and mix ***Titanium Oxide(.0425gm/1kg)*** with the mixture. Now, if we dip a metal inside this mixture, we will get fish capsules.

Results:

Fish scales, bones and fins are regarded as kitchen waste but we can reuse them through recycling to keep the environment clean and healthy. Capsules made of animal gelatin can not exist in more than 15 degrees but capsules from fish gelatin can exist upto 30 degrees. An interesting thing is that it can prevent acidity for upto 12 hours and it is proved theoretically.

Conclusion:

It is basically done to create an eco-friendly environmental system that will help turn kitchen waste into something that can save millions of lives.

A method for encapsulation of therapeutic agents inside Virus-Like Particles

Dalia Sara Gala, Noor Dashti, Arjun Seth, Frank Sainsbury

University of Glasgow

Presenting author: Dalia Sara Gala
e-mail: galadalias@gmail.com
Tutors: William Cushley,

Introduction

Virus-Like Particles (VLPs) are complex spherical nanoparticles resembling viruses but deprived of virus DNA and therefore non-infectious. For that reason they are excellent systems for the potential delivery of therapeutic cargo into tumours which show enhanced permeability and retention effect. Polyomavirus VLPs are constructed of VP1-VP2 proteins complexes. VP1 forms the capsid while VP2 is thought to be binding the viral DNA, the original viral cargo. When co-expressed, the complexes self-assemble in solution to form the VLP. However, previous analysis indicated that the VP2 is often truncated to the middle of VP1 interacting sequence in solution, which can be caused by the highly conserved nature of that site. This prevents a successful encapsulation of cargo, deeming the therapeutic agent delivery impossible.

Aim of study

During my internship at the University of Queensland in Australia we tried to increase the yield of the VP1-VP2/GFP complex by making single amino acid substitutions in the VP2 truncation site and therefore avoid the truncation. Green fluorescent protein (GFP) was fused with VP2 as a drug cargo mimic and for future detection. The aim of the study was to identify mutations which would allow to preserve the cargo inside the VLP and therefore enable the successful delivery of therapeutic compounds to the cells.

Material and methods

We planned single amino acid substitutions in the positions 293, 294 and 295 of the VP2 truncation site. We performed site-directed mutagenesis of the template plasmid and then transformed bacteria with the new plasmids. We purified and sequenced the DNA to ensure all of the mutations were incorporated. The successful ones were used for transformation. We expressed the proteins in the autoinduction media. The cultures were lysed and run on SDS page. A modified ELISA test, named FLISA - a fluorescence-linked immunosorbent assay, verified the integrity of the complex by revealing GFP fluorescence in complexes bound by an anti-complex antibody.

Results

The results confirmed the presence of a large amount of complex in 5 out of 20 prepared mutations. After multiple MiniPreps and sequencing all mutations were successful and the plasmids were purified and ready for future steps. These 5 mutations are very promising ones, 3 of them located in the 294 locus, suggesting that the original Glycine is not necessary for the complex integrity and can potentially be replaced with different candidate amino acids.

Conclusion

In conclusion, our work can be pronounced successful as despite the highly conserved nature of the VP1-VP2 interaction site, we managed to design mutations which stop the cleavage of the VP2 from the complex, therefore preserving the cargo inside the nanoparticle. Since GFP can be substituted for a therapeutic compound and used with the VLP method to target particular cells, our work provides a powerful and versatile new tool for cancer research and gene therapy.

Microemulsion-based polymer gels with roxithromycin – design and characterization

Katarzyna Ancukiewicz, Piotr Gadziński

Poznan University of Medical Sciences

Presenting author: Katarzyna Ancukiewicz
e-mail: kat.ancukiewicz@gmail.com
Tutors: Anna Froelich, Tomasz Osmałek

Introduction

Roxithromycin belongs to the second generation of macrolide antibiotics. It is currently used orally, but there are reports concerning the trials for the topical application in the treatment of androgenic alopecia [1]. Roxithromycin reveals poor water solubility, therefore, it is necessary to incorporate it in a suitable medium enabling the dissolution of the drug, e.g. microemulsion. Another important advantages of microemulsions are stability, ease of preparation and the ability to improve drug bioavailability.

Aim of study

The aim of the study was to design and characterize a polymer microemulsion-based gel containing roxithromycin. Special attention has been paid to the mechanical properties important in terms of the topical administration of the final product.

Material and methods

Pseudoternary phase diagrams for systems containing water as a hydrophilic phase, triacetin, NEOBEE 895 and NEOBEE M-5 as oil phases, Synperonic® as a surfactant and two different co-surfactants (ethanol and Transcutol®) were plotted. For the selected systems electrical conductivity was measured (FiveEasy™ conductometer, Mettler Toledo) to assess the microemulsion type. In the next step, gels with xanthan gum (2.0%, w/w) or carbomer (0.5%) as thickening agents were prepared. The rheological studies comprising flow and oscillatory analyses were performed with rotational rheometer (RheoStress™, HAAKE) equipped with plate-plate geometry. In texture profile analyses (TA-XT2i, StableMicroSystems) hardness, adhesiveness, cohesiveness and compressibility of the samples were investigated.

Results

The largest isotropic area was obtained for the systems containing triacetin as an oil phase. The electrical conductivity studies revealed the bicontinuous structure of the analyzed microemulsions. The rheological tests shown the shear-thinning behavior of the polymer gels. The thixotropy of the investigated systems was negligible. The oscillatory studies performed shown that all samples displayed features typical for weak physical gels, with elastic properties prevailing over the viscous ones. The textural studies revealed mechanical differences depending on the sample composition.

Conclusion

In the presented study novel microemulsion-based systems with dissolved roxithromycin were designed and investigated. The obtained systems reveal advantageous mechanical properties in terms of potential topical application.

Usefulness of biotinylated pyrimethamine in glycoprotein P detection by modified Western Blot method

Barbara Pilecka

Medical University of Lodz

Presenting author: Barbara Pilecka
e-mail: barbarapilecka94@gmail.com
Tutors: Marek Mirowski,

Introduction:

Glycoprotein P (P-gp), a unique ATP-dependant membrane transport protein is one of key regulators which are present in colon lining and many other tissues. Due to its diverse tissue distribution, P-gp is a novel protective barrier stopping the intake of xenobiotics. A number of studies have demonstrated a negative correlation between P-gp expression levels and chemosensitivity or survival in a range of human malignancies. P-gp inhibition is considered as a valid approach to improve drug bioavailability as well as to overcome drug resistance in tumors characterized by P-gp over-expression. Thus, more studies on development of reliable detection method of glycoprotein P are recquired. For this reason biotinylated pyrimethamine (P-B) which binds to the active site of MDR-1 (P-gp) and prevents efflux of active compounds from the cell enhancing their effectiveness was used in this study.

Aim of study:

Development of the method of P-gp detection with biotinylated pyrimethamine using polyacrylamide gel electrophoresis (SDS-PAGE). Subsequently, use the method to determine the presence of P-gp in different cancer cells obtained from *in vitro* cellular cultures.

Material and methods:

In the study cancer cells such as: COLO 205, NALM-6, HL-60, WM-115 were used. The cell lysates were incubated with biotinylated pyrimethamine at a concentration selected in the preliminary experiments (P-B stock solution: 3mg/ml of methanol). Next the SDS-PAGE was performed, followed by transfer onto nitrocelullose membaranes. Modified procedure of Western Blot technique was conducted with the use of streptavidin conjugated with horseradish peroxidase (HRP). In order to establish if P-gp is degradated by proteolityc enzymes, cell lysates were prepared without and with the protease inhibitor cocktail.

Results:

Among investigated cancer cell lysates (COLO 205, NALM-6, HL-60, WM-115) the presence of immunoactive bands having molecular weight of about (70 and 120 kDa) showed COLO 205, HL-60 and NALM-6. The strongest expression of lebaled protein was marked in COLO 205. Results of Western Blot for COLO 205 regardless of whether the protease inhibitor cocktail was used showed two bands - 70kDa and 120kDa. Knowing that P-gp molecular weight is 170kDa the detected bands are suspected to be degradation products of glycoprotein P.

Conclusion

Biotinylated pyrimethamine seems to be a promising inhibitor of glycoprotein P which can react with proteins present in cancer cell lysates showing molecular weight of about 70 and 120kDa. This information allow to state that biotinylated pyrimethamine can be adapted to assessing P-gp degradation products by modified Western Blot technique. Further research is necessary to prove that two detected bands are P-gp degradation products.

In vitro studies of biocompatibility of novel metformin derivatives

Łukasz Mateusiak

Medical University of Lodz

Presenting author: Łukasz Mateusiak
e-mail: mateusiaklukasz@gmail.com
Tutors: Magdalena Markowicz-Piasecka, Joanna Sikora

Introduction:

Apart from hypoglycaemic activity, scientific society has also been stunned by multidirectional activities of metformin, including lipid-lowering, anti-inflammatory and anti-cancer properties. It has been established that metformin exerts a beneficial influence on the cardiovascular system through complex activities on endothelial functions, ROS production and cardiomyocytes functionality. Despite several advantageous pharmacological properties, metformin administration, due to the physicochemical and pharmacokinetic properties, is associated with huge inter- and intra-individual differences in the clinical response. Therefore, there is a need to develop novel approaches, such as synthesis of novel metformin's derivatives in order to improve its bioavailability.

Aim of study

As type 2 diabetes is associated with the impaired balance between the processes of coagulation and fibrinolysis the subject of the current project is to create a model of multidirectional evaluation of biocompatibility of novel derivatives of biguanide with the particular emphasis on plasma, and vascular haemostasis.

Materialand methods

The activity of factor X was evaluated using deficient plasma factor X. The activity of two naturally occurring anticoagulants, protein C and antithrombin III (AT), was measured spectrophotometrically with chromogenic substrates. The viability and integrity of Human Umbilical Vein Endothelial Cells (HUVECs) were assessed by means of the xCELLigence system (Roche Applied Science) enabling the status of cell growth to be monitored in real time.

Results

ortho-nitro sulfonamide at the concentration of 0.3 – 1.5 μmol/mL contributed to a significant decrease in the activity of factor X which explains its anticoagulant properties expressed by prolonged PT (Prothrombin Time) and APTT (Partially Activated Thromboplastin Time). Metformin, phenformin and two sulfenamides contributed to a significant increase in the activity of AT. Hexyl sulfenamide, *para*-nitro- as well as *para*-trifluoro-*ortho*-nitro-benzenesulfonamide contributed to the decrease in the activity of protein C, while the other tested compounds did not affect its activity. Metformin and sulfenamide with *n*-butyl chain did not contribute to significant changes in the cells viability and integrity over the entire concentration range up to 36 hours.

Conclusion

2-*nitro*-benzenesulfonamide derivative of metformin presents highly beneficial anticoagulant properties and does not affect HUVEC integrity up to 0.6 μmol/mL, therefore this compound is a promising candidate for further *in vitro* and *in vivo*studies.

5-naphthylmethylidenehydantoin derivatives of 1,3,5-triazine as novel class of 5-ht6 receptor ligands

Konrad Dobosz, Wesam Ali, Grzegorz Satała, Jadwiga Handzlik

Jagiellonian University Medical College

Presenting author: Konrad Dobosz
e-mail: uran16@o2.pl
Tutors: Jadwiga Handzlik,

Introduction

The serotonin 5-HT_6 receptor (5-HT_6R) is the most recently identified member of the 5-HT receptor superfamily. The 5-HT_6R, distributed in the central nervous system, is especially involved in the regulation of cognitive and mood processes as well as eating behaviors. Intensive medicinal chemistry affords led to obtain many potent compounds and some of them have reached to clinical studies, even to phase III as e.g. LUAE58054 (idalopirdine; Alzheimer's disease) [1]. For proper understanding of the complicity of 5-HT_6R pharmacology more potent and selective ligands are necessary.

Aim of study

Recently, we have found a new class of 5-HT_6 receptor ligands – benzyl derivatives of 1,3,5-triazine [2]. The most active compounds displayed 5-HT_6R affinities in the nanomolar range (K_i =20-30 nM). As a continuation of that work in this study a series of 5-naphthylmethylidenehydantoin derivatives (**1**-**4**) was designed and synthesized to be tested for 5-HT_6 receptor affinities in radioligand binding assay

Material and methods

For synthesis of compounds 1-4 the following methods were involved: (i) Knoevenagel condensation of 1- and
2-naphthyl aldehydes with hydantoin, (ii) introduction of ester moiety at position 3 of hydantoin by alkylation
with different bromoesters and (iii) cyclisation of hydantoin-esters with biguanide to obtain 1,3,5-triazine rings
of final products (**1**-**4**). The compounds were purified by crystalisation with ethanol or methanol. Purity and identity of compounds were confirmed using: LC/MS, TLC and H^1 NMR spectroscopy as well as melting point measurement. The radioligand binding assay (RBA) was performed using 5-HT_6 receptor expressed in HEK293, and [^{3}H]-LSD as specific radioligand.

Results

New compounds **1**-**4** were obtained within 3-step synthetic pathways. Radioligand binding assays results indicated submicromolar 5-HT_6R -affinity for selected compounds and significant selectivity over other GPCRs considered. The chemical synthesis and primary pharmacological screening in vitro allowed to identify a the small new series of active 5-HT_6R agents

Conclusion

The potent 5-HT_6 receptor affinity, found here for the compounds containing both, 1,3,5- triazine and 5-naphthylmethylidenehydantoin fragments, indicates that further studies for this chemical group are desirable, in particular, next chemical synthesis to extend the series for a number suitable to analyze structure-activity relationship.

Rapid desensitization of TRPV1 receptors as a promising approach in irritable bowel syndrome therapy

Agata Szymaszkiewicz

Medical University of Lodz

Presenting author: Agata Szymaszkiewicz
e-mail: szymaszkiewicz.a@gmail.com
Tutors: Jakub Fichna, Marta Zielińska, PhD

Introduction

Transient receptor potential vanilloid-1 receptors (TRPV1) are involved in the control of pain sensation and gastrointestinal (GI) functions. Activation of TRPV1 induces visceral pain; blocking or desensitizing TRPV1 induces analgesic effect.

Aim of study

The aim of our study was to assess the action of palvanil, a non-pungent and fast-desensitizing capsaicin analogue, in two different routes of administration: systemic (intraperitoneal, *i.p.*) and topical (intracolonic, *i.c.*) on GI motility and abdominal pain to evaluate its therapeutic potency in irritable bowel syndrome (IBS).

Material and methods

The action of palvanil (0.1–1 mg/kg) in the GI tract was assessed *in vivo* in mice using colonic bead expulsion tests. The antinociceptive potency of palvanil was tested in the mustard oil-induced model of abdominal pain.

Results

Palvanil at a lower dose (0.1 mg/kg *i.p.*) accelerated colonic motility during the first 60 minutes following injection. In contrary, at higher doses (0.25 and 1 mg/kg, *i.p.*) palvanil inhibited colonic motility.

In contrast to *i.p.* injections, *i.c.* palvanil at all doses tested induced acceleration of colonic motility during the first 60 minutes following drug administration and then, 90 minutes after administration, significantly inhibited motility of the colon.

Palvanil given *i.p.* induced a pronounced antinociceptive action at all tested doses. Lower doses of palvanil (0.1 - 0.25 mg/kg) evoked stronger antinoceptive effect when the time between drug administration and installation of irritant was short (15 min vs. 60 min). The opposite was reported for higher dose (1 mg/kg): palvanil was more effective in experiments with longer interval (60 min vs. 15 min). After *i.c.* administration there were no significant differences within doses at both intervals.

Conclusion

Obtained data suggest that palvanil is equally effective after intracolonic and systemic administration in modulation of colonic motility and alleviation of abdominal pain. Thus, TRPV1 fast-desensitizing compounds, such as palvanil, could become promising agents in the therapy of IBS.

PHD SESSION

COORDINATORS
Aleksandra Łosiewicz
Agnieszka Plesińska

JURY
Professor Ewa Brzeziańska-Lasota, PhD
Professor Marlena Juszczak, PhD
Professor Zbigniew Pasieka, PhD
Professor Mirosław Soszyński

Effectiveness of 0.5 mg/kg, 1 mg/kg and 2 mg/kg sugammadex doses in pediatric anesthesiology

Mirosław Malec

Poznan University of Medical Science

Presenting author: Mirosław Malec
e-mail: miroslawmalec90@gmail.com
Tutors: Agnieszka Bienert,

Introduction:

Neuromuscular blocking agents (NMBAs) are usually administered during anesthesia to facilitate endotracheal intubation and/or to improve surgical conditions. NMBAs may decrease the incidence of hoarseness and vocal cord injuries during intubation, and can facilitate mechanical ventilation in patients with poor lung compliance. Although NMB agents are used frequently in ICU patients, their role in the intensive care setting is not well defined. Most knowledge of NMB drugs has been extrapolated from the operating room in healthy patients or patients with single-organ failure. Patients receiving NMB agents in the ICU typically are afflicted by multiple-organ failure and are receiving a number of concomitant medications. Sugammadex, is the first selective relaxant binding agent. It does not interact with cholinergic mechanisms to elicit reversal. Due to its 1:1 binding of rocuronium, it is able to reverse any depth of neuromuscular block. So far, it has been approved for use in adult patients and for pediatric patients over 2 years.

Aim of study

The aim of the study was to compare the effectiveness of sugammadex doses: 0.5 mg/kg, 1 mg/kg and 2 mg/kg in the reversal of neuromuscular blockade caused by rocuronium in pediatric patients, by measuring. The primary endpoint was the time from the administration of sugammadex to recovery of the train of four (TOF) ratio to 90% after rocuronium-induced neuromuscular block time.

Matherial and methods

These are preliminary studies. Fifteen patients (aged 6 – 17) undergoing planned surgery with a standardized sevoflurane-fentanil-rocuronium (rocuronium dose 0.6 mg/kg) anesthetic technique received sugammadex, 2 mg/kg (n=6) ,1 mg/kg (n=7) and 0.5 mg/kg (n=2) for reversal of neuromuscular blockade, using the the train-of-four (TOF) techique to measure the level of neuromuscular blockade.

Results:

There were no significant differences between groups. The time to achieve TOF ratio of 90% was similar in both groups received 1 mg/kg and 2 mg/kg: 58,6 ± 41,0 s in group received 1 mg/kg and 58,3 ± 31,2 s in group with dose 2 mg/kg of sugammadex. All patients in both groups achieved a TOF ratio of 90 < 5 min after reversal administration. In group received 0.5 mg/kg of sugammadex the mean time to achieve TOF ratio of 90% was 750 ± 551 s. We decided not to administer the dose 0.5 mg/kg to more patients because the time to reach TOF ≥ 90% was too long. It prolonged the time of extubation.

Conclusion:

The findings indicate sugammadex 1 mg/kg and 2 mg/kg can be given safely and effectively for the reversal of rocuronium-induced neuromuscular blockade in pediatric patients. The dose 0.5 mg/kg is not ineffective. There is a need for further research into the safety and efficacy of sugammadex in pediatric patients.

Functional genome analysis aiming to define the genetic cause of intellectual disability

Evelina Siavrienė, Eglė Preikšaitienė, Vaidutis Kučinskas,

Vilnius University, Vilnius, Lithuania

Presenting author: Evelina Siavrienė
e-mail: evelina.siavriene@mf.vu.lt
Tutors: Vaidutis Kučinskas, Eglė Preikšaitienė

Introduction

Intellectual disability (ID) is one of the most common developmental disability affecting 1-3 % of the general population. This neurodevelopmental disorder causes a significant chronic illness and functional disability, thus leading to socio-economic problem of health care. ID is highly heterogeneous condition as it encompasses a wide spectrum of various phenotypes with different severities. Furthermore, considering the fact that more than 60 structural variants and over 700 genes are known to be associated with ID, genetic alterations may be an important cause of this condition in many cases. However, the causes and molecular basis of many IDs is still unknown.

Aim of study

For this reason, current worldwide research in the identification of genetic causes of ID has been significantly accelerated by the development of comprehensive molecular genetics technologies such as next generation sequencing, array Comparative Genomic Hybridization (CGH), and functional genomic approaches including quantitative real-time PCR (qPCR).

Material and methods

Currently, at the Department of Human and Medical Genetics of Vilnius University, the gene expression analysis by qPCR is being used for the evaluation of gene expression level in patient samples comparing to controls. Recently this kind of experiment was performed for the female patient presenting tall stature, macrocephaly, skeletal and digital abnormalities as well as intellectual disability. Array CGH of the proband revealed a *de novo* microduplication at 13q31.3 locus encompassing only *MIR17HG* gene, which encodes the miR-17~92 polycistronic miRNA cluster. It is known that hemizygous deletion of the *MIR17HG* gene leads to Feingold syndrome-2 (FGLDS2; OMIM 614326), characterized by short stature, microcephaly and intellectual disability.

Results

Our patient with 13q31.3 microduplication has some of the clinical features such as tall stature and macrocephaly, which are mirroring those features seen in Feingold syndrome-2. There are some suggestions that proximally located*GPC5* may contribute to the pathogenesis of the phenotype observed in patients with overlapping microduplication. However, the limited extent of the rearrangement and the normal expression level of *GPC5* in cells of our patient provide evidence against this hypothesis and supports the idea that the miR-17~92 cluster plays an essential role in skeletal development.

Conclusions

Functional genomic approach such as gene expression analysis via qPCR provides a unique possibility to understand the etiology and pathophysiology as well as to identify the molecular basis of many diseases and conditions including IDs.

Clinical outcomes and echocardiographic parameters with quality of life assessment in long term follow up in patients with severe mitral regurgitation.

Agata Krawczyk-Ożóg, Anna Płotek, Mateusz K. Hołda, Danuta Sorysz

Jagiellonian University Medical College

Presenting author: Agata Krawczyk-Ożóg
e-mail: krawczyk.ozog@gmail.com
Tutors: Zbigniew Siudak, Dariusz Dudek

Introduction

In recent years we have observed rapid development of surgical and less-invasive percutaneous mitral valve repair procedures. The most common alternative method of treatment for patients with severe mitral regurgitation (MR), with very high surgical risk or with contraindications to surgical mitral valve replacement or repair is transcatheter edge-to-edge mitral valve repair using the MitraClip device.

Aim of study

The aim of this study was to evaluate clinical and echocardiographic outcomes and quality of life (QoL) in patients with severe secondary MR, disqualified from surgical intervention, treated by implantation of a MitraClip device in comparison with conservatively therapy.

Material and methods

A total of 33 patients with secondary MR were included. Patients were stratified by methods of treatment: Group A: MitraClip implantation (n=10), and Group B: conservative treatment (n=23). Clinical and echocardiographic characteristics and QoL (EQ-5D-3L and SF-12v2 Health Survey) were compared between two analyzed groups at baseline and in 8±2 months observation.

Results

Two patients died in Group A after MitraClip implantation (20.0%) but other periprocedural complications and hospitalization were not reported. Four deaths (17.4%) were reported in Group B, 6 (26.1%) hospitalizations (4 [17.4%] caused by heart failure decompensation). After MitraClip implantation, patient reported statistically significant reduction in symptoms in NYHA scale (p=0.02). This was not observed in patients treated conservatively (p=0.4). Decrease grade of MR (p=0.01), vena contracta width (p=0.006), EROA (p=0.003), regurgitant volume (p=0.03) and end-diastolic left ventricle diameter (p=0.02) was observed in patients with MitraClip. An improvement in QoL after intervention was confirmed by SF12v2 questionnaire, especially Physical Component Summary. In patients treated conservatively results of EQ-5D-3L and SF12v2 were comparable in both evaluated time points.

Conclusion

Patients with severe secondary MR treated with the MitraClip achieved significant reductions of symptoms, MR grade and end-diastolic left ventricle diameter. Furthermore, a significant improvement in QoL assessed by SF12v2 was observed after intervention in comparison to conservative treatment.

Detecting signatures of adaptive positive selection from high–density genotyping data in the Lithuanian population

Alina, Mayukh Mondal, Elena Bosch, Alma Molyte, Vaidutis Kučinskas

Vilnius University

Presenting author: Alina Urnikyte
e-mail: alina.urnikytr@gmail.com
Tutors: Vaidutis Kučinskas, Elena Bosch Fuste, elena.bosch@upf.edu

Introduction

A characterization of the adaptive history of human populations requires knowledge of the genes that have been affected by positive natural selction which is also important for an analysis of the genetic causes behind human disease. The present study aims to analyze signatures of adaptive positive selection from high–density genotyping data in a total of 399 individuals from the Lithuanian population.

Material and methods

We analyzed Illumina 770 K HumanOmniExpress-12 v1.1 and Infinium OmniExpress-24 array data from Lithuania combined with CEU, FIN and YRI populations from 1000 genome data for estimating genetic differentiation between continents. Three statistics were employed for scanning high–density genotyping data to infer signs of positive natural selection: Tajima's D, F_{ST} and cross-population extended haplotype homozygosity (XP-EHH) statistical method. Selected SNPs were annotated using ANNOVAR in GRCh37 (hg19), RefSeqGene, dbSNP147 and CADD version 1.3.

Results

Based on genetic differentiation, when Lithuanian population is compared with Yoruban, CEU and FIN populations, we identified *TYRP1* gene which is implicated in the lightening of skin pigmentation. In adition *SLC25A27* gene was identified, when comparing Lithuanian and reference populations, which may play role in thermoregulatory heat production and metabolism in brain. Among other genes identified, those with the top XP-EHH values include *PLA2G7* gene, located on chromosome 6, containing nonsynonimous SNP (exon7:c.T593C), which is a candidate gene for developing Asthma disease –the most common chronic disease affecting children and young adults.

Conclusion

The selection signatures identified in the Lithuanian population demonstrated positive selection pressure on a set of important genes with potential functions that are involved in many biological processes.

Percutaneous nephrolithotomy at staghorn nephrolithiasis, complicated with chronic renal failure.

Darkhan Mami

Kazakh National Medical university

Presenting author: Darkhan Mami
e-mail: darhan.md@gmail.com
Tutors: Alchinbayev M.K., Sengirbayev D.I.

Introduction

Urolithiasis - poly-etiological disease and is still prevalent. Urolithiasis is an urgent problem of our time, as it takes a leading position among kidney disease in all regions of the world, including in our country. At the same time there is a persistent tendency to constant growth of morbidity. Urolithiasis is characterized by recurrent and prolonged due to frequent complications of pyelonephritis, renal failure, often leading to premature disability. Urolithiasis is a serious complication of progressive decline in kidney function capabilities, resulting in the destruction of renal parenchyma and chronic renal failure (CRF). It is known that among diseases of kidney and ureter, urolithiasis takes first place, and is found in 30-45%. The most difficult in pathogenic terms, and in terms of self-treatment urolithiasis nosology is staghorn nephrolithiasis. This type of urolithiasis is diagnosed in 8-35%. The complexity of the pathogenetic mechanisms of the development of the urolithiasis and the frequency of relapse and complications, highlight the issues of improvement of existing and development of new methods for early detection, diagnosis and treatment. Currently, the treatment of urolithiasis achieved considerable success through the use of new techniques of minimally invasive remove of urinary stones - extracorporeal shock wave lithotripsy (ESWL) and endoscopic methods. Currently, there are a large number of works devoted to the treatment of staghorn nephrolithiasis, but there is no consensus on some of aspects. Technological advances in medicine, particularly in urology and the associated rapid development of medical technologies. ESWL, percutaneous surgery, etc., were something of a revolution in the treatment of urolithiasis, including staghorn nephrolithiasis. Percutaneous surgery is used to treat staghorn nephrolithiasis, in recurrent staghorn stones after open surgery migrated earlier. According to the literature, the number of publications on the use Percutaneous nephrolithotomy (PCNL) as a monotherapy in treating method nephrolithiasis with a complex configuration is not great and often used in stages. Currently, many authors combination of percutaneous nephrolithotripsy and extracorporeal lithotripsy considered optimal in the treatment of staghorn nephrolithiasis.

Aim of study

To improve the efficiency of treatment staghorn nephrolithiasis, complicated with chronic renal failure.

Material and Methods:

We analyzed the results of 37 PCNL conducted over staghorn nephrolithiasis, complicated by chronic renal failure. Age ranged from 38-62 years. There were 19 women and 18 men. Patients in the form of staghorn nephrolithiasis distributed as follows: K1-2 detected in 3 (8.1%), K3 21 (56.7), K4 13 (35.1%) patients. In order to ascertain the factors contributing to the development of chronic renal failure and its stage, we analyze the dependence of renal function at urolithiasis on the duration of the disease and its complications.

Conclusion

Percutaneous nephrolithotomy consists of 2 stages: the creation of antegrade puncture access to and remove of the kidney stone through the nephrostomy tube. In 16 (43.2%) patients 2 stages performed simultaneously. In 21 (56.7%) cases, in the first set kidney percutaneous nephrostomy puncture and removed after 7-10 days of kidney stones. When performing puncture, the patient was placed on the stomach, where upon the puncture rib XII below, under ultrasound guidance,

usually through the lower or middle cup. During the PCNL two conductor strings must always be installed during operation, the second "safety" string remains in the transdermal channel, but outside of the lumen. With the "safety" string at any time you can restore the nephrostomy tube. In 9 (24.3%) cases, PCNL was performed with pre-catheterization of the ureter, which made it possible to visualize pyelocaliceal system and prevented migration of stone fragments into the ureter. The bougie of ureter was carried out along the conductor by the telescopic catheter by the bougie "Alkon" with the subsequent installation of the stem barrel for the nephroscope. For stone fragmentation were use different types of contact lithotripters, individually and in combination typt. For ultrasonic destruction stones used German lithotripter «Karl-Storz», mechanical lithotripsy by «Lithoclast» (Switzerland). Remaining fragments were extracted from the lumen by the Amplatz casing using manipulation tongs. The removal of concrements was performed under X-ray and endoscopic control. At intraoperative control residual stones is not revealed. The operation ends by nephrostomy tube to drainage of the kidney. Migration fragments of the calculus in to the ureter was observed in 3 (8.1%) patients, to that patients in the end of operation were ureterolithotripsy. Exacerbation of chronic calculus pyelonephritis was observed 11(29.7%) patients, were stopped by conservative therapy. Thus, complete sanitation of the renal cavity system from the stones helped stabilize the chronic inflammatory process and CRF. Conclusion. Percutaneous nephrolithotomy is effective in the treatment of staghorn nephrolithiasis complicated with chronic renal failure. The advantage of this method is: minimally invasive, low trauma and shorter hospital stay and postoperative rehabilitation of patients.

The role of health professionals in the process of strengthening the mental condition of patients staying at an Intensive Care Unit

Marta Karbowiak, mgr Katarzyna Majdzik

Uniwersytet Medyczny w Łodzi

Presenting author: mgr Marta Karbowiak
e-mail: marta.karbowiak@stud.umed.lodz.pl
Tutors: Elżbieta Poziomska-Piątkowska,

Introduction

A great deal is being written and said about the holistic approach to the patient. An increasingly important aspect of the treatment of a patient staying at the Intensive Care Unit (ICU) is the inclusion of activities aimed at strengthening the psychological condition of the critically ill.

Aim of study

The aim of the work was to analyze the role of nursing staff in the process of stimulating and strengthening the mental state of patients staying in the ICU. The next aims are: learning the level of knowledge necessary for nurses to stimulate the mental resilience of patients, research on what methods of stimulating unconscious people are used by nurses and what difficulties they encounter.

Material and methods:

This descriptive-analytical study was conducted on a population of 112 members of nursing staff working at the ICU in hospitals in the łódzkie Voivodeship. In research was applied the diagnostic survey method and use the originally prepared questionnaire.

Results

The results demonstrate that as many as 1/4 of respondents during education did not meet with the issue of strengthening mental resources of patients staying in the ICU. And even if they met, 61% say their knowledge is insufficient. Among the methods of stimulating patients, 70% of respondents choose verbal contact, and 2% do not use any methods. In the opinion of the vast majority of respondents, first of all family members (86%) and rehabilitationists (71%) should be involved in the process of stimulation of patients in ICU. More than half of respondents (66%) admit that during work, there is no time to stimulate unconscious patients.

Conclusion

Taking into account the data, we can see that the members of nursing staff working at the ICU use only few methods of stimulation. They use mostly verbal contact with the patient while performing nursing activities. Moreover, the results indicated that the surveyed nurses' knowledge in the area of strengthening mental potentials of patients is insufficient. From the figures it is apparent also that nursing staff have many difficulties in stimulation of patients. Further, in the opinion of the respondents, this work should be performed by physiotherapists and families of patients. The implications of this research are manifold. First, improving qualifications in stimulating patients and strengthening their mental potential by nursing staff working in ICU is critical because they spend most of their time with patients who are most often unconscious and totally dependent. And in the opinion of the respondents, this knowledge is insufficient. Furthermore, with a holistic approach to treating patients, it is highly justified to employ an ICU qualified physiotherapist who will professionally support nursing staff in stimulating and strengthening the potential of critically ill patients.

Impact of testosterone on biology of astrocytes. In vitro study.

Małgorzata Turniak, Kaja Śmietanka

Medical University of Lodz

Presenting author: Małgorzata Turniak
e-mail: m.turniak@stud.umed.lodz.pl
Tutors: Bartosz Bielecki, Professor Andrzej Głąbiński

Introduction

Multiple sclerosis (MS) is an inflammatory disorder with the central nervous system (CNS) demyelination and axonal damage. Its etiology is not fully understood, but evidence suggests that autoimmunity plays a role in the disease pathogenesis. Men are less likely to develop MS than women and the clinical course of the disease is different, suggestive of the role of sex hormones. Testosterone (T) has long been known to be a potent modulator of immune response. Recently, a crucial role of T also in myelin repair in the CNS has been reported. Importantly, it acts specifically through CNS-expressed androgen receptor (AR). However, the mechanism of action of androgens in the CNS remains unclear, since it has been shown that neurons and astrocytes abundantly express AR. Astrocytes play a key role in maintenance of neuronal functions by producing many cytokines, chemokines, and growth factors. At the site of neuroinflammation, astrocyte-derived cytokines and chemokines play both protective and proinflammatory role. Moreover, the presence of astrocytes in area of demyelination is required for differentiation of oligodendrocyte (OG) progenitor cells and an effective regeneration of myelin.

Aim of study

Main goal of the study was to assess the influence of T on secretion of selected cytokines and chemokines by astrocytes. Chosen cytokines are known to play an important role in modulation of inflammatory response in the CNS but also in migration of OG progenitors and interaction with OG. Moreover, analysis of migration of astrocytes following exposition to T *in vitro* was performed. The effect of T was measured in physiological conditions and following damage induced by lysolecithin.

Material and methods

Astrocytic cell line DITNC1 and primary astrocyte culture were used in experiments. A confocal microscope was applied for image acquisition. Levels of cytokines were assessed using ELISA method. Migration of astrocytes was assessed using scratch assay protocol. AR expression was measured using qPCR.

Results

A strong stimulation of migration of primary culture astrocytes by T in a dose-dependent manner was observed. Interestingly, DITNC1 were producing IL-6 only in the presence of T, both in physiological and pathological conditions. Incubation with T increased CXCL1 production both in physiological and pathological conditions, and this effect was reversed in presence of AR antagonist (flutamide). Neither tumor necrosis factor (TNF)-α, nor CXCL2 secretion was detected in astrocytes *in vitro*. Similar data were obtained with and without lisolecithin and this effect was not modulated by T.

Conclusion

An important effect of testosterone on migration of astrocytes, secretion of cytokine IL-6 and chemokine CXCL-1 was observed. This suggests that effects of androgens on remyelination in the CNS may be mediated through modulation of astrocytic immune response. These data may help in developing agents useful in therapy of the CNS demyelination.

PSYCHIATRY & PSYCHOLOGY

COORDINATORS
Aleksandra Bolek
Alicja Nowak

JURY
Jakub Kaźmierski, MD, PhD
Professor Iwona Kłoszewska, MD, PhD
Radosław Magierski, MD, PhD
Tomasz Pawełczyk, MD, PhD
Dominik Strzelecki, MD, PhD
Małgorzata Urban-Kowalczyk, MD, PhD

Depression as a serious threat among students of medical faculties - estimating frequency, severeness and risk factors.

Marta Kułaga, Michał Litewka

Collegium Medicum im. L.Rydygiera w Bydgoszczy UMK w Toruniu

Presenting author: Marta Kułaga
e-mail: martakulaga@interia.pl
Tutors: Ewa Ogłodek, lek.med. Anna Grzesińska

Introduction

Depression is a common mental disorder. It affects people in different age and social status

Aim of study

Our study's purpouse was to check how frequent depression is among students of medical faculties. We also estimated which factors can induce or aggreviate the disease.

Material and methods

We used anonymouns surveys containing questions based on modified Hammilton scale. We added multiply-answer questions about risk factors. We examined 454 students of different faculties.

Results

We evaluated 445 form 454 questionaries due to disqualification.

The results were shocking: 81,12% of medical students suffer from depression. 47,64% have mild depression, 24,94% moderate and 8,54% severe depression. We didn't find a statistically important correlation between depression and age, place of residence or marital status. When it comes to substance abuse: smoking cigarettes was significantly higher among students with depression.(Chi-square=12,32, important for p=0,05). The more points in Hammilton Depression Scale the students got, the more often they abused alcohol. However, the differences were not statistically important for p=0,05. Using drugs and other psychoactive substances was more common among depressed students, especially among people with severe depression (more than 3x higher rates than in healthy group). Differences were important for p=0,05 (Chi-square 11.23). Over 90% people who considered going to psychiatrist turned out to have depression, while only 9,61% turned out to be healthy. Chi-square 68,36 (important for p=0,05).

The percentage of depressed people was different among certain medical faculties. Faculties that suffer from depression most often are biomedical engineering, biotechnology and pHD students. The paramedics are the most healthy group. Chi-square=79,72(important for p=0,05) We estimated which factors are most often connected with depression. Almost all of them were significantly higher among people with depression. On the first place there is "stress connected with studying". Chi-square =30.58 (important for p=0,05). Other important factors are "fear of not having sufficient knowledge" chi-square 46.64 important for p=0,05, "lack of free time" chi-square 14,51 important for p=0,05, "fear of difficulties in future job" chi-square 10.73 important for p=0,05. All the students who are currently being treated from depression by psychiatrists or GPs achieved results indicating on depression in our test. It shows, that our method has sensivity level of 100%.

Conclusion

Depression is really common among medical students. There are certain risk factors, that can be easily modified by universities. It is important to set a hospitable enviroment for students.

Mental Health and Interpersonal Relationship: The Association between Anxiety and Social Support among Undergraduate Medical Students of Universitas Gadjah Mada

Yessy Adhi Utami

Universitas Gadjah Mada

Presenting author: Yessy Adhi Utami
e-mail: yessyau@gmail.com
Tutors: Carla Raymondalexas Marchira, Budi Pratiti, MD, Ph.D, Psychiatrist.

Introduction

Abundant researches worldwide have discovered that medical student – as the nation's future healthcare provider, possess higher stress level compared to general population. Medical students are expected excel in both knowledge and attitude, hence anxiety may be inevitable due to extensive exposure to stress. Social support is defined as assistance given through physical and psychological needs. Numerous studies confirm that people with higher social support have higher ability to manage stress and possess better mental health.

Aimof study

This research seeks the presence of anxiety in undergraduate medical students. Moreover, this research is aimed to investigate the association between anxiety and social support.

Material and methods

This is a prospective observational research with cross-sectional study design. Subjects are undergraduate medical students from second, third and fourth year of Universitas Gadjah Mada. Fifty female students and fifty-one male students are considered eligible with mean age of 19.743. Anxiety and social support are determined using self-administered questionnaire of Taylor Manifest Anxiety Scale (TMAS) and Sarason's Social Support Questionnaire (SSQ). TMAS score of 5 to 15 represents low anxiety, 16 to 29 represents moderate anxiety, and 30 to 40 represents intermediate anxiety. The cut-off point for social support is obtained by mean.

Results

53 students (52.4%) are considered to have low anxiety, 41 students (40.5%) are considered to have moderate anxiety, and 7 students (6.93%) are considered to have intermediate anxiety. There is statistically significant correlation between anxiety and number (quantity) of social support ($p=0.002$, $p<0.05$). However, the correlation of anxiety and satisfaction (quality) of social support is not statistically significant ($p=0.078$).

Conclusion

There is a statistically significant correlation between anxiety and number (quantity) of social support, but not the satisfaction (quality) of social support.

Risk assessment of falls in elderly patients with mild neurocognitive disorders

Eliza Oleksy, Remigiusz Sokołowski, Wojciech Stemplowski, Karolina Klimkiewicz-Wszelaki, Paulina Kasperska, Anna Ziółkowska

Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

Presenting author: Eliza Oleksy
e-mail: oleksyeliza@gmail.com
Tutors: prof. dr hab. Kornelia Kędziora – Kornatowska,

Introduction

Elderly falls are a very important and complex problem associated not only with physical injury, but also with psychological consequences. With age, the likelihood of falling grows rapidly. Over 30% of people over 65 and 50% after the age of 85 experience fall. In 10-25% of cases, the effects of a fall are wounds, fractures or other injuries that require long-term hospitalization. As a consequence, the quality of life of older people is significantly reduced there also may appear substantial psychosocial problems, disability and dependency on other people and even death

Aim of study

Risk assessment of falls in elderly patients with mild neurocognitive disorders.

Materials and methods

The study was conducted at The Clinic and Department of Geriatrics, Ludwik Rydygier Collegium Medicum In Bydgoszcz, Nicolaus Copernicus University. The duration of the study: *September 2015 – March 2017*. The study involved 321 participants, including 98 people assigned to the group without NCD and 223 to the group with mild NCD. Recruitment for both groups took place on the basis of specific inclusion and exclusion criteria. All participants underwent a comprehensive Geriatric Assessment including neuropsychological (MMSE, MoCA, CDT), quality of life (ADL, IDAL) and functional (Tinetti scale) tests. The level of significance was $p<0.05$.

Results:

The average Tinetti score in subscale: balance was 14.33 pts. In the control group without NCD, while in the study group in patients with mild NCD was 12.35 points. The difference was statistically significant ($p <0.001$).

The mean Tinetti score in subscale: gait was 10.81 pts. In the non-NCD group, while in mild NCD group was 9.71pts. The difference was statistically significant ($p <0.001$).

The total mean Tinetti score in the non-NCD group was 25.10 pts., while in the mild NCD group was 22.05 points. The difference was statistically significant ($p <0.001$).

The average Dynamic Gait Index (DGI) score in the non-NCD group was 19.53, while in the mild NCD group was 16.95 points. The difference was statistically significant ($p = 0.013$).

Conclusion

Patients with mild NCD have an increased risk of falls. Future studies are warranted to clarify the underlying mechanism linking NCD and falls and to establish interventions targeting NCD to reduce the risk of falls.

Obsessive– compulsive disorder. Case raport

Konstancja Jabłońska, Mateusz Grabowski

Medical University of Silesia in Katowice

Presenting author: Konstancja Jabłońska
e-mail: mateusz.m.grabowski@gmail.com
Tutors: Krzysztof Krysta,

Introduction

Obsessive-compulsive disorder (OCD) is a psychiatric disorder characterized by the presence of intrusive (obsessive) thoughts or compulsive behaviors in the patient. According to ICD-10, obsessive-compulsive disorder is classified as F42. Common activities include: hands washing, counting of things and checking to see if a door is locked. Obsessive–compulsive disorder affects about 2.3% of people at some point in their life. Rates during a given year are about 1.2%, and it occurs worldwide.

Case report

A woman patient aged 31 was admitted to The Psychiatry and Psychotherapy Department of the Silesian Medical Center of the Medical University of Silesia in Katowice diagnosed with obsessive-compulsive disorder with the prevalence of obsessive thoughts (ICD-10 - F42.0). The reason for admission to the ward was the deterioration of the mental state. Obsessive symptoms are, among others: repeated throughout the day hands washing, long baths, repeating statements and repeated asking the same questions, intrusive checking of the door lock etc., in her own apartment and in other places. The patient additionally has problems with eyesight, which makes it difficult for her to function properly. Since 2011, the patient was treated with the *Depakine chromo* in another mental health facility, but she complained about side effects in the form of weight gain. She takes currently the *Finlepsin* and the *Aciprex 10*, after which she notices alleviation of symptoms and lack of side effects. The patient participates in daily classes conducted in the day ward of the Department of Psychiatry and Psychotherapy among others: art therapy, community, music therapy, psychoeducation, relaxation and cognitive activities.

Conclusion

The patient assumes that she is ill, accepts the correct treatment and is able to recognize symptoms from normal mental behavior. Improvement in the mental state of the patient was noted. The drugs used do not bring any side effects noticeable to the patient. The patient is in good mood, actively participates in therapeutic activities and cooperates well with the staff of the ward.

Debunking myths - illegal substance use among Polish university students. Comparison of prevalence in medical and non-medical students. Determination of risk factors.

Szymon Zdanowski, Szymon Zdanowski, Paula Dybowska, Krzysztof Basiński

Medical University of Gdańsk

Presenting author: Szymon Zdanowski
e-mail: s.zdanowski@gumed.edu.pl
Tutors: Krzysztof Basiński,

Introduction

Studying medicine is for many, especially those not connected with healthcare, often synonymous with sleepless nights devoted to studying and with supposedly unmatched effort connected with finishing those studies. Such convictions are sometimes accompanied by a very harmful, usually supported only by anecdotal evidence, picture of a medical student who has to resort to narcotics in order to keep up with the pace of his studies. The following research was designed to provide empirical data on this, apparently, not in-depth investigated topic.

Aim of study

The aim of the study was to investigate the prevalence and factors associated with illegal substance use among Polish university students.

Material and methods

Data on age, gender, year of study, faculty, and use of certain psychoactive substances during studying were collected via an online questionnaire. Respondents were able to list custom substances (thus mentioned drugs were then manually classified as legal or illegal). Additionally, two 5-point Likert-like scale based questions were introduced in order to quantify actual interest in the subject of their studies and potential social pressure to choose certain faculty or to take up higher education in general. Mann-Whitney U and Chi-Square tests were used where appropriate. Logistic regression was used to determine the factors associated with illegal substance use. Database and scripts (R v. 3.4.3) are available upon request.

Results

In total, 792 university students responded to the survey; medical students comprised 34.34% (N = 272) of the sample. Students who claimed to have used illegal substances during studying had experienced more pressure to take up their studies than those who claimed otherwise (M = 2.34 ± 1.52 vs. M = 1.83 ± 1.17, p=0.016). Additionally, they were less interested in the subject they were studying (3.68 ± 1.2 vs. 4.06 ± 0.9, p= 0.039). A smaller percentage of medical students, in comparison to other students, claimed to have used illegal substances, however the difference was not statistically significant (5.51% vs. 7.78%, p=0.276). Four independent factors associated with illegal substance use were identified by means of logistic regression: male sex (OR 2.13, 95% CI 1.18-3.77), caffeine consumption during studying (OR 3.72, 95% CI 1.67- 9.94), higher degree of pressure to study at a certain faculty (OR 1.30, 95% CI 1.05-1.60) and not studying at a medical university (OR 2.38, 95% CI 1.32-4.35).

Conclusion

Although the studied sample was only a small fraction of the Polish student community, the data from this study point to an association between the faculty and illegal substance use and it seems that the association is contrary to the popular belief. What is more, the outcomes of Likert-like scale based question suggest an inverse relationship between the overall motivation to study and the need to use illegal drugs while studying. Without doubt, more research is needed in the subject.

Impact of depression on the risk of falls in the elderly.

Karolina Klimkiewicz-Wszelaki, Karolina Klimkiewicz-Wszelaki, Anna Grochowska, Wojciech Stemplowski, Remigiusz Sokołowski, Paulina Kasperska, Eliza Oleksy, Anna Ziółkowska, Natalia Sokołowska

Nicolaus Copernicus University Collegium Medicum in Bydgoszcz

Presenting author: Karolina Klimkiewicz-Wszelaki
e-mail: k.klimkiewicz87@gmail.com
Tutors: prof. dr hab. n. med. Kornelia Kędziora-Kornatowska,

Introduction

Falls of the elderly are one of the important problems of everyday life. They constitute a burden both for people who experienced them and their guardians. Epidemiological research prove that people over the age of 65 35-40% experienced a fall during the year and after 80 years of age up to 50 %. Depressive disorders are after dementia the second most frequent psychopathological syndrome in the elderly and together with it belong great geriatric problems affecting the physical functioning of the elderly.

Aim of study

The aim of the study was to assess the risk of falls in the elderly with depression.

Material and methods:

In the study were enrolled 323 patients. Two groups were selected based on a medical examination and Geriatric Depression Scale (GDS) consisting of 30 questions. The research group (I group) consisted of 59 people diagnosed with depression (mean age 77.03). The control group (II group) consisted of 264 people without depression (mean age 77.23). In both groups, a Comprehensive Geriatric Assessment was performed, which includes the Tinetti Test that allows to assess the risk of falling in people over 60 years of age. The study was conducted at The Clinic and Department of Geriatrics, Ludwik Rydygier Collegium Medicum In Bydgoszcz, Nicolaus Copernicus University. The results were analyzed statistically ($p<0,05$).

Results

The mean points of the GDS scale in the research group was 13.24 points. While in the control group 7.41 points. The mean Tinetti score in subscale: "Balance"was 12.14 pts. in the group of people with diagnosed depression (group I) and in control group (group II) it was 13.12 pts. This difference was not statistically significant ($p = 0.055$). The mean Tinetti score in subscale: "Gait" in the I group was 9.52 points. and in the II group 10.16 points. The difference was statistically significant ($p = 0.018$). The total mean Tinetti score in people from the I group was 21.75 points. In the II group the result was at the level of 23.21 points. The difference was statistically significant ($p = 0.026$).

Conclusion

Our study draws attention to the fact that older people with diagnosed depression are more likely to fall. This testifies to the relationship between physical functioning and emotional state of older people. Depression is associated with suffering, deterioration of the quality of life, and impairment of physical activity. Rapid diagnosis and the inclusion of appropriate treatment can prevent the increased risk of falls and its negative consequences in people with depressive disorders in the elderly.

The evaluation of the usefulness of measuring hypocretin-1 in patients with suspected narcolepsy in diagnostic uncertainty

Bartosz Szmyd, Agata Gabryelska

Medical University of Lodz

Presenting author: Bartosz Szmyd
e-mail: bartoszmyd@gmail.com
Tutors: Piotr Białasiewicz, Renata Riha MD, PhD

Introduction

Excessive daytime sleepiness (EDS) is a common sleep-related complaint. Continuous EDS is a diagnostic necessity for a narcolepsy - the disorder characterized by decreased ability to control sleep-wake cycles. One of the pathophysiologies associated with narcolepsy is a loss of hypocretin-1 (orexin) secreting neurones in the hypothalamus. This specific kind is called narcolepsy type 1 (NT1). The diagnosis criteria of NT1 are: EDS for at least 3 months and cerebrospinal fluid (CSF) hypocretin-1 concentration lower than 110 picograms/mL.

Aim of study

The aim of the research was to evaluate the usefulness of measuring Hypocretin-1 in patients with suspected Narcolepsy in diagnostic uncertainty

Material and methods

The study included 27 patients of Scottish sleep clinic (Department of Sleep Medicine, University of Edinburgh) presenting excessive daytime sleepiness (EDS) to determine their uncertain narcoleptic status. All of them were examined in: extensive interview, polysomnography followed by multiple sleep latency test (MSLT), two weeks of actigraphic and sleep log recordings. Additionally, HLA-typing and a lumbar puncture to measure CSF hypocretin-1 levels were carried out.

Results

18 patients had decreased hypocretin-1 level in CSF, which is 67% of whole group. Final diagnoses among these patients were: NT1, NT2 and Idiopathic Hypersomnia. Performed analysis of predictive potential of orexin measurement in NT1 diagnosis revealed: positive predictive value (PPV) equals 72%, specificity: 64%. Both, negative predictive value (NPV) and sensitivity, are 100%. Moreover, decreased orexin level was observed among patients with depression episode(s) in past medical history, who are not affected by narcolepsy (n=2).

Conclusion

Measuring CSF Hypocretin-1 is useful parameter in NT1 detection (100% NPV and sensitivity). Unfortunately, due to lower PPV and specificity it shouldn't be used to confirm NT1 among patients with complex clinical course, especially history of depression.

The association between affective temperaments and selected psychological constructs

Mikołaj Kopka, Aleksander Kalukiewicz

Medical University of Lodz

Presenting author: Mikołaj Kopka
e-mail: mikolajkopka7@gmail.com
Tutors: Tadeusz Pietras,

Introduction

Affective temperaments typology is a new concept devised to describe features, which are subthreshold to different mood disorders (e.g. unipolar or bipolar).

Aim of study

The aim of the study was to assess the relationship between affective temperaments and emotional intelligence, Strelau's formal characteristics of behavior, coping styles in stressful situations, anxiety, depression and chronotype.

Material and methods

89 students of the Faculty of Medicine were surveyed with a battery of questionnaires: the Beck Depression Index (BDI), State-Trait Anxiety Inventory, Coping Inventory for Stressful Situations , Formal Characteristics of Behaviour – Temperament Questionnaire-Revised Version , Emotional Intelligence Questionnaire (INTE), Chronotype Questionnaire, Temperament Evaluation of Memphis, Pisa, Paris and San Diego – Autoquestionnaire version. A forward stepwise linear regression model was created for prediction of each affective temperament dimension.

Results

A rise of hyperthymic temperament score was predicted by elevated Activity and Endurance , INTE, Task-Oriented Coping and by decreased Emotional Reactivity .

A rise of irritable temperament was predicted by elevated Emotion-Oriented Coping , Endurance, trait anxiety .

A rise of anxious temperament was predicted by elevated Emotion-Oriented and Task-Oriented Coping and BDI.

A rise of depressive temperament was predicted by elevated trait anxiety, Task and Emotion-Oriented Coping, Reactivity and by decreased Activity, INTE factor I.

A rise of depressive temperament was predicted by Emotion-Oriented Coping, BDI and INTE factor I.

Conclusion

Affective temperaments are associated with emotional intelligence, formal aspects of behavior, coping styles In stressful situations, anxiety, depression. No association between affective temperaments and chronotype was found.

PUBLIC HEALTH 1

COORDINATORS
Julia Olejniczak
Martyna Plisiecka

JURY
Dominika Cichońska, PhD
Karolina Czarnecka, PhD
Gabriela Henrykowska, PhD
Professor Dorota Kaleta, MD, PhD
Magdalena Zawadzka, PhD

The formation of motivation for healthy among first-year medical students

Yuliia Yaduta

Sumy State University

Presenting author: Yuliia Yaduta
e-mail: yuligomers@icloud.com
Tutors: Antonina Biesiedina

Introduction

Realizing that for today the health of children and young people is a prime indicator of qualitative development of the population, confirms the necessity of activating health-oriented activities in the interaction of education and health care. Many organizations, including the World Health Organization, UNICEF, UNESCO, the International Union for Health Care and Health, and the International Health Program, are involved in their activities.

Aim of the study

Is to provide theoretical substantiation and determination of the motivation of a healthy lifestyle among first-year medical students.

Materials and Methods

To achieve this goal, the following research methods were used: analysis of scientific and methodological literature, questionnaires, statistical methods.

Results of the research and their discussion.

Solving the set of experimental tasks was carried out on the basis of Sumy State University. The study involved 98 students 17-18 years old.
In the context of our study, we have proposed life-affirmation questionnaires, health-fitness questionnaire, self-assessment of personality, adaptation to the beginning.

According to the results of the research, it was determined that the respondents were first appreciated by the family (53%), in the second city - a scholarship (24%), then friendship (16%) and only 4% of respondents gave priority to maintaining health.

Conclusions

According to the results of the study, it can be argued that priority courses for first-year medical students are family and scholarships. This suggests that first-year students rely heavily on their parents, both in the financial sector and in friendly relationships. However, the role of relations with the opposite sex is not devalued either. Also, P. Dragoi's assertions about life strategies of student youth and the value component were convinced: young people are often guided by young people in designing their own plan of life for such purposes as personal growth, career achievements, etc. In our case, this is the desire to receive a scholarship.

JUVENES PRO MEDICINA
ŁÓDŹ, POLAND

Endurance level of foreign university students in different types of measurements

Leila Rose Van Zuydam

University of Debrecen

Presenting author: Leila Rose Van Zuydam
e-mail: leilarvz@yahoo.com
Tutors: Éva Csepregi

Introduction

According to several studies, fitness levels of university students is commonly low, and they are at risk for cardiovascular disease (CVD).

Aim of the study

The aim of the present study was to assess the fitness level and the CVD risks in foreign university students at the University of Debrecen. A further aim was to analyze the results of commonly used fitness tests to see which test gives the most relevant result according to the WHO guidelines.

Material and methods

Targeted subjects were foreign students of the University of Debrecen Faculty of Public Health. The total number of students were 27 (12 males, 15 females, mean age was 23.0±3.2 (min17; max 32). Demographic questionnaire including active lifestyle and subjective fitness level were used. Body assessment of height, weight, resting blood pressure and pulse rate, BMI, WHR and body fat percentage were measured or calculated. Fitness level assessment was performed by 4 different tests: Andersen, Beep/shuttle run, Cooper and YMCA Step Bench tests. However, due to incompletion the total number of participants varied in different tests.

Results

Some students over ranked their fitness level in the questionnaire. In the Andersen test (n=25) everyone had average or above fitness levels. In the Beep test (n=25) mostly everyone had very poor fitness levels only with 7 students average or above. Cooper test (n=25) indicated that 11 students were below average, 3 students average and 11 students above average fitness levels. In the YMCA Step Bench test (n=27) 12 students had below average, 15 students average or above fitness levels. All tests show that fitness needs to be improved and that some students are at risk of CVD within the examined group.

Conclusions

The main reason for the differences between the results of the fitness tests is that the tests measure different types of aerobic and anaerobic endurance and are influenced individually by body composition and type of dominant muscle fiber. The Cooper test seems to be the best fitness test in this age group, but it is difficult to decide which test gives an accurate representation of clinical fitness level.

Identifying the risk factors of hypertension among neighborhoods in ethnic uyghurs from xinjiang, northwest china

Muhetaer Yilimire

University of Debrecen

Presenting author: MUHETAER YILIMIRE
e-mail: elmirauyghur@gmail.com
Tutors: Nagy Attila Csaba M.D., Ph.D.

Introduction

Hypertension is one of the most important leading causes of death worldwide and its prevalence is increasing. Although there are many studies related to risk factors, prevalence, and management of hypertension throughout China, hypertension among minority groups are not well studied.

Aim of the study

Therefore, the aim of this study is to address what factors are the main reasons for developing hypertension among Uyghur ethnic groups, by mainly focusing on their lifestyles.

Materials and Methods

A cross-sectional study was performed, questionnaire based survey was conducted and measurement of blood pressure, waist circumference (WC), weight, and height were made. Chi-squared test and multivariate logistic regression were used to identify the influencing factors of hypertension. The study took place in Guo HanYuan Neighborhood, Ürümqi, Xinjiang, China.

Results

Out of 109 eligible subjects, 100 participated, so the response rate was 91.74%. The prevalence of hypertension among total study group was 40%. Among them, 53% were males and 47% were females, the majority (46%) was middle-aged. Out of the total study group, 21% were in primary and lower education, 54% were in the low-income category (less than ¥3000/ €385/ month), about 18% had a family history, according to the BMI, 36% overweight and 18% obese. Abnormal WC was detected by around 1/3 (31%) of the studied population. Related to lifestyle factors, 30% of the population considered themselves as heavy salt consumers, 16% were heavy smokers, 45% were alcohol consumers, 55% were physically active, 18% had diabetes, 19% had atherosclerosis. Of the studied subjects, 8.11% with a family history had hypertension ($p=0.045$), 62.50% of the hypertensive population regularly checked blood pressure at doctor's office ($p=0.004$). Significant influencing factors of hypertension were age (OR=1.12, $p<0.001$), atherosclerosis (OR=5.69, $p=0.025$) and WC (OR=3.23, $p=0.033$).

Conclusion

The prevalence of hypertension among Uyghurs was high. Age, family history, obesity, regular blood pressure checkup, atherosclerosis, and diabetes were associated with hypertension. Public health interventions are needed in order to increase awareness, management, as well as prevention of hypertension and related diseases.

What do you know about osteoporosis? – Assessment of osteoporosis awareness in the Polish population

Małgorzata Tąpolska, Barbara Jóźwiak, Agnieszka Lewecka, Wiktor Schmidt, Maciej Spałek

Poznan University of Medical Sciences

Presenting author: Małgorzata Tąpolska
e-mail: malgorzata.tapolska@gmail.com
Tutors: Katarzyna Pawlak-Buś

Introduction

Osteoporosis is an emerging issue worldwide, especially in developed countries primarily because of raising life expectancy and population aging. Nonetheless, there are many conditions that may contribute to osteoporosis which are modifiable. Awareness of known risk factors and potential complications is of key importance not only for medical professionals, but also whole society to implicate proper prophylaxis.

Aim of the study

The aim of the study was to evaluate knowledge about osteoporosis and select demographic groups requiring the most careful education within the Polish population.

Materials and methods

We conducted an authorial online survey among 160 social media users. The questionnaire included eighteen questions dealing with demographics, osteoporosis definition, symptoms, risk factors, prophylaxis and treatment. Respondents were assigned scores ranging from 0 to 9 reflecting the number of correct answers to single choice questions. Statistica v12 and Microsoft Excel were used as tools for conducting the calculations. U Mann-Whitney test was performed to determine whether certain groups of respondents differ significantly in obtained score. Statistical significance in our study was defined as $p<0,05$.

Results

The mean score of all respondents illustrating general knowledge was 5,425. Premenopausal women achieved significantly higher score than postmenopausal women (6,05 vs 4,43, $p<0,05$). University students and postgraduates reached greater score as compared to those with lower education (5,71 vs 4,35, $p<0,05$). Place of residence, gender and being in a risk group did not significantly influence the result. Interestingly, when asked about the main source of knowledge almost one third selected Internet while less than 10% chose a physician. 41% of respondents were not aware that osteoporosis may be secondary to drugs. Over a half of respondents selected incorrect answer when asked about diseases causing secondary osteoporosis. Only 5% did not know any symptom of osteoporosis and the vast majority answered correctly that prophylaxis should be instituted in the early years of life.

Conclusions

Our research revealed that level of osteoporosis awareness is insufficient for effective population-wide prophylaxis, especially among postmenopausal women who are at highest risk of developing this condition and its complications. Younger population tends to be more aware, probably due to Internet as the main source of information. Nevertheless, Internet-based knowledge is often not evidence-based and can be confusing. Our study shows that medical professionals should educate patients more about osteoporosis to provide proper and relevant information.

The priority directions of health promoting schools in Eastern Europe

Antonina Biesiedina

Sumy State University

Presenting author: Antonina Biesiedina, candidate of pedagogical science
e-mail: a.besedina@med.sumdu.edu.ua

Introduction

Ukraine, like other countries of Europe, takes part in overcoming this problem, in the search for effective mechanisms for the implementation of health-saving and health forming technologies. So, today school of Eastern countries such as Poland, the Czech Republic, Hungary, Ukraine and Russia participate in the project activities of the world health organization «The European network of health promoting schools» accorfing to which all schools should become health promoting Schools and later the Schools of health. But due to the different socio-economic situation of the countries, the development of these schools has different priorities, so for better performance it is necessary to study the experience of European countries.

Aim of the study

Purpose of the article is to study the priority directions of health promoting activity of health promoting schools in the countries of Eastern Europe: Poland, the Czech Republic, Hungary, Ukraine and Russia.

Research methods

Analysis of scientific and theoretical and methodological literature.

Result

The priority directions of health promoting schools activity for improving the health in Eastern European countries are under review: Poland and Russia – wellness-sports, for the Czech Republic and Hungary – preventive, for Ukraine – preventive-educational. The preventive line provides the foundation of the preventive measures system and impact of risk factors on the development of diseases; improving-sports complex activities as sports oriented and the wellness on elimination of expressed risk factors, and the complex of actions for the patients' rehabilitation; preventive-educational direction is considered from the point of view of the benefits of the educational component (motivation on health maintenance, preventive care). The special attention is paid to the analysis of theoretical and legal bases of national networks of health promoting schools European countries activities. The main aspects are determined and legislaed including: goals and objectives of the establishment and activity of the European network of health promoting schools; the main directions of its activity; forms and methods; management structure of activity and interaction and cooperation within the European network of health promoting schools. Determined that the idea of the project of the European network of health promoting schools is a further development of the WHO strategy, developed in the Ottawa Charter, the programme «Health for all», «Health – 2020» and «Europe – 2020».

Conclusion

Thus, the analysis of normative-legal documents of the activities of health promoting schools in the Eastern Europe countries and analysis of the research project «Student youth's health and behavioral orientation», has allowed to define priority directions of their activity: for Poland and Russia – wellness-sports, for the Czech Republic and Hungary – preventive, for Ukraine – educational.

Vaccination attitudes of Polish university students

Maciej Pawłowski

Lodz Medical University

Presenting author: Maciej Pawłowski
e-mail: macpaw3@wp.pl

Introduction

Vaccinations are the most effective and the safest way to protect against many dangerous infectious diseases. Over the last decades in Poland, the incidence of many infectious diseases has dropped considerably, due to the introduction of vaccination on a massive scale and the increase in the country's welfare has allowed the financing of more vaccinations for a larger number of diseases and for a larger social group. Unfortunately, the opponents of vaccination are becoming more present in the public sphere, who, basing mainly on unconfirmed evidence, try to distract society from vaccinating themselves or their children.

Aim of the study

The aim of this study was to present the opinions of university students on immunization in Poland.

Material and methods

The research covered 1486 students of Polish universities, residing and studying in various Polish voivoidships. They provided answers to an online questionnaire (of 31 questions), which was prepared by the author of the study. The students were asked about their opinion on the mandatory vaccinations, if they can cause autism, contain high amounts of thiomersal, are made from the aborted fetus, can cause immunodeficiency. They were also asked how do they assess their knowledge on vaccines and where do they look for the information about immunization. The study was conducted in first half of 2018. The results of the survey were developed using Excel Windows and STATISTICA 10.0, the test χ^2 (chi – square) and Fisher's exact test.

Results

The majority of respondents were women. The students before admission to university lived mainly in cities up to 100,000 inhabitants, did not have children and used at least several times the health care services in the last few years. The majority of respondents have a positive opinion on vaccination, although the data is worrying, because the percentage of people who have doubtful or critical opinions is significant. For example, only 48.4% respondents are satisfied with the way the immunization works in Poland, 8% think that vaccinations reduce immunity, 7% would refuse at least one mandatory vaccination in their child. Less than 55% of respondents assess their knowledge about vaccination as at least good, most of the knowledge comes from medical personnel. Some of them claim that vaccines can cause autism, contain large amounts of mercury, are produced from human organs and anti-vaccine movements have positive impact on the society. Vaccination against: tuberculosis, hepatitis B, MMR and DTP are the most important for the respondents.

Conclusion

Vaccinations are an extremely important method of fighting infectious diseases. It is very important that as many people as possible get vaccinated. Unfortunately, the number of opponents of vaccination has been increasing over the recent years. They are still the minority, but more often become present in the public sphere also among the students of Polish universities.

Foreigners' opinions on functioning of Polish health care – a survey study

Maciej Pawłowski

Lodz Medical University

Presenting author: Maciej Pawłowski
e-mail: macpaw3@wp.pl

Introduction

Due to the joining the European Union and as a result of globalisation more and more foreigners come to Poland to work, as the tourists and for other purposes, sometimes settling in Poland. They also use the Polish health care system during they residence in Poland. The Poles usually complain about their health care system, but there is a lack of opinion of the foreigners. This detailed internet survey in English for the foreigners living in Poland will help the describe better their satisfaction of the Polish health care system as well as their opinions, comments that will help to improve the system in the future.

Aim of the study

The aim of the study was to evaluate the Polish health system by the foreigners who used it during their stay in Poland.

Material and Methods

486 respondents (foreigners that used Polish health care services) answered the questions in the English-language questionnaire, made by the author of the study which was published in March – June 2017 in the Facebook discussion groups of foreigners living in Poland. The results of the survey were developed using Excel Windows and STATISTICA 10.0, the test χ^2 (chi – square) and Fisher's exact test. The study has the positive opinion of Bioethical Committee of Lodz Medical University.

Results

The respondents gave positive opinions mainly on the private health care – as really fast, good, well-equipped, with friendly doctors speaking English. The negative opinions concerned mainly public health care services - lack of good knowledge of English among the medical staff, long waiting time to make an appointment with a doctor, the poor conditions of the buildings and the equipment, sometimes discrimination based on the nationality. Foreigners used the health care services for many reasons – from the fever to fracture etc. The respondents were also asked for their origin, sex, time that they live in Poland and if they use public or private health care service.

Conclusions

There were many opinions about Polish health care system, both negative and positive. The negative ones should be taken into consideration to improve the Polish health care system so as to be more friendly for the foreigners.

The influence of various factors on seniors` attitude towards the vaccination

Aneta Stabryła, Joanna Sawicka, Elżbieta Trzyna, Adriana Liszka, Julia Zarańska, Joanna Wiśniewska

Rzeszów University

Presenting author: Aneta Stabryła
e-mail: anetastabryla@wp.pl
Tutors: Dr n. med. Hanna Czajka

Introduction

Vaccination is a scientific phenomenon which has revolutionized the world. The more negative opinion about vaccinations can be observed which may be a result of general knowledge about them (their aims, rules of functioning etc.) as well as the ways of finding out the necessary information and the assessment of its reliability. The observed decrease in vaccinations is the effect of propaganda of the unfavourable milieu.

Aim of the study

The research has been made in order to study seniors' opinions about vaccinating themselves and their relatives. The general knowledge about vaccinations was checked as well as the attitude towards them. An analysis of what has influence on their attitude was also important.

Materials and methods

The research has been made with forty two people from Polish Teachers Association being questioned – Pensioners Club in Krakow aged 50-70, with secondary education (28%) and higher education, where women constitute 95%. An anonymous survey was used consisting of the metric with six questions concerning the respondents as well as 15 questions of single choice.

Results

The respondents have an influence on decisions concerning the vaccination of their own children, 97% of them had offspring. All respondents vaccinated their children in accordance with the vaccination programme and indicated the PG doctors as the most reliable source of knowledge about them. 81% of the respondents got positive opinions about vaccinations from POZ institutions, and negative opinions were mainly obtained from doctors and friends (37% respectively). 57% of the respondents answered the question concerning the smallpox eradication correctly and 80% assessed the vaccinations may be the cause of autism. Within the last three years 60% of respondents vaccinated themselves and 48% vaccinate against flu every year.

Conclusions

It may be stated that the respondents were not under the influence of the unfavourable milieu but some impacts on their opinions about vaccinations are noticeable. Seniors use traditional credible sources of information. Seniors` knowledge about vaccination reflects the high rate of seasonal vaccinations against the flu.

Prevalence of asthma and allergic diseases among children aged 13-14 in Katowice

Krzysztof Kocot, Agnieszka Jarosińska, Justyna Gawlewicz, Joanna Lenart

Medical University of Silesia

Presenting author: Krzysztof Kocot
e-mail: kjkocot@gmail.com
Tutors: Grzegorz Brożek

Introduction

The occurence of childhood asthma and allergic diseases is changing. According to GINA Global Asthma Report asthma is present in 5-10% of children in Poland, and even 14% of the world's children experience asthma symptoms.

Aim of the study

The aim of the study is to assess the prevalence of asthma, respiratory symptoms and allergic diseases in children aged 13-14.

Methods

The study was carried out as part of the international, multi-center cross-sectional study GAN (Global Asthma Network). Questionnaires were directed, via schools, to all children aged 13-14 living in Katowice.

Results

Responses were obtained from 1314 students (response rate: 82.1%): 45.9% of the study group were boys (M) and 54.1% girls (F); the average age was 13.6 ± 0.5 years. Asthma was declared by 8.8% of respondents (M: 9.7%, F: 7.7%, p=0.2) – in case of 7.5% of the children asthma was confirmed by a doctor (M: 8.7%, F: 6.2%, p=0.1). 59.6% of children with asthma confirmed by a doctor took inhaled medications (M: 55.8%, F: 61.4%, p=0.4), while 40.4% took orally administered drugs (M: 32.7%; F: 50%; p = 0.7). Chest wheezing ever was declared by 18.4% children (M: 13.9%, F: 22.3%, p <0.05), 10.5% of the subjects declared chest wheezing in the last 12 months (M: 7.2%, M , F: 13.2%, p <0.05): 1-3 incidents were declared by 75%, 4-12 by 14%, over 12 by 11%. In 16.7% (M: 11.5%, F: 21.1%, p <0.05) there were wheezes during or immediately after exercise. 27.8% of children suffered from allergic rhinitis (M: 25.5%, F: 29.6%, p = 0.2), in 17.7% of children it was confirmed by a doctor (M: 18.7%, F: 16.9%, p = 0.4). Eczema in the past was declared by 7.2% of children (M: 3.7%, F: 9.9%, p <0.05) - in 4.1% of subjects, eczema was confirmed by a doctor (M: 1.7%, F: 6.1%, p <0.05).

Conclusions

The incidence of asthma was higher in boys than in girls. Wheezes and allergic diseases were more frequent among girls.

The physical development as the indicator of the urban and rural children's state of health

Yana Holovko

Sumy State University

Presenting author: Yana Holovko
e-mail: zavadska.mm@gmail.com
Tutors: Zavadska Marina

Introduction

Nowadays, the deterioration in the health of children remains a concern. Recently, the physical development is known as the main criterion for the children's health, reflecting changes in the social and environmental conditions of life.

Aim of the study

The purpose of the work is to assess the characteristics of the physical development as an indicator of urban and rural children's state of health.

Materials and methods

247 children (5 - 7 years) were examined, somatometric parameters were determined. The data of the medical documentation was used, the questioning of parents of children was carried out.

Results

Based on the results of medical examinations, the number of children of the 1st group of health was recorded among the children of rural areas in comparison with the urban schoolchildren (40.74% and 27.66% respectively), while those of the third group were more established in the city than in the village. This reflects a decrease of functional capabilities of the organism among children of urban areas. Sexual comparisons found that the proportion of girls in the III group of health is less than boys'. This highlights a smaller number of chronic diseases among girls ($p < 0.05$). The analysis of the dynamics of anthropometric indicators showed that over the period from 5 to 7 years, the large growth in body length and circumference of the chest were recorded in the female part, comparing to the male one (by 1.45 cm and 1.32 cm, respectively, $p < 0.05$) . The greatest increase in body length is observed in the urban boys of the city than in therural boys, and among the rural girls there is a significantly higher value of this indicator than in the urban girls. The comparison in terms of the body mass index was significantly higher in the city dwellers than in the rural residents, both in boys and girls.

The established differences can be explained by the greater motor activity of the villagers than in the townsmen. In particular, the children of rural areas spend time outside more than two hours (50.88 ± 2.11 %%), while the city residents - 37.89 ± 1.67 %%, which in turn positively affects the physical development of preschool children and first-graders from the countryside. In addition, a significant part of their free time, boys and girls from urban areas are assigned to games or activities on the computer (33.68 ± 1.84% and 22.11 ± 2.02% respectively). Much less time for this kind of activity is spent by children in rural areas .

Conclusions

Thus, the results of the study indicate a negative trend in the physical development of children in urban areas. The detection of abnormalities of children allows to develop and implement an effective system of prevention of activities aimed at improving the children's population at the donorological stage.

Does a beginning medic vaccinate?

Wojciech Timler, Rafał Nowakowski

Medical University of Łódź

Presenting author: Wojciech Timler
e-mail: wojciechtimler@gmail.com
Tutors: Dariusz Timler

Introduction

World Health Organisation enjoins vaccination with an antiflu vaccines. Yearly vaccine is a basic form of defending organism from a common influenza virus. It is estimated that in Poland there are around 4 400 000 incidents of influenza annually. Currently tetravalent vaccines are recommended instead of trivalent ones. [1] It is said that it might decrease sickening for about 1.6 million, hospitalisations for 37 300 and deaths for 14 800 in European Union during this decade [2].

Aim of the study

The purpose of the study was to evaluate protection of young medics from the flu virus infection.

Materials and methods

The study was prosecuted with a written, anonymous survey on a group of 100 people. The group taken into account were students of medical faculties and physicians up to 5 years of work. Respondents were asked to answer questions concerning regularity of their antiflu vaccination and their intentions of undergoing future vaccinations. Moreover awareness of necessity of antiflu and other vaccinations was evaluated.

Results

Studied group consisted of 8 physicians (8%) and 92 medical students (92%), including 57 women and 43 men, aged 26 ± 6.1 years. 69 (69%) interviewees do not vaccinate at all, and only 8 (8%) of them do it regularly – each year, 23 (23%) do it occasionally. Only 9 respondents were vaccinated this year and 12 (12%) respondents are planning vaccination this year. Most frequent answer (19%) for a reason of not vaccinating is that they do not see a reason to do so. Other answers appear such as: lack of time (10%), sense of ineffectiveness (8.7%), fear of complications after vaccination (7%), financial reason (4%). Moreover 99 respondents (99%) declared that they are vaccinated against tetanus which is obligatory. Because of small number of young physicians group it was not statistically significant to compare that group with medical students.

Conclusions

1. Most beginning medics do not vaccine against influenza.
2. Harmfulness of antiflu vaccines and lack of own need is mentioned as a reason against vaccination among medics.
3. It is important to promote antiflu vaccines in population of young medics.

Review of medical error cases directed to the Institute of Forensic Medicine in Krakow in 2014-2015.

Piotr Przybycień, Aleksander Dubiel, Mateusz Michalak, Filip Ratusznik, Aleksandra Winiarska

Jagiellonian University - Medical College

Presenting author: Piotr Przybycień
e-mail: przybycien.piotr@gmail.com
Tutors: Tomasz Konopka

Introduction

Medical malpractice is defined as action (negligence) of a medical practitioner pertaining to the processes of diagnosis and therapy divergent from the medical knowledge as available to the said practitioner. Nowadays assessment of alleged medical errors makes up more and more cases of medico-legal reporting each year. Clinicians from different specializations cooperate with courts or the prosecutor's office in giving the opinions.

Aim of the study

The aim of the study was to determine the percentage of opinions in years 2014-2015 in the Institute of Forensic Medicine (IFM) in Krakow confirming an occurrence of a medical error with subsequent distribution into types of cases (criminal, civil) with particular emphasis on medical specialties.

Materials and Methods

The first stage of the study was to separate malpractice opinions from all the IFM cases in years 2014 and 2015. Then, each individual opinion was processed, noting whether the presence of a error had been determined. Medical specialty of the defendant, case category and the province where it had taken place were also noted. We also took interest in different types of medical errors and possible causes of their occurrence.

Results

In all, 251 cases were included in the study, 197 (78,5%) were criminal cases. Respectively, 54 (21,5%) were civil cases. In 23,1% of given opinions, an irregularity or error was confirmed (30 cases in 2014 and 28 in 2015). Three specialities most frequently surveyed are: surgery (66 cases), obstetrics and gynecology (37) and cardiology (29). The presence of a medical error was most likely to be determined in forensic opinions pertaining to: general surgery (25,8% of all confirmed errors), obstetrics and gynecology (21,6%) and cardiology (20,7%).

Conclusions

In surgical specialties like general surgery or OB/GYN the statistical risk of an occurrence of malpractice is the highest. Irregularities may include misdiagnosis (or a faulty process of diagnosis), surgical and procedural errors, neglectful handling of medical documentation or concern a substandard organisation of medical care.

Health Promoting activity in Ukraine

Iryna Simonenko, Antonina Biesiedina

Sumy State University

Presenting author: Iryna Simonenko
e-mail: irina_simonenko@i.ua
Tutors: Antonina Biesiedina

Introduction

World Scientists have long concluded that the main direction towards health is formation of healthy way of life, from early childhood. Hence the invaluable role of education in solving planetary problems preservation of human health. In this way, the school can teach children to form a valuable attitude to health, to make level and quality of life higher. Most effectively it can be done in health promoting schools. We consider that the use of positive European experience of the national health promoting schools improves their work. In order to improve public health in Ukraine by appropriate action, namely: participation in the international project «European Network of Health Promoting Schools».

Aim of the study

The aim of our researching is to analyze development of an educational institution is the subjects of the educational process, i.e. students, teachers, medical workers, social-pedagogical workers, psychologists, parents and community.

Research methods

Analysis of scientific and theoretical and methodological literature.

Results

We agree with S. Kirilenko that the health-oriented activity of the Health School should be based on the following principles:
1) democratization - means that the activities are based on the cooperation of teachers, students, parents in solving health-preserving tasks, the adoption of such forms that contribute to the formation of a value attitude to the health of the subjects of the educational process;
2) humanization – means the perception of the student's personality, his life and health, as well as the life and health of teachers, all employees of the educational institution as the highest social values; the recognition of their right for safe conditions of study and work; the formation of healthy relations between pupils, teachers and parents, the establishment of a culture of relationship between pupils and teachers;
3) individualization and differentiation – presuppose taking into account the physical, mental, social and spiritual development of students, their social activity;
4) integration – means the combination of efforts of teachers, families and the public in shaping pupils' cognitive abilities on the basis of awareness of health as a value;
5) the principle of taking into account the interests and needs of all subjects, which requires that in the process of organizing health-oriented activities the interests, demands and needs of all the participants - students, pedagogues, parents - are taken into account [5].

Conclusions

The implementation of these principles is carried out in the process of health-oriented activities at the lessons, during extracurricular and out-of-school activities of pedagogical and student groups, parents, public figures, members of children's and youth organizations operating in educational institutions.

"Unhealthy preoccupation with eating healthy food" - analizing nutrition among polish students

Mateusz Porwolik, Iga Florczyk, Maciej Gaździk, Weronika Kmiecik, Marta Grygiel

Medical University of Silesia

Presenting author: Mateusz Porwolik
e-mail: pporwolik@gmail.com
Tutors: Tomasz Męcik-Kronenberg

Introduction

First time described by Steven Bratman in 1997, orthorexia nervosa become more and more popular in today's world, filled with dietetician and fittness coaches. Despite not being classified in ICD-10, we should pay more attention to this eating disorder.

Aim of the study

The aim of our study was to assess eating habits and lifestyle within the polish students population and to check whether orthorexia occurs among them.

Materials and methods

3560 students from 45 polish universities participated in the research. They were asked to fill in the original and validated questionnare 'ORTO - 15' by Donini. The authorial survey included 24 questions, while 'ORTO - 15' included 15 questions both pertaining to eating habits.

Results

The biggest amount of points collected in the 'ORTO-15' questionnaire was 57, the lowest was 18 and the medium result was 38,7 ± 8,62 . 1923 people gained result below 40 points, what is connected with increased tendency to fall down with orthorexia. Factor which have the biggest influence on gaining lower score in the survey were: being long interested in healthy eating, spending more money on groceries, not eating meat, reading the labels and regular meal consumption. On the other hand, age, weight, BMI and amount of meals per day have not significant impact for ortorexia tendency.

Conclusions

There exist a predisposition to falling into orthorexia among students of polish universities. According to this fact, we consider that more attention should be paid to the problem of orthorexia, because it could be as dangerous as others eating disorders.

Do polish university students realise consequences of unprotected intercourse?

Mateusz Porwolik, Maciej Gaździk, Iga Florczyk, Maciej Bugajski

Medical University of Silesia

Presenting author: Mateusz Porwolik
e-mail: pporwolik@gmail.com
Tutors: Tomasz Męcik-Kronenberg,

Introduction

Sexually Transmitted Infections are present the most in people in the age of 19-24. That is why young societies should be properly educated before their start sexual life.

Aim of the study

Our aim was to asses which factors connected with sexual life of polish students could contribute to spreading STIs among them.

Material and methods

10789 students took part in our research, most of them (70,1%) were women. Participants were asked to fill the original questionnaire which consisted questions involving risky sexual behaviors, awareness of Sexually Transmitted Infections and opinion about sexual education in Poland.

Results

Among all participants, 76,6% had sexual initiation. 20,2% of interviewees admitted to having adventitious sex without condom, while 29,8% of them claim to underwent casual sexual intercourse after alcohol consumption. 5,2% of students claimed falling down with STI in the past. Mean score from STIs' knowledge test was 64,7% for women and 62,3% for men. 90,8% of students determine their knowledge as insufficient and report a need of improving sexual education in polish schools.

Conclusions

Students present a tendency to risky sexual behavior, awareness in the field of STIs among students society in Poland isn't enough such as having casual sex without condom or after alcohol consumption. Taking into consideration all that facts, we consider that improving professional classes from sexual education in Poland could contribute to boosting knowledge of STIs and reducing number of STIs' cases among youngsters.

What are patients' fears towards plastic surgery?

Aleksandra Wieprzycka, Aleksandra Wieprzycka, Maciej Gaździk

Śląski Uniwersytet Medyczny z oddziałem lekarsko - dentystycznym w Zabrzu

Presenting author: Iga Florczyk
e-mail: aleksandra.wieprzycka@gmail.com
Tutors: Dr n. med. Tomasz Męcik-Kronenberg

Introduction

Plastic surgery, as a dynamically developing field of medicine brings many advantages in terms of improving self-esteem, the range of physical capabilities and the health of the patient.

Aim of the study

The aim of the study was to evaluate factors that have influence on making decision on plastic surgery for women.

Materials and methods

Our investigation covered 100 woman that were treated with non invasive estetic medicine procedures in Clinic in Knurów. Patients assessed the willingness to make a decision and also they evaluated their body parts on a scale of 1-5.

Results

The average age of patients was 39.39 ± 10.73. The patients estimate their abdomen (2.91 / 5 ± 1.36) and skin condition (2.95 / 5 ± 0.91) worst. Patients with higher BMI assess their appearance significantly worse (R spearman = -0.3, $p < 0.05$). Patients would most like to change the following areas of the body: skin condition (77%), thigh (64%), abdomen (62%), eye area (60%), breast (57%), cheeks (55%), buttocks (55%)), forehead (53%). They decide to: feel better with theirselves (100%), look better (98%), increase self-confidence (70%) to maintain a youthful appearance (69%). They fear the most: the need to repeat the procedure (71%), unsuccessful course of surgery (69%), complications of surgery (67%), long-term effects of surgery (64%).

Conclusions

Woman are not satisfied with different bodies' parts. Major fear is not the price but doubts pertaining to after-effects of operation. Patients would undergo different types of procedure mostly in order to improve their own wellbeing.

PUBLIC HEALTH 2

COORDINATORS
Julia Olejniczak
Martyna Plisiecka

JURY
Dominika Cichońska, PhD
Karolina Czarnecka, PhD
Gabriela Henrykowska, PhD
Professor Dorota Kaleta, MD, PhD
Magdalena Zawadzka, PhD

Comparative analysis of hydroxymethylfurfural (HMF) concentration in honey samples from local apiary and retail stores

Mateusz Grabowski, Konstancja Jabłońska

Medical University of Silesia in Katowice

Presenting author: Mateusz Grabowski
e-mail: mateusz.m.grabowski@gmail.com
Tutors: Jarosław Barski

Introduction

Honey for generations has been used for health and healing purposes. Honey is a well-known and valued raw material produced by honey bees. Due to its beneficial health properties it is considered as a good dietary supplementation. The production of honey in Poland in 2007 was 14954 tons. Consumption of honey in Poland in 2007 amounted 16192 tons, which is about 0.42 kg / person / year of honey. An effective measure of honey quality is the assessment of hydroxymethylfurfural (HMF) concentration. Hydroxymethylfurfural (HMF) is a molecule consisting of a furan ring and both aldehyde and alcohol functional groups. HMF is an organic compound present in nutrition products, such as milk, honey, natural fruits juice, alcoholic beverages and bread. It is the product of the Maillard reaction resulting from food pasteurization, cooking above 150oC or storage as a result of dehydration of sugars such as glucose and fructose. Level of HMF can affect organoleptic properties and quality of honey. It is proven that hydroxymethylfurfural in very high concentration is toxic and carcinogenic.

Aim of the study

The purpose of the study was to compare the honey quality from retail stores and polish apiaries by the White's method and UV-VIS spectroscopy.

Material and methods

In the study we used three samples of honey from retail stores such as linden honey, multi-flower honey and honey with ginseng and three samples of honey from polish apiaries like forest honey with raspberry and bird cherry, buckwheat honey and cornflower honey. HMF can be detected quantitatively by White's method. Spectrophotometric measurement of HMF was made at a wavelengths of 284 and 336 nm in clarified aqueous honey solution with sodium bisulfide as a reference and with water as a sample.

Results

Honey samples from local apiary contained less hydroxymethylfurfural compared to the honey samples from retail stores.

Conclusion

We have observed differences in HMF concentration in honey samples. White's method is a fast and simple way to control the quality of honey by means of the HMF concentration assessment.

Comparison of knowledge about scientific research methodology and susceptibility to manipulation in medical and non-medical students.

Krzysztofa Kopyt, Dominik Karch, Izabela Palasz

Jagiellonian University Medical College

Presenting author: Krzysztofa Kopyt
e-mail: keshetasa@gmail.com
Tutors: Michal Nowakowski

Introduction

The essence of higher education is based on the ability to select and verify sources of information by the student. It is important to know bases of statistics to properly interpret the data found in various journals or on the internet.

Aim of the study

Was to assess if students have a basic knowledge about the methodology of scientific research, as well as to check is there is a difference between medical and non-medical faculties in that field.

Material and methods

The study was performed in the beginning of the February, 2018. 188 students (143 females) from Polish colleges were included. 49,47% (n=93) of them were students of the medical faculties, mainly "medicine" (n=53), "dentistry" (n=14) and "nursing" (n=13). The highest number of non-medical students were "accounting and controlling" (n=19) and "economy" (n=14) students. Self-prepared online questionnaire was used to collect the data. It consisted of 10 multiple-choice questions without time limit for answer. There were also an additional questions about opinions on preferred sources of information in everyday life and during learning.

Results

Significantly higher percentage of medical faculties students compared with non-medical faculties had a classes associated with the methodology of scientific researches during their course of study (51,58% vs 30,11%, p=.004). Medicine-related students achieved higher total results for all 10 questions (5,22pkt vs 3,76pkt, p<.001) and more of them know that the meta-analyzys is the more reliable than randomized control trial, expert's opinion and observational or cohort study (32,63% vs 6,45%, p<.001). They also knew better what is the Impact Factor (48,42% vs 12,9%, p<.001) and more frequently they were able to correctly interpret an example study with given statistic significance level (61,05% vs 27,96%, p<.001).Independent of the field of study, there was a positive correlation between final test result and the year of college (R-Spearman, 0,3501, p<.05). Low percentage of all students know the scientific theory definition (24,47% correct answers). Most of the students didn't notice the illusory correlation phenomenon (79,26%) in one of the example studies to interpret.

Conclusions

Presence of scientific research methodology classes influenced students knowledge. Higher results of medicine-related faculties students' could be connected with the higher percentage of students who had participated this type of classes during their studies. The better results of the highers years students may refer to more frequent contact with scientific activities like working in the Student Scientific Groups or writing the Bachelor's or Master's theses. The study revealed that the classes connected with the scientific research methodology are necessary and should be implemented in the syllabus regardless of the field of study.

Effect of dry cupping combined with stretching versus stretching alone in releasing non-specific neck pain

Xing Fan

University of Debrecen

Presenting author: Xing Fan
e-mail: fandinger@outlook.com
Tutors: Adrienne Tóthmartinez MD, Julianna Cseri MD

Introduction

Nowadays, non-specified neck pain has become a major issue among the full-time university students. Stretching program is commonly used for releasing muscle tension and decreasing the pain. Meanwhile, the dry cupping therapy, as a popular Traditional Chinese Medicine method, is also widely used.

Aim of the study

The primary aim of this research was analyzing the effectiveness of dry cupping therapy applied together with the stretching program for decreasing the non-specific neck pain by releasing muscle tension around the neck region. We wanted to know if the program can improve the posture in neck and shoulder region or not.

Material and methods

The neck range of motion, tragus-to-wall and acromion-to-bed distance, distance between superior angle of scapula and second thoracic spinous process, level of superior angle of scapula, modified standard muscle length assessment for levator scapulae and upper trapezius were used. In addition, Neck Disability Index, the students' evaluation regarding the effect of cupping therapy were also monitored. The measurements were taken before and after the intervention. 20 full-time students from University of Debrecen who have complained about non-specific neck pain during the past three months were targeted for a 10-occasion intervention. Besides from two students who were not willing to join the cupping therapy, the rest was randomly divided into two groups, one with stretching program, and another with stretching and cupping program. To help the relaxation, aromatherapy and music were used in both group.

Results

The Neck Disability Index showed an improvement in both groups without significant difference between the two groups. Effectiveness of cupping therapy in relation to pain relief seemed to be higher in the combined group. The posture related tests revealed significant differences also in the combined group prior and after the intervention. The lateral flexion and rotation of the neck were improved by the intervention in both groups significantly in both sides, similarly to the rotation of the neck. The muscle length of levator scapulae was increased in both groups, but the trapezius was lengthened to a measurable extent in the combined group.

Conclusion

Based on the results, it is concluded that it is worth to combine the stretching with a complementary method, e.g. cupping. The number of sample was not enough to reveal significant differences in some parameter, therefore further investigations are need in this field.

JUVENES PRO MEDICINA
ŁÓDŹ, POLAND

Are STEM students really four-eyes? A growing problem of refractive errors in modern world.

Adrian Lis, Aleksandra Rubin, Małgorzata Milnerowicz, Olga Loska, Aleksander Łaba

Uniwersytet Medyczny we Wrocławiu

Presenting author: Adrian Lis
e-mail: lisuaw@gmail.com
Tutors: Adrian Lis

Introduction

High prevalence of refractive errors (RE) forces us to consider this condition as a civilization disease. It has been assessed lately that in the next 30 years – almost every second person will be diagnosed with myopia. There is a stereotype that people studying science, technology, engineering and mathematics (STEM) more often suffer from eye defects and wear corrective glasses.

Purpose

To evaluate the actual prevalence of RE among Polish students, to compare population of STEM students and non-STEM students in case of RE prevalence and the impact of lifestyle on sight problems.

Material and methods

Present study was performed on the basis of an internet questionnaire approved by a psychologist and sociologist. Inclusion criteria were: age between 16 and 26; being college student; studying only one degree course. Exclusion criteria were: incomplete responses, mutually exclusive responses. Subjects were asked if they had RE (myopia, hyperopia, astigmatism) and answered questions about vision correction, comorbidities, familial history of vision defects and environmental factors. 2357 subjects took part in the survey, 86 were excluded. Students were divided into two groups according to the degree course: STEM (536 people) and non-STEM (1735 people).

Results

The number of students with RE was 1370, which was 72.5% of all respondents. This value was similar in STEM and non-STEM students as well as the prevalence of hyperopia in both groups, although - surprisingly - myopia and astigmatism were found more often in non-STEM than STEM students (62 vs 57%; $p<0.05$ and 27 vs 22%; $p<0.05$ respectively). Additionally non-STEM students were more likely to wear corrective glasses (64 vs 60%; $p<0.05$). The onset of a new RE during studies period concerns about 13% of students in both groups. Non-STEM students more often suffered from chronic diseases (17% vs 12%; $p<0.05$) and spent on average more time on reading printed contents daily (3.8h vs 2.9h; $p<0.001$), but less time on using electronic devices (6h vs 6.5h; $p<0.001$). Students with RE spent on average more time on reading printed contents in comparison with those without RE (2.9 vs 2.4h daily; $p<0.001$).

Conclusions

Almost three-quarters of students suffer from sight defect. In STEM students myopia and astigmatism are less common than in other, although the overall incidence of refractive errors is similar in both groups. STEM students use corrective glasses less often than other students. Prevalence of vision defects is associated with time spent on reading printed contents.

Effects of a short-term fine motor skill proficiency training on hand functions

Ivett Szalóme Horváth

University of Debrecen

Presenting author: Ivett Szalóme Horváth
e-mail: ivettsalome@gmail.com
Tutors: Ilone Veres-Balajti PhD

Introduction

Children inherently have the skills of speech, writing and the basis for counting and verbal thinking. These human-specific skills also determine the motion development. In the age of six to eight, child's hands are characterized by agility and skill, which is slowly becoming aware of this. As a result, they start to use them in a distinctive way and become capable of differentiating the right/left direction. This is the optimal time for writing teaching. The drawing hand then becomes a writing hand. It was found in the literature that hand movements are environmentally-dependent, learned modes of motion, as defined by the harmonious co-operation of several cortical areas. Nowadays, children grow in environments where they spend much more time using digital devices than before. It is assumed that a significant portion of the children starting the first class is not perfectly prepared from locomotor aspect to learn regular writing.

Aim of the study

The aims of the study was to improve the manual skills to the average published in the literature and to improve fine motor skill proficiency by using physiotherapeutic methods expecting an improvement in the hand writing style. Further aim was to elaborate a methodological recommendation for teachers teaching in first or second classes based on our results.

Material and methods

Children (n= 34) from 2nd class in the elementary school were selected and divided into target group with physiotherapeutic training (n=14), and to control group without any intervention (n=20). Physical examinations were processed directed to special skills of static balance, spatial coordination as well as fine motor skills of the upper limbs before and after the intervention. The fine motor skills were tested by using the Nine Hole Peg Test (NHPT). The analysis of the hand writing was done by an independent teacher.

Results

On the first physical examination we found that the NHPT average results were over the average in literature (dominant hand: 20,3s; non-dominant hand: 22,3s) in both groups. In our study, the mean value for dominant hand was 23,8s in the control group, and it was 24,1s in the target group. For the non-dominant hand in the control group the time was 25,93s, in the target group 27,06s. After the intervention, we found significant improvement in the NHPT time for the dominant hand in both groups ($p<0,05$). In the control group there was not a significant change during this period, while there was a significant improvement in the target group ($p<0.02$). The non-dominant hand also showed significant change in positive direction ($p<0,05$). According to the evaluation by a teacher, the handwriting style became also better

Conclusion

It is concluded that since a short-term fine motor skill proficiency training has a positive effect on the hand functions it can be assumed that a long-term training would have more considerable effect on the handwriting style.

Needs of the public health sector due to Parkinson's Disease

Eliza Oleksy, Wojciech Stemplowski, Remigiusz Sokołowski, Karolina Klimkiewicz-Wszelaki, Paulina Kasperska, Anna Ziółkowska

Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

Presenting author: Eliza Oleksy
e-mail: oleksyeliza@gmail.com
Tutors: prof. dr hab. Kornelia Kędziora – Kornatowska

Introduction

Parkinson's Disease (PD) is one of the most common neurological disease of the elderly. The classic symptoms of PD are motor slowdown, muscle stiffness, resting tremor and postural reflex. With disease progression additionally occurs: apathy, depression and dementia. The annual incidence in Europe is estimated at 11-19 per 100,000 persons.

Aim of the study

Carrying out epidemiological descriptive study of deaths and mortality due to PD in order to improve the knowledge about the profile of the Polish population of patients with the disease.

Material and methods

We used public demographic database for Poland published by Polish Central Statistical Office including years 2002-2013 - data on population status and deaths due to PD are encoded according to ICD10 as G20. In analysis we used descriptive statistics and epidemiological indicators as: calculated per 100.000 mortality rate (MR), female/male mortality rate (F/Mm) and female/male death rate (F/Md). Indicators were calculated for the population during the analysed period, also for the 5-year age group, then by sex and residence. In paper we used graphs to illustrate findings.

Results

From 2002 to 2013 number of deaths and MR due to PD increased 2.5 times (min - 377 deaths in 2002, max - 953 deaths in 2013). Increase in MR and death predominate in the oldest age groups. F/Md-1.04 does not show the prevalence of deaths among genders, despite twice higher MR of men in particular age groups. Before 55 years, deaths are sporadic. In older age group occurs gradual growth in the number of deaths, which has been highly accelerated since the 70 years old to reach max in the 80-84 age group. After that, number of deaths decreases in the older age groups. MR, on the other hand, tends to grow steadily to the oldest age groups. There is a predominance in number of deaths in cities which is not reflected in MR indicator.

Conclusions

Trend of deaths and MR are typical for old age diseases. The shorter life expectancy of men partly explains greater MR in older men, despite the similar deaths number of both sexes. Growth of MR from 2003 to 2013 may be due to increase in population morbidity or more accurate collection of statistics. Aging of population from demographic boom does not explain the changes in MR in 5-year age groups which can be explain by prolonged life of patients with PD or shifting upward the average age of disease incidence. Obtained data of much lower MR than morbidity given in the review of literature can be explain by: poor diagnosis, inadequate judgment about the cause of death, death of patients due to other causes such as cardiovascular disease, cancer, accidents, etc. or simply a different incidence for Poland.

Evaluation of the relationship between the values of Body Mass Index (BMI) and the glycolipid metabolic profile in students of university of the third age

Martyna Andreew, Monika Kokot

Medical University of Silesia

Presenting author: Martyna Andreew
e-mail: martyna.andreew@med.sum.edu.pl
Tutors: Teresa Kokot

Introduction

Obesity is a chronic disease and a risk factor of chronic noninfectious diseases, such as diabetes mellitus, atherosclerosis or hypertension, contributing also to abnormalities in blood glucose level and lipid disorders. As public health problem, especially in developed countries, grows stronger. Whereas in relation to individual, causes disability, which degrades the quality of patients' life. Moreover, excessive body weight determines a risk factor of metabolic syndrome coming out. Occuring of metabolic syndrome in overweight elderly people, predisposes to sarcopenic obesity, causing muscle atrophy, what additionaly limits self-reliance of elderly.

Aim of the study

The purpose of this research project was to assess the relationship between BMI and fasting glucose concentration and total cholesterol concentration in students of university of the third age.

Materials and methods

Research was conducted among 60 students (54 women (90%) and 6 men (10%)) of university of the third age in Bytom, in November-December 2017. In examined group biochemical parameters, such as: fasting glucose and total cholesterol, in blood serum, taked on an empty stomach, were indicated. Subjects were divided into 5 groups in terms of BMI levels: underweight, correct body weight, overweight, obesity, huge obesity. Consent to research of Medical University of Silesia in Katowice bioethics committee was obtained. Statistica 13.1 was used to conduct statistical analysis with Kendall's tau correlation coefficient, Gamma correlation coefficient, also contingency tables and cross tabulations.

Results

No one among subjects had huge obesity. Total cholesterol concentration showed very visible dependence with BMI level (γ=0,52). Frequences for total cholesterol concentration above the norm were: for correct body weight - 53,8%; for overweight - 68%; for obesity - 88,2%, ipso facto for total cholesterol within the normal limit, least frequency was recored at „obesity" level (11,8%). Fraction of examined with impaired fasting glucose (IFG) was increased from correct body weight to obesity (correspondingly: 23,1%; 24%; 52,9%). The highest percentage of people with suspicion of diabetes mellitus (16%) appeared in group of overweight people, while normal fasting glucose in group of people with correct body weight (69,2%).

Conclusions

Overweight and obesity outweighed among subjects. With the increase of body weight, percentage of examined with hypercholesterolemia and IFG increased.

Internet resources for renal transplantation - readable for patients awaiting kidney graft?

Joanna Zgliczyńska, Monika Weteska, Natasza Blek

Medical University of Łódź

Presenting author: Joanna Zgliczyńska
e-mail: asia.zgliczynska@gmail.com
Tutors: Ewa Pawłowicz, Michał Nowicki

Introduction

Internet is becoming the most popular source of information for the patients. "Dr. Google" phenomenon has been already studied by many researchers and it was confirmed that Internet search results may significantly affect patients' decisions regarding diagnostics and treatment.

Aim of the study

The aim of our study was to assess clarity and readability of Polish patient-oriented online resources for kidney transplantation.

Material and methods

A systematic Internet search was performed to identify the top Polish websites addressing kidney transplantation issues, taking into account especially those, that are focused on recipient's perspective. The readability was assessed using Jasnopis – a free online application for automatic measuring of readability of Polish texts, that makes use of advanced linguistic methods like Gunning fog index, Flesch-based Pisarek method, automated Taylor test and similarity measurements. The application classifies the readability of the text in the 7-point scale. The readability levels correspond to blocks of education in Polish schools necessary to understand a text of a given class, where 1 - primary school, grades 1–3, and 7 - postgraduate studies or expert knowledge expected.

Results

We identified 9 unique websites, including 1 government, 2 nonprofit, and 6 private sites. One site addressed almost exclusively organ donation, other websites covered both donor's and recipient's perspectives. Five of 9 studied websites contained texts that were assessed as quite difficult and readable only for well-educated people, defined in Jasnopis as 5th readability level, which demands at least undergraduate university education. The texts contained in 2 sites that were popular health information websites for patients were assessed as difficult, understandable for university graduates 6th readability level. Also Polish Wikipedia item "kidney transplantation" was assessed as difficult. Only one analyzed website contained an easy text of 3rd readability level – understandable for children in secondary school.

Conclusions

Polish open online resources for kidney transplantation are written at an inappropriately high reading level. That may lead to confusion, feeling of fear and insecurity in the face of forthcoming renal transplantation or living organ donation. Attending medical professional's role in the explanation of all possible ambiguities would be crucial. Currently, patients' opinions regarding the clarity of Internet resources addressing organ transplantation remain unknown and need to be studied.

Assessment of the knowledge of medical and non-medical students on the oral contraception in Poland

Agnieszka Daszyńska, Jakub Madej, Grzegorz Kardas, Renata Pacuszka

Medical University of Lodz

Presenting author: Agnieszka Daszyńska
e-mail: azazela@onet.pl
Tutors: Małgorzata Koziarska-Rościszewska,

Introduction

According to the Central Statistical Office of Poland, oral contraception (OC) is the second most commonly used form of contraception in Poland, the first being condoms. It is used by 29,1% of Polish women, who use contraception in general. It is the one that is only administered by physicians due to its numerous side effects and contraindications.

Aim of the study

In this study we aimed to evaluate the state of knowledge of students in Poland about OC.

Material and methods

An on-line survey was completed by 1705 Polish students. Of these, 1371 (80.5%) were women and 332 (19.5%) were men. The mean age of the group was 23.0 years. 836 (49%) participants were medical students and 867 (51%) were non-medical students.

Results

75,1% of medical students correctly indicated the combined OC as the most effective one, compared to single-component OC. In non-medical group it was only 13,1%. 85,9% of medical students agreed that OC increases the thromboembolism risk, while it was 46,7% among non-medical students. 27,6% of medical and 14,6% of non-medical students incorrectly agreed that OC increases the risk of ovary cancer and also 29,3% of medical and 11,2% of non-medical students incorrectly agreed that it increases the risk of endometrial cancer. 44.5% of medical and 30.9% of non-medical students knew that OC increases the probability of multiple birth after discontinuation of its use. 83.0% of medical students identified the OC as a medication, while among non-medical students it was 51.1%.

Conclusions

The survey shows differences in state of knowledge on the subject of OC between medical and non-medical students in Poland. The group of non-medical students knows less about the side effects of this kind of contraception. However, we have also demonstrated deficiencies in knowledge on this subject in the group of medical students. Remembering how common it is to use the OC, it is important to provide proper education to its users.

The predictive value of BOAH scale among patients of sleep disorders clinic at the Department of Sleep Medicine in Edinburgh.

Mateusz Niedzielski, Agata Gabryelska, Grzegorz Kardas, Mateusz Niedzielski

Uniwersytet Medyczny w Łodzi

Presenting author: Mateusz Niedzielski
e-mail: m.niedzielski95@gmail.com
Tutors: Piotr Białasiewicz, dr n. med. Łukasz Mokros

Introduction

Obstructive sleep apnea (OSA) is an increasingly frequent problem of developed countries. The polysomnography (PSG) is the golden standard of OSA diagnosis. Unfortunately, access to that examination is significantly limited. It is thus crucial to develop a simple and effective questionnaire to assess the severity of OSA.

Aim of the study

To analyze the predictive value of an original questionnaire, BOAH, used for prioritizing the PSG among patients with suspected OSA.

Material and methods

The study involved 275 patients referred to the Department of Sleep Medicine of the Royal Infirmary (Edinburgh, Scotland) between June 2015 and July 2016. The variables of a 5-point BOAH scale are: patient's age (≥50 – 1 point), BMI (≥ 35 kg/m2 - 2 points, ≥ 30 kg/m2 – 1 point), history of hypertension (1 point) and presence of apnea during sleep observed by a third person (1 point). The analysed sample was divided into three study groups depending on the OSA severity measured with the apnea-hypopnea index (AHI): mild (AHI ≥ 5), moderate (AHI ≥ 15), severe (AHI ≥ 30).

Results

In the group of patients with severe OSA (AHI 30), based on the Youden index, the best cut-off point was chosen, which was 4. The area under the ROC curve for the BOAH questionnaire was 0.776 (95% CI, 0,718-0,833). With the initial risk of 37%, the positive predictive value of the studied questionnaire was 75%, the negative predictive value – 78%, specificity – 89%, sensitivity – 57%

Conclusions

The BOAH questionnaire analysis on a group of Scottish patients showed high specificity. It implies that it may be used as a highly valuable tool to assess the risk of severe OSA and prioritize the PSG among these patients.

Automatic Therapeutic Substitution and what happens after? A study of Polish patients' behaviour

Zuzanna Łukasik

Medical University of Lodz

Presenting author: Zuzanna Łukasik
e-mail: zula.lukasik@gmail.com
Tutors: Michał Nowicki

Introduction

Automatic Therapeutic Substitution (ATS) is the process of exchanging a reference prescribed drug for its equivalent with the same non-proprietary international name, is executed by pharmacy employees, typically without the prescriber's knowledge. Polish legal framework does not narrow down ATS to small molecule drugs and their generic equivalents, but also enables it for original biopharmaceuticals and biosimilar medicines. Although the development of the pharmaceutical market brings the promise of modern treatment becoming more available, ATS under unsuitable regulatory framework raises concern about pharmacovigilance.

Purpose

Evaluation of patients' attitude towards ATS and behaviour patterns related to the process.

Methods

A self-designed, printed questionnaire was created. The survey consisted of 6 questions of single choice and open-answer type. Two hundred and twenty questionnaires were distributed among patients waiting for their visits to outpatient specialist clinics at the university hospital. For the patients with sight impediment, assistance in reading was offered. Descriptive statistics were used and data were presented as mean, median or as percentages. An independent sample t-test was used to compare the means between a subgroup of patients who reported to have had an adverse drug reaction to those who had reported no reactions.

Results

171 out of 220 questionnaires (78%) have been returned and completely filled. The median time spent on discussing a drug prescribed for the first time was 4 minutes. 59.6% experienced an adverse drug effect at least once. That group of patients reported the time spent by their doctor on discussing the prescribed drug to be only 4.1 minutes (mean value, median 2 minutes), while the second group estimated it to be 5.6 minutes (mean value, median 10 minutes). The difference between the groups was significant, $p<0.0122$. 21.6% of patients who experienced any adverse drug effects did not report them to the prescribing doctor. Four (3.9%) shared it with a pharmacy employee and 4 did not report it to anyone. 77.2% of survey responders admitted that they purchased a substitute prescription drug at least once. 65.9% of them selected the price competitiveness of a substitute drug as the main reason for a substitution. For 34.8% responders, the lack of an original product in the pharmacy inventory at the time of the purchase was the reason for the substitution. 33.3% of the survey responders did not tell their prescribing doctor about the ATS.

Conclusions

ATS is a very common practice and is generally appreciated by patients. The patients rarely see any difference between the prescribed reference drug and the exchange medicine offered by pharmacy employee. One third of patients do not inform their prescribing physician of the substitution. One of five patients do not inform about adverse drug effects they experienced. This pattern of behaviour may significantly impede the pharmacovigilance.

The evaluation of selected miRNAs expression among young athletes with different type of physical activity

Małgorzata Biedrzycka, Bartosz Szmyd

Medical University of Lodz

Presenting author: Malgorzata Biedrzycka
e-mail: malgorzata.biedrzycka@stud.umed.lodz.pl
Tutors: Ewa Brzezianska-Lasota, Artur Szewczyk, Daria Domańska-Senderowska, Dorota Pastuszak-Lewandoska, Anna Jegier

Introduction

MicroRNAs are a class of short, non-coding RNA. They are engaged in down-regulation of genes expression. Their expression levels are influenced by many parameters such as: physical activity or steroid hormones levels. MicroRNAs testing can be a useful biomarker ofadaptation to activity, muscle gain and damage. It also correlates with standard tests measuring athletes' physical performance capability. In contrary to traditional examination, microRNAs panels are faster and cheaper.

Aim of the study

The goal of the research was to specify the profile of miRNAs expression: miR-1, miR-29b and miR-221 among young athletes with different type of physical activity: endurance and resistance exercise, and control group.

Materials and methods

Blood samples were collected from patients of Department of Sports Medicine (n=57) who performed endurance (nE=19) or resistance excercise (nR=19) and healthy males with small/average physical activity (nC=19). Total RNA was isolated from serum exosomes and used for cDNA synthesis. MicroRNA expression levels were tested using qPCR with global normalization strategy. The statistical analysis was performed using Statistica Software version 13.1 PL.

Results

There were observed statistically significant higher expression levels (RQ values) of miR-1 among E and R in comparison to control group – 1.406 (IQR: 0.752-2.081), 1.010 (IQR: 0.662-1.694) vs. 0.377 (IQR: 0.259-1.203). Moreover, the RQ value of miR-29b among R was increased compared to healthy volunteers (1.432 (IQR: 0.55-2.367), 0.873 (IQR: 0.665-1.286), respectively; $p=0.003$). miR-221 expression levels were significantly higher among E (3.432 ± 2.27 vs. 1.056 ± 0.593 - C, $p<0.001$) and R (3.101 (IQR: 1.445-5.042) vs 0.966 (IQR: 0.75-1.257) - C). There were not observed any statistically significant differences in age among groups.

Conclusions

Statistically significant differences in expression levels of miR-1, miR-29b and miR-221 between both E vs C and R vs C indicate their impact on adaptation to activity, muscle gain, and also muscle damage and recovery. The standardization of selected microRNAs expression level can lead to the replacement of traditional tests performed on athletes by microRNAs panels.

Relationship between incidence of type 1 diabetes in children and their body-weight at disease onset in Lodz Province

Maciej Goncerz, Anna Moniuszko, Arkadiusz Michalak

Medical University of Lodz
Presenting author: Maciej Goncerz
e-mail: maciej.goncerz@stud.umed.lodz.pl
Tutors: Agnieszka Szadkowska

Introduction

Type 1 diabetes etiology is finely balanced between genetic burden and environmental conditions that together cause autoimmune destruction of B-cells of pancreas. According to the "accelerator hypothesis" the increased body mass may be responsible for ever-increasing T1DM incidence. This hypothesis should be reviewed from epidemiological standpoint.

Aim of the study

The aim of the study was to investigate relationship between children's BMI at T1DM onset and T1DM incidence rate in pediatric population 6-15 years old in years 1992-2016.

Materials and methods

Number of cases of T1DM was retrieved from prospective register based on referential tertiary centers of pediatric diabetology in the Lodz Province. The incidence was calculated for years 1992-2016 based on census data from central statistical office. Body weight and height were collected for representative samples of patients diagnosed with T1DM in three periods: 1992-1994, 2002-2004 and 2012-2014. To avoid dehydration- and ketosis-related bias, data were collected from timepoints closest to 2 months after diagnosis. For each patient, body mass index (BMI) was calculated and expressed as z-score in reference to growth charts based on OLAF study.

Results

We collected BMI data of 317 children with T1DM which constitutes 75% of children diagnosed with T1DM in the studied periods (from 52.5% for 2004 to 98% for 2014). The groups differed significantly in BMI z-score [1992-1994: -0.24±0.98; 2002-2004: 0.26±0.92; 2012-2014: 0.34±0.97, ANOVA p-value for time period <0.001, post-hoc Bonferroni`s test significant for 1992-1994 vs 2002-2004 (p=0.001) and 1992-1994 vs 2012-2014 (p<0.001)]. We also noted a difference in BMI z-score between boys and girls (0.27±0.94 vs 0.05±1, p=0.04) that did not remain significant after accounting for time period (ANOVA p=0.09).We revealed significant correlations between year of observation and T1DM incidence (Spearman R=0.94, p<0.001) and year of observation and BMI z-score of children diagnosed with T1DM (Spearman R=0.8, p=0.01), which resulted in strong collinearity between T1DM incidence rate and BMI Z-score of children at T1DM onset (Pearson r= 0.76; p=0.018). There was no correlation between age of T1DM onset and year of observation (R= -0.37, p=0.3) or BMI z-score (r= -0.06, p=0.3). However, we observed a significant shift of T1DM incidence toward younger age groups in time (Spearman correlation for the ratio of incidence rate for children 6-10 years old and 11-16 years old – R=0.4, p=0.046). The shift was strongly correlated with increasing BMI z-score (Spearman R=0.73, p=0.025).

Conclusion

This 25–year-long observation suggests that increasing body weight could be affecting T1DM incidence. In addition to overall increase in T1DM incidence, there is an broadening disproportion between incidence for younger and older children. However, lack of relationship between increased BMI and age of T1DM onset warrants further studies.

Evaluation of QF-PCR test value in the prenatal detection of fetal aneuploidies

Jacek Jagiełło, Michalina Horochowska, Elżbieta Kołeczek, Jacek Jagiełło

Wroclaw Medical University
Presenting author: Jacek Łazeczko
e-mail: jacek.jagiello2@gmail.com
Tutors: Ryszard Ślęzak

Introduction

According to Polish Gynaecological Society guidelines, every pregnant women, regardless of the age, supposed to be informed about prenatal screening in the direction to congenitals disorders and chromosome aberrations. Suspicion of fetal aneuploidies in the first line prenatal testing is indication for invasive examinations, aminocentesis as an example. A sample of amniotic fluid is analyzed. Conventional karyotyping is common technique, fully refunded by Polish National Health Found. The turnaround time for results is around 2 to 3 weeks. Recently, other methods like QF-PCR have been introduced to reduce the reporting time. Additional advantages of QF-PCR (Quantitive Fluorescent Polymerase Chain Reaction) is smaller sample required to test, automation of the procedure and lower cost than conventional cytogenetics. QF-PCR is based on analyis of STR (short tandem repeats), the spectrum of STR markers include aneuploidies in chromosomes 13,18,21, X and Y. Considering all qualities and advantages, theoretically QF-PCR is method even better than the classic one.

Aim of the study

This research seeks to deepen QF-PCR usability in the clinical assessment of fetal aneuploidies. The aim of the study is to show the results of invasive prenatal tests in 2017 in lower Silesia region and to check the results of QF-PCR tests in comparison with classical cytogenetics.

Material and methods

For purpose of the study a group of 902 pregnant women, that came to Genetical Clinic in the year 2017 with qualification to perform a prenatal test, was selected. USG findings, biochemical test results were taken from their documentation in order to create a database. Database was particularly focused on amniocentesis-undertaken woman.

Results

In the group of 902 pregnant women, 442 of them (45,57%) had amniocentesis. The mean age was 34,41 (±5,4), the youngest patient was 16 years old and the oldest 47. From all women, who underwent invasive prenatal test, 162 decided to be tested additionaly, using non-refundable, paid QF-PCR test. In the group who underwent amniocentesis, 81 (18,33%) aneuploidies were revealed and 41 of them were also tested using QF-PCR. All abnormal results were proven in the cytogenetic analysis. Amongst 81 aneuploidies, 38 (46,91%) of them were trisomies of 21st chromosome, 17 (20,98%) cases revealed Edward's syndrome, 6 (7,4%) fetuses had Patau syndrome and 4 (4,9%) fetuses had triploidy.

Discussion

According to the results of the study amniocentesis involved almost half women who had increased risk of fetal aneuploidies. All positive and negative results revealed in QF- PCR were confirmed by the conventional karyotyping. Taking that into account, we can say that QF-PCR has high sensitivity and specificity. Our results are compatible with literatures data's, what makes QF-PCR an useful tool that can replace classical cytogenetics in the means of detecting 13,18,21, X and Y chromosomes aberrations.

JUVENES PRO MEDICINA
ŁÓDŹ, POLAND

The frequency of metabolic syndrome and its components in obese patients qualified to the bariatric surgery.

Ewa Jurałowicz, Anna Kasiarz, Maciej Goździk

Medical University of Łódź

Presenting author: Ewa Jurałowicz
e-mail: ewajuralowicz@gmail.com
Tutors: Ilona Kurnatowska

Introduction

Obesity is main component of metabolic syndrome (MS). It is also a recognized risk factor for lipid and glucose disturbances.

Aim of the study

The aim of this study was to evaluate the frequency of MS and its components in obese patients qualified to the bariatric surgery.

Materials and methods

30 patients (8 M, 22 F) admitted to the surgical department for bariatric surgery were evaluated. On the day of admission, the anthropometric examination was conducted (weight, height, waist and hip circumference; and BMI was calculated). Patient's medical history was collected with particular emphasis on arterial hypertension (HA) and diabetes mellitus (DM). The following tests were carried out: fasting glucose level, glycated haemoglobin percentage (HbA1c); lipid profile. The MS was diagnosed according to the presence of at least 3 out of 5 following factors: F: waist > 80 cm, HDL < 50 mg/dl; M: waist > 94 cm, HDL < 40 mg/dl; TG > 150 mg/dl, the occurrence of DM type 2 or fasting glycaemia > 100 mg/dl and blood pressure > 130/85 mmHg.

Results

The mean age of the patient was 37.5 ± 10.7 years, average BMI: 44.2 ± 5,3 kg/m2. The mean level of total cholesterol was 215.1 ± 50.0 mg/dl , triglycerides (TG) 140.7 ± 52.8 mg/dl; LDL-chol 136.5 ± 47.3 mg/dl; HDL-chol 52.0±6.9 mg/dl in F and 51.0 ± 6.7 mg/dl in M; serum glucose 108.0 ± 27.4 mg/dl. Elevated TG levels were recorded for 27% of patients. Among the examined group, 30% (n=9) met the diagnostic criteria for MS, 37% suffered from HA, 10% had DM, 7% of patients suffered from both DM and HA.

Conclusion

Only 30% of patients who qualified to the bariatric surgery were diagnosed with the metabolic syndrome. The most common components of the metabolic syndrome in obese patients were arterial hypertension and hypertriglyceridemia.

Air pollution as a threat to human health - microbiological air contaminants in relation to smog level

Weronika Gawor, Szymon Lis, Filip Karuga, Krystian Romaszko, Agnieszka Jaszczak, Bartłomiej Szymański, Kacper Mazurkiewicz

Uniwersytet Medyczny w Łodzi
Presenting author: Filip Karuga
e-mail: gaworweroonika@gmail.com
Tutors: Katarzyna Góralska, Ewa Brzeziańska-Lasota

Introduction

The air pollution (smog) came from burning fossil fuels and industrial activity, which concentration increases significantly in heating season. Epidemiological and clinical data indicates that human exposure to smog is related to 3 million premature deaths yearly, mainly from pulmonary and cardiovascular diseases. Despite the larger knowledge and awareness of smog related risks, air pollution is still increasing problem. Unfortunately we observed insufficient data focus on correlation between microbiological contamination and smog. Smog particles participate in biological transport of bacterial and fungal cells and protection them from UV and dehydration. Expanding knowledge about microorganisms related to environmental pollution
is relevant for human health and life protection in shifting environment.

Aim of the study

The aim of the studies was microbiological evaluation of air in recreational areas in Łódź in relation to value of smog particles (PM10, PM2.5 and CO) during the heating season in the context of human health.

Materials and Methods

The studies were conducted in Łódź in 10 selected places, 8 of them were localized in parks and 2-near air quality measurement stations, at 3-4pm (rush hours). The microbiological evaluation of air quality was performed using Koch sedimentation method. Weather conditions and concentration of pollutants were obtained from Weather Underground database and Voivodeship Inspectorate of Environmental Protection in Łódź database. Correlation of microorganisms number in air with smog level was calculated. Obtained results were compared to valid standards: PN-Z-04111/02:1989, PN-Z-04111/03:1989. The statistical analysis was made with STATISTICA software.

Results

The total number of bacteria in the air was 75.14 cfu/m3 (Pilsudski Park), 873.72 cfu/m3 (Poniatowski Park), 16.31 cfu/m3 (Baden-Powell Park), 73.39 cfu/m3 (Zaruski Park), 10.48 cfu/m3 (Widzewska Górka Park), 3.49 cfu/m3 (Źródliska Park), 31.45 cfu/m3 (3rd May Park), 0 cfu/m3 (Sienkiewicza Park), 52.42 cfu/m3 (Gdańska 16 Street) and 20.97 cfu/m3 (Czerniaka ⅓ Street). The presence of fungi was observed in 6 Parks. The isolated fungi were identified as Aspergillus fumigatus and Paecilomyces variotii. The level of smog during sampling were PM10: 24.45-45.25μg/m3, PM2.5: 13-34 μg/m3 and CO: 0.4-0.45mg/m3. The highest level of smog values PM10: 80-115 μg/m3 and PM2.5: 73-79 μg/m3 were noticed at night (1-4am).

Conclusions

The total number of bacteria didn't exceed the standards. In Poniatowski Park the air microbiological contamination was the highest, but still lower than limited value. The value of PM10, PM2.5 and CO didn't exceed the limits. On the time of sampling the level microbiological and inorganic contamination of air wasn't harmful for human.
The highest value of inorganic pollution during night is related to house heating. Statistical analysis show negative relation of the total number of bacteria with amount of CO and benzene in air.

RADIOLOGY

COORDINATORS
Jan Roszkowski
Bartosz Szmyd

JURY
Agata Arazińska, MD
Professor Tadeusz Biegański, MD, PhD
Dorota Pastuszak-Lewandoska, PhD
Professor Michał Polguj, MD, PhD

A radiographic 3D Analysis of Posterior Ventriculostomies from Frazier Point.

Mariusz Zając

Medical University of Warsaw

Presenting author: Mariusz Piotr Zając
e-mail: mariusz@mariuszpiotrzajac.com
Tutors: Tomasz Dziedzic

Introduction

Frazier Point is a common landmark for posterior ventriculostomy. Medical literature list several different entry and target points for this procedure. The accuracy of the catheter trajectory is paramount to the success of the procedure. Non-optimal trajectories result in catheter obstruction and damage to brain tissue.

Aim of study

The aim of this study was the comparison and quantification of known Frazier point in providing optimal trajectory through the lateral ventricles, alongside the comparison of known target points.

Material and methods

A group of 54 patients with available Computer Tomography Arteriography were included in the study. Scans were aligned to Frankfurt Plane and midline landmarks. Cases with visible mass shift effect, unsymmetrical ventricles and Evans Index greater than 0.3 were excluded from the study. On the remaining 30 cases, 8 entry points and 5 target points were marked in Slicer 3D Software. Definitions for both entry and target points were derived from neurosurgical literature. Trajectories connecting each entry with each target point were drawn on three dimensional model of the head, generated from scan data. Each trajectory was analyzed from the point of entry into the lateral ventricle to the coronal plane going through both interventricular foramina. A trajectory was graded as optimal if it was located inside the ventricle along the entirety of it's course.

Results

The total of 1200 trajectories were drawn, out of which 41 (3.42%) were graded as optimal and 1159 (96.6%) were graded as non-optimal. The majority of optimal trajectories were targeted at point 4 cm above the contralateral endocanthion. For this target, the number of optimal was highest in entry located 7 cm above inion, 3 cm laterally (14; 47%). Other trajectories with the same target were optimal in 11 or fewer cases per trajectory. (range 0-14; 0%-37%). Remaining target points had either 0 optimal grades or in one case 6 (20%) when entry located 7 cm above inion, 3 cm laterally was paired with the target of 2 cm above nasion.

Conclusion

Out of analyzed trajectories, the most optimal is the use of point located 7 cm above inion, 3 cm laterally as the primary entry point and a point located 4 cm above contralateral endocanthion as the target point, when performing Frazier point ventriculostomy.

44 y.o. famale patient with microcytic anemia was diagnosed with massive pneumatosis of esophagus and stomach after gastroduodenal fibroscopy procedure

Olga Saluka, Alona Vikentjeva, Dana Augustova, Aleksejs Visnakovs

Latvian University

Presenting author: Olga Saluka
e-mail: oleley@inbox.lv
Tutors: Aleksejs Visnakovs,

Introduction

Pneumatosis of gastrointestinal tract is a quit rare medical condition which appears as a result of gas accumulation at submucosal and subserosal level of organs across the gastrointestinal tract. Commonly, the emergence of pneumatosis is caused by pathogens' activity, gastric ulcer, iliac passion, and even by causes not related to the digestive system itself, such as asthma and number of systemic diseases. Occasionally, pneumatosis has an idiopathic nature. Iatrogenic damage occurring as a result of invasive manipulations.

Case report

44-year old female has been admitted to Riga Eastern Clinical University Hospital Emergency Department with thoracalgia and somatoform dysfunction as primary diagnosis. The patient was substantially complaining of the severe level of pain in two main regions: chest and epigastrium. Brief anamnesis provided information regarding the history of pain. The first symptoms appeared a while ago, and as a result the patient was referred by her family physician to undergo gastroduodenoscopy which was provided just number of hours prior to her hospitalization. Also, we know, that patient is vegan, who practises fasting as a selftreatment. During the procedure, the piece of tissue was taking for biopsy, and the patient was checked for H. pilory that came back negative. Insufficiency of cardia of the stomach and hyperemic gastro- duodenopathy were detected. Immediately after the procedure, the patient experienced severe pain and difficulty to swallow. She suggested that listed above symptoms are the outcomes of the procedure and considered to be normal. RTG thorasic and CT thorasic with contrast were conducted and identified no perforation but massive pneumatosis within esophagus and patient's stomach. CBC: Leu15,69 10e9/L ; HGB 10,6 d/dL, HCT -35,6 %, MCV- 73,60 fL, MCHC 29,8 g/dL; Blood Chemistry: CRP -0,07 ng/L, Troponin T-HS – 4.8 ng/L, ALAT 15 U/L .The patient was placed in surgical department of the hospital. She was treated with Nexium 40 mg i/v, Ceftriaxon 2, 0 g x1 i/v, Metronidazol 500 md x 3 i/v, Xefo 8 mg x 2 i/v, Sterofundin 500 ml i/v, S. NaCl 0,9% 500 ml i/v, S.Glucosae 5% 500 ml i/v. After 9 days of conservative treatment, the patient was discharged from the hospital in a good medical condition.

Conclusion

In 85% of the cases of Pneumatosis is a secondary pathology, where is only small percentage of it's occurence are complication of a medical intrusion. Thanks of the developmentof medical science and technology , pneumatosis is rare complication after endoscopic procedures. Most likely in this particular case, the reasons of complication were: 1) the presence of microcytic anemia, which most likely became a reason for the connective tissue failure, it's density and permeability. 2) as well as gas insufflation during gasroduodenal fibroscopy; 3) small damage of integrity of tissue during the collection of biological material during biopsy.

Splenic artery syndrome after orthotopic liver transplantation – case of patient treated with splenic artery embolization

Arkadiusz Kacała, Małgorzata Milnerowicz, Szymon Ciuk, Aleksandra Rubin

Wroclaw Medical University

Presenting author: Arkadiusz Kacała
e-mail: arkadiusz.kacala@gmail.com
Tutors: Jerzy Garcarek

Introduction

Splenic artery syndrome (SAS) describes a decrease in hepatic artery blood flow is commonly associated with increased blood flow through an enlarged splenic artery. Consequences of SAS include early graft dysfunction and biliary ischemia. Left untreated, the condition has a significant potential risk for postoperative morbidity and graft loss.

Case report

We report the case of a 46-year-old man who developed SAS after deceased donor liver transplantation. He was diagnosed by duplex Doppler ultrasonography and celiac trunk angiography, and subsequently treated with splenic artery embolization.

Conclusion

Splenic artery embolization results in improved hepatic function in liver transplant patients presenting with SAS.

Usage of convolutional neural network (CNN) in analysis of multiple sclerosis lesions from MRI images.

Tomasz Jurasz, Tomasz Jurasz, Konrad Duraj, Joanna Chwał, Rozalia Kośmider

Medical University of Silesia

Presenting author: Karol Kocaj
e-mail: tomaszjurasz111@op.pl
Tutors: Monika Adamczyk- Sowa, lek. med. Izabela Rozmiłowska

Introduction

Multiple sclerosis (MS) is a chronic disease in which myelin sheath of neurons is damaged. The lesions of demyelination are localized predominantly in white matter of tissue with characterized dissemination in time and space. Nowadays MRI is widely used in diagnosis and monitoring of MS. The convolutional neural network, used in this study, is a method of deep learning which goal is to solve the problems in the same way that the human's brain would.

Aim of study

Purpose of the study is to assess efficacy of convolutional neural network (CNN) in automatic classification of SM lesions analysis in MRI images. Although the manual assessment of lesions is possible, this task is time-consuming and depends on interobserver sensitivity. Automation of of this process with usage of deep learning method might increase the precision of SM lesions analysis and shorten time to diagnosis.

Material and methods

We separated about 900 of MRI images (T1-weighted, T2-weighted and FLAIR) of patients' brain with multiple sclerosis lesions and patients' without any changes in this examination. The next step was conversion of these MRI images, which was necessary to train CNN in properly way. The CNN is a class of deep artificial neural network. It consists of an input and an output layer, as well as multiple hidden layers. Fully connected layers connect every neuron in one layer to every neuron in another layer. A very high number of neurons would be necessary, due to the very large input sizes associated with images, where each voxel is a relevant variable.

Results

The CNN was initially trained on 670 images from 6 patients who have demyelination chagnes on MRI , then tested on 230 images from 6 patients who do not have any abnormalities in this examination. CNN during testing classified images with accuracy equal to 79%, which means that 182 images was classified correctly. During the testing of our convlutional neural network, it analysed patients' brains MRI images without changes and classified them to group with no multiple sclerosis lesions, based on its trained set of data. The result will be further improved using a larger data set.

Conclusion

Results of this study showed that described method could be helpful in categorization of morbidly changed brain areas in MRI images with a defined probability to multiple sclerosis lesions. The algorithm's task is to serve as an assistant for neurologists and radiologists. In the future this systems of deep learing may be really helpful in more precise process of diagnosis of early and small demyelination changes in human brain.

Increased signal intensity in the dentate nucleus on unenhanced T1-weighted magnetic resonance images after multiple administration of linear gadolinium chelate

Asta Zielinska

Lithuanian University of Health Sciences

Presenting author: Asta Zielinska
e-mail: asta7.zielinska@gmail.com
Tutors: Rymantė Gleiznienė,

Introduction

Patients with multiple sclerosis (MS) undergo periodical magnetic resonance imaging (MRI) screening with gadolinium- based contrast agents (GBCAs). Recently high signal intensity in the dentate nucleus (DN) was reported after repeated administrations of contrast- enhanced magnetic resonance images in patients with normal renal function. The high intesity of the DN was associated more with specific GBCAs structure: linear non-ionic than with other types. The exact mechanism and clinical significance of deposits are still unknown.

Aim of study

To assess association between increased signal intensity in the DN on unenhanced T1-weighted MR images in the patients with MS and previous multiple administrations of GBCAs.

Material and methods

Evaluation patients with MS and normal renal function who underwent contrast agent- enhanced (Gadodiamidum- Omniscan 1ml/5kg dosage) brain MR imaging. Research group consisted of 16 patients who had administered linear non-ionic GBCAs– Omniscan- at least 3 times. MRI was performed with Siemens Somatom Avanto 1.5 T device. The DN signal intensity was measured in the T1- weighted images before first GBCA administration, second one and the third time.

Results

Median of the signal intensity in the DN before first GBCAs administration was- 195.950 (min-189.4, max-221.8, mean-201.525), before second- 204,150 (min-190,4, max-222,0, mean-205.494), before third administration- 208,700 (min-197,2, max-231,1, mean-213.175). The difference in signal intensity in the DN was statistically significant before first administration and the third one (p=0.000) and before second and third injections (p=0.008). The signal intensity in the DN before first GBCAs injection and the second one wasn‘t significant different (p=0.472).

Conclusion

The signal intensity in the DN wasn‘t significantly increasing after first GBCAs administration. Significant signal intensity difference in the DN was observed after at least 2 times of contrast agent injections.

Progression Of Aortic Dissection

Paulina Oczoś

Medical University of Lodz

Presenting author: Paulina Oczoś
e-mail: paulina.oczos@hotmail.com
Tutors: Konrad Szymczyk,

Introduction

Aortic dissection may cause critical stenosis or complete closure of the collaterals' lumen. Pertinent prediction of effects which dissection can have require accurate distinction between the true and the false lumen and assessment of the potential for further dissection.

Aim of study

An attempt to analyze the pressure relation in the true and false lumen based on the difference in the amount of contrast and the size of the channels.

Material and methods

58 patients suffering from aortic dissection underwent Computed Tomography Angiography (CTA) examination using a contrast agent. The density in the true and the false channel on five levels was examined: in the area of entry, re-entry and and every 25% of the distance between these points receiving a measurement of density on 5 levels. At each of these levels, the diameter of the aorta was also measured and the estimated area of the cross-section through both channels was calculated. The change in the density was tracked on each level comparing the amout of the contrast in true lumen to amount of the contrast in the false one. Also the concentration of the contrast was calculated by compering the product of density and surface area of the true lumen with an analogous product/rate/factor for a false channel.

Results

Channels' contrast enhancement ratio differs between patients (minimal average for patient = 0,7606 , SD=0,4276, maximum average for patient = 16,7165, SD= 15,4413) and between measurement points (minimal = 2,242 SD=1,911 for 0,5 lenght of the dissection and max= 3,95, SD= 9,377 for 0,75 lenght of the dissection). Density of contrast enhancement ratio of the channels varies between patients (minimal average =0,404, SD=0,565; maximal average= 549705,92, SD=1229105) and between measurement points (minimal average=4,85, SD=6,5 for reentry, maximal average= 151695,2, SD=647801,6 for 0,5 lenght of the dissection) True lumen (TL) and false lumen (FL) surface ratio differs in measurement points (maximal average = 2,15, SD=5,83 for entry) (minimal average= 0,902 SD=1,65 for 0,5 lenght of the dissection) Change of surface area correlates with the change of the channel's enhancement and that may indicate the existence of a significant pressure difference in both channels

Conclusion

The analysis of TL's and FL's contrast enhancement ratio, its surface ratio and density of contrast enhancement ratio in aortic dissection is useful for understanding dynamics of pressure changes in channels and thus proper evaluation of potential for further dissection.

SURGERY 1

COORDINATORS
Kinga Dudek
Emilia Walczak

JURY
Professor Dariusz Jaskólski, MD, PhD
Professor Krzysztof Kuzdak, MD, PhD
Professor Adam Maciejewski, MD, PhD

Acute mesenteric ischemia outcome analysis

Jevgenijs Demicevs, Renate Kaminska

University of Latvia

Presenting author: Jevgenijs Demicevs
e-mail: jdemichev@gmail.com
Tutors: Arnolds Jezupovs,

Introduction

Acute mesenteric ischemia is severe and very dramatic diseases of the abdominal cavity. Mortality of acute mesenteric ischemia remains as high as 80-90%. Main problem is that acute mesenteric ischemia has no specific symptoms. In many cases the only symptom is abdominal pain, and, sometimes, it causes misdiagnosis and delays proper treatment. If not treated properly, acute mesenteric ischemia leads to intestinal infarction, necrosis, an overwhelming inflammatory response and death.

Aim of study

Compare operative and non-operative (symptomatic) treatment results for acute mesenteric ischemia. Determine factors that could predict or have an impact on acute mesenteric ischemia outcome.

Material and methods

A retrospective study of the medical records was performed and data about clinical and laboratory findings were evaluated. Study included patients who presented in Riga East university hospital "Gailezers" from 01.01.2011. till 31.12.2011. with an acute mesenteric ischemia. Selection criteria were superior mesenteric artery thrombotic or embolic occlusion type. All the patients with celiac trunk and inferior mesenteric artery occlusion and those with non-occlusive and venous type of ischemia were excluded from the study. Diagnosis was confirmed by at least one of the procedures (Computed tomography angiography, intraoperative finding, pathological section). Statistical data analysis was performed with IMB SPSS statistics.

Results

Death rate of 60 (20 males, 40 females) selected patients was 75% (n=45). Mean age of patients was 77,63 years. 44,4% (n=16) patients presented with abdominal pain for less than 12 hours, of them 37,5% (n=6) survived. 27,8% (n=10) patients presented with abdominal pain for 12 to 24 hours, of them 20% (n=2) survived. 27,8% (n=10) patients presented with abdominal pain for longer than 24 hours, of them 40% (n=4) survived (p=0.570). Totally 31,7% (n=19) of patients received surgical therapy. In those 57,9% (n=11) survived and was successfully discharged from the hospital. In those who didn't receive surgical therapy 9,8% (n=4) survived and 90,2% (n=37) died (p<0.005). Surgery was not performed due to a severe condition of the patient (67,6%) or misdiagnosis (32,4%). 61,7% (n=37) of patients presented in the hospital with hyperglycemia, 86,5% (n=32) of them died. 38,8% (n=23) had normal serum glucose level, 56,5% of them died (p=0.009).

Conclusion

Acute mesenteric ischemia was associated with 75% mortality. Only 31,7% of patients received surgical treatment and 57,9% of them survived. From the group of patients, who didn't receive surgical treatment, 9,8% survived. Patients with hyperglycemia on presentation time had higher death rate than those with normal serum glucose level. Time from the onset of symptoms till presentation in the hospital had no significant impact on type of chosen therapy and outcome.

Laparoscopic surgical approach for patients with colon cancer and comparison of the early results to conventional surgery

Kristaps Eglītis, Guntis Ancāns, Armands Sīviņš, Eva Eglīte, Ivans Jelovskis

University of Latvia

Presenting author: Kristaps Eglītis
e-mail: dr.egliitis@gmail.com
Tutors: Dr. med. Armands Sīviņš

Introduction

Laparoscopic surgery is becoming more popular every year and no exception is its surge in popularity as a surgical treatment alternative for colon cancer regardless of its localization. Colon cancer is serious, yet treatable illness. Unfortunately, any kind of surgery can result intraoperative and postoperative complications. There is a number of major differences in surgery time, postoperative hospitalization time, and even complications between conventional and laparoscopic surgery.

Aim of study

Compare conventional surgery and laparoscopic surgery results through retrospective data analysis on process of the surgery and patient postoperative status.

Material and methods

Medical records of patients who underwent laparoscopic or open repair surgery for colon cancer at *Riga East university hospital* Clinical Centre *"Gaiļezers"* between march 2011 and December 2017 were evaluated. The study included 170 patients of whom 18 were excluded due to data nonhomogeneity. To compare and analyze the process of surgery and postoperative state, the following data from medical records were used – gender (male, female), age, cancer localization (CA18-19), surgery technique (conventional, laparoscopic), postoperative stay (days), surgery time (minutes), complications (Klavien Dindo classification), tumor size (T), lymph node engagement (N) and metastasis (M), dissected lymph nodes (No.) Statistical analysis was carried out using *IBM SPSS 23.0* (for Macintosh, SPSS inc., Chicago. IL) statistics analyzing software, using the *crosstab comparing test*. And *Microsoft Excel.* Also "p" values were calculated.

Results

From total of 152 patients, of whom, 48 received laparoscopic repair and 104 open repair, were included in this study. Comparing the duration of postoperative hospital stay in each group (OS=open surgery; LS=laparoscopic) With the average mean test values being - LS= 7.375 days and OR=10.163 days ($p<0.05$). Operative time until two hours LS =1 case, OS = 38 cases ($p<0.05$). Operative time from 2 to 4 hours - LS= 34 cases, OS= 61 case and ($p<0.005$) Operative time higher than 4 hours – LS= 7 cases, OS=3 ($p=0.006$). Average operative time – LS=205 minutes ($p<0.05$), OS=148 minutes ($p<0.05$). Klavien - Dindo classification of complications, group 1 – LS=0 case, OS=3 cases, group 2 – LS=6 cases, OS=22 cases, group 3A – LS=0 cases, OS=2 cases, group 3B – LS=3 cases, OS=3 cases ($p=0.262$)

Conclusions

Laparoscopic surgery is comparable with open surgery in colon cancer. Advantages of laparoscopic surgery is significantly shorter postoperative stay, decreased complication risk and nature. Operation time for laparoscopic surgery was significantly longer than that of open surgery, but that can be explained by the learning curve and the magnitude of surgery. More precise and detailed comparison should be undertaken to evaluate the efficiency of laparoscopic surgery over open surgery.

Chronic back pain caused by uncommonly located large angiosarcoma. Case report.

Agnieszka Piernik, Piotr Danielewski

Poznan University of Medical Sciences

Presenting author: Agnieszka Piernik
e-mail: agapiernik@interia.pl
Tutors: Roman Jankowski,

Introduction

Angiosarcoma is an uncommon type of soft tissue malignant cancer. It is one of the first to be caused by therapeutic radiation, usually located head and neck or breast. Retroperitoneum constitutes only 10-15% of the location of all soft tissue sarcomas in which angiosarcoma comprises only 1-2%. The reported case is a rare example of an atypically located angiosarcoma giving neurological symptoms, known from common clinical ailments, due to spinal cord compression and spinal nerve root damage.

Case report

A 59 year-old woman was admitted to the Deparment of Neurosurgery and Neurotraumatology with a chief complaint of thoracolumbar back pain and sciatica. Symptoms started 5 years ago, at this time the patient underwent an MRI that revealed two hernias at levels L4/5 and L5/S1 and got analgesics therapy. 2 months before hospital admission pain management using opioids was insufficient. A CT scan of the abdomen and pelvis revealed an enormous tumor mass in the paraspinal retroperitoneal space (68x74x85 mm). The tumor was connected to the left branch of the diaphragm and connected with a tumor mass in the chest (28 x 18 mm), pleura, larger lumbar muscle, vertebrae Th12, L1, L2. It was penetrating into the spinal canal through the intervertebral foramen L1/L2 (about 8 mm deep), additionally causing a dislocation of the spleen, tail of the pancreas and left kidney. Necrotic masses were manifested in the center of the tumor. The neurosurgeons conducted a L1 and L2 hemilaminectomy and a resection of paraspinal part of the tumor that was damaging L2 spinal nerve root. Subsequently, during the same procedure, the general and thoracic surgeons removed the tumor from the retroperitoneal space. The tumor has been resected completely (12x16x10 cm). The patient had four blood units transfused due to abundant blood loss. The postoperative course was uneventful. 5 days after the surgery, the patient presented a progressive reduction of back pain. The histopathological examination of the tumor revealed angiosarcoma. Currently, the patient is undergoing a course of oncological treatment.

Conclusion

The location of soft tissue sarcoma in the retroperitoneal space is a special therapeutic challenge. Even large angiosarcoma tumors can be oligosymptomatic. Thus, it is significant to carry out attentive differential diagnosis in case of conventional symptoms.

Synchronous gastrointestinal stromal tumor of stomach and invasive ductal carcinoma of both breasts: case report.

Michał Brzeziński, Kasper Gniadek

Medical University of Gdańsk

Presenting author: Michał Brzeziński
e-mail: brzoza777brzoza@gmail.com
Tutors: Kamil Drucis,

Introduction

Gastrointestinal stromal tumor (GIST), despite the fact that it accounts for less than 5% of all sarcomas, is the most common mesenchymal tumor of the alimentary canal. The incidence varies from 6,5 to 14,5 cases/million/year in the world. In Poland there are 150-190 new cases reported per year. Whereas invasive ductal carcinoma is the most common form of invasive breast cancer. It accounts for 65-80% of breast cancer incidence upon diagnosis We defined synchronous cancers as those occurring within 2 months of the first site of the primary cancer, while metachronous cancers were defined as those occurring more than 2 months later. Synchronous and metachronous stromal tumors are very rare findings. They are typical only of hereditary GISTs (5% of all stromal tumors), Von Recklinghausen's disease or Carney's triad.

Case report

In July 2016 64-year-old woman had gone through screening mammography which revealed solid lesion in both breasts. After performing fine needle aspiration biopsy an invasive ductal carcinoma had been found and patient was qualificated to bilateral modificated radical mastectomy (Madden's procedure), which was conducted in October 2016. Perioperative computer tomography scan revealed an additional pathological abnormality between the stomach and the spleen. After the breast operation, it was decided to observe the new lesion. During the gastroscopy only an inflammation of the mucosa of the stomach was observed. In October 2017 a laparotomy with a wedge resection of the greater curvature of the stomach, including the tumor, had been performed. The operation proved to be without any complications, no spread of the disease was observed. A histological and an immunohistochemical examination of the extracted tissue confirmed that it was indeed a gastrointestinal stromal tumor.

Conclusion

Despite the fact that synchronous or metachronous tumors are very rare, doctors should be mindful of proper screening during the examination of the oncological patients to exclude a second primary tumor site. It is very important to differentiate a metastasis from a new primary tumor in order to implement an optimal therapy. Concomitance of GIST and breast cancer is an interesting finding because of potentiality of treatment both cancers by one drug- imatinib while the resection is impossible.

Preferences of colorectal cancer patients for obtaining special health information with the use of technology: role of Internet and other sources of medical information.

Anna Waśniewska, Mateusz Jankowski, Jakub Włodarczyk

Medical University of Lodz

Presenting author: Anna Waśniewska
e-mail: ania.wasniewska@gmail.com
Tutors: Łukasz Dziki, Marcin Włodarczyk

Introduction

Colorectal cancer is one of the most frequently diagnosed cancer. It is the second most common type of cancer in women and the third most common in men. The Health Services specialized in colorectal cancer, as potentially fatal and difficult to treat disease, are often seek by multiple patients. Nowadays Internet has become one of the primary sources of medical information. It is notable that patients often use it to find information about their disease and possible treatment. There are created numerous forums, websites for patients, in which they can express their opinions or seek the medical information they need.

Aim of study

The aim of our research was to estimate colorectal cancer patients' preferences for obtaining special health information and to characterize the extent of Internet use, in terms of medical information, among this group.

Material and methods

Data was collected by the survey from 52 colorectal cancer patients in Department of General and Colorectal Surgery, between 2015 and 2016. We analysed anthropological, demographic and medical data as well as rate of usability of the Internet. The influence of the Internet and other sources of information on choosing the place of treatment was also estimated.

Results

One half (50%) of patients declares using the Internet as the main source of information about their disease. Patients who search for the information about their disease on the Internet tend to live in more populated cities, have lower age was lower, have higher level of education. 46% of patients estimate the rate of usability of the Internet on high and very high level. While choosing place of treatment patient take into consideration those factors: relations with doctor (48%), opinion of other patients (46%), location of the place of treatment (29%), therapy methods (24%), conditions in hospital (19%) and time of expectation for treatment (10%).

Conclusion

Patients who search for the information on the Internet about their disease indicates relations with doctor as the most significant factor in choosing the place of treatment, while that which do not – opinion of other patients. Our data suggests that the Internet is not the main decisive factor in choosing the place of treatment, however it play significant role in providing plenty information about their disease.

Type I choledochal cyst –1,5-yeard-old girl case report.

Agnieszka Burak

Collegim Medicum of University of Warmia and Mazury in Olsztyn

Presenting author: Agnieszka Burak
e-mail: agnieszka.burak93@gmail.com
Tutors: dr n. med. Michał Puliński, dr n. med. Wojciech Choiński

Introduction

Common bile duct cyst is a rare disease , observed in about 0,1% patients, who were treated surgically due to bile duct diseases.Symptoms such as jaundice, abdominal pain and resistance in the right subcutaneous region during palpation are usually seen in children under 10 years of age. Pathogenesis of choledochal cyst is not well understood. It may be the result of a defect in bile duct wall or underdevelopment of ganglions supplying the hepato-duodenal bulb.

Case report

1,5-year-old female patient was admitted to the Department of Pediatric Surgery due to type I choledochal cyst diagnosed during abdominal ultrasound performed due to diagnostic of constipation and paroxysmal abdominal pain. Patient underwent imagining diagnostics as abdominal USG and cholangio-MRI. Due to imagining findings and clinical symptoms patient was qualified for retrograde removal of the gall bladder with cystectomy of choledochal cyst. In addition, a jejunal anastomosis with the Roux-Y loop was performed to allow the discharge of bile. After the operation, the patient was admitted to Intensive Care Unit (ICU) due to postoperative respiratory failure. Postoperative analgesia was performed continuous infusion of Ropivacaine and Fentanyl via an epidural catheter. Extubated and transferred to Pediatric Surgery Department the next day. The patient was discharged home without complications on the 9th day of hospitalization after normalization of hepatic tests, bilirubin and lipase. Also abdominal cavity ultrasound follow-up was performed.

Conclusion

During diagnostic of abdominal pain in children, abdominal ultrasound always should be performed. This provide possibility of recognising rare diseased even when characteristic clinical symptoms are not present. The procedure of choice in type I choledochal cyst in children is surgical resection of the choledochal cyst and gallbladder with Roux-en-Y choledochojejunostomy. If left untreated it may lead to cholangitidis. Cirrhosis, portal hypertension and biliary malignancy.

Right pneumonectomy performed by video-assisted thoracoscopic surgery in patient with non-small cell lung cancer

Maciej Konopka

Medical University of Poznan

Presenting author: Maciej Konopka
e-mail: maciek.konopka@tlen.pl
Tutors: Mariusz Kasprzyk,

Introduction

Lung cancer is the most common malignant tumor in the world and the leading cause of cancer death worldwide. There are two general types of lung cancer: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). Surgical resection remains the treatment of choice in early detected NSCLC. However, at the moment of diagnosis, only approximately 15% patients can be qualified for lesion resection. Lobectomy is the most typical lung cancer operation, yet in some cases radical pneumonectomy should be performed. Due to development of video-assisted thoracoscopic surgery (VATS) total lung resection can be executed in minimally invasive approach and , in some cases, be equivalent to pneumonectomy performed via thoracotomy. I present the case of patient, who was diagnosed with NSCLC and underwent VATS pneumonectomy.

Case report

60-year old male was admitted to the Department of Thoracic Surgery in order to perform surgery of NSCLC in September 2016. On admission he presented cough, weakness and general malaise. In the past medical history he had been presenting persistent cough for couple of months one year earlier and had enlarged prostate gland.

Based on CT scan and bronchofibroscopy, tumor invading lower, middle and upper lobe was revealed. The patient was qualified for VATS right pneumonectomy and lymphadenectomy. Histopathological examination confirmed that R0 resection had been performed. Postoperative period was uneventful and patient after follow-up fiberoptic bronchoscopy was discharged home on the 7.-th day after surgery. Currently the patient is alive without recurrence of neoplastic disease.

Conclusion

Pneumonectomy is one of the most extensive surgeries in thoracic surgery. It is generally conducted through an open approach, however according to continuous skill perfecting in VATS it can be performed through the minimally invasive approach. It's worth emphasizing that this surgery decreases the operative trauma and the risk of postoperative complications, facilitates faster recovery and reduces hospitalization period. Despite of the fact that it is minimally invasive therapy it provides complete resection of extensive tumor such as this one presented in the case. Nevertheless qualification for surgery should be done precisely.

Oral squamous cell carcinoma in a young male patient with osteoradionecrosis of the mandible as a complication associated with its treatment

Darya Ulasava, Darya Ulasava

Jagiellonian University Collegium Medicum

Presenting author: Monika Mrowiec
e-mail: daszavlasova@gmail.com
Tutors: Marcin Czajka, Prof. zw. dr hab. n. med. Jan Zapała

Introduction

Cancer of the oral cavity together with other head and neck malignancies is one of the most common malignant neoplasms, especially in developing countries. Squamous cell carcinoma (SCC) (carcinoma planoepitheliale) is the most common histology, constitutes more than 90% of all oral cancers and its main etiological factors are tobacco and alcohol use. Oral cancers are more common in men and usually occur in the 6th and 7th decades of life. There is concern about an ongoing increase of oral squamous cell carcinoma in patients under the age of 50 years, particularly in women, as well as in the oropharynx, possible due to human papillomavirus type 16 infection (HPV16). Based on Medical Tribune estimates, in 2012 in polish population has been reported 1725 new cancer cases of the oral mucosa, which was 1,13% of all malignant tumors in Poland. Oral cancer most commonly involves the tongue (26%). It may also occur on the lip (24%) and on the floor of the mouth (23%). It can arise ab initio or from the premalignant lesions such as leukoplakia or erythroplakia, which are potentially malignant disorders of the oral mucosa. Osteoradionecrosis of the mandible is a significant complication of radiotherapy for oral cavity cancer treatment, characterized by bone tissue necrosis and failure to heal for at least 3 months. In vast majority it gradually progresses and leads to infection and pathological fracture.

Case report

This report describes a case of squamous cell carcinoma, staged T3N2bM0, involving the lateral surface of the tongue of a 22 year old white male patient with a history of regular cigarette smoking for 5 years. Furthemore, this oral cancer is being thought to be attributable to HPV infection according to history taken from a patient. With a wide local excision, the cancerous tissue was cut out and radiation therapy has been used successfully to treat patient. Patient underwent right partial glossectomy and the tongue and floor of mouth have been reconstructed by using Bakamjian's deltopectoral flap. After radiation treatment, his irradiated mandible became devitalized and exposed through overlying skin without healing for three months and patient developed osteoradionecrosis. In 2017 patient was successfully treated by surgical removal of the necrotic part of the mandible combined with preoperative and postoperative administration of antibiotics. Mandibular reconstruction has been performed by using free vascularized iliac crest flap. The saphenous vein was removed from the right lower leg and then sutured with the left facial artery and vein to create anastomosis.

Conclusion

Treatment for squamous cell carcinoma has become increasingly better. However, a large number of cases are still diagnosed at higher stage, hindering long term survival. The key to prolonged survival is early diagnosis, which requires a concerted effort by both dental and medical health care providers to appropriately screen the oral cavity for the earliest changes associated with malignancy.

Phaeochromocytoma of the right adrenal gland in a 31-year-old patient

Jerzy Miłow, Aleksandra Niwald, Kinga Dudek

Medical University of Lodz

Presenting author: Jerzy Miłow
e-mail: j.milow24@onet.pl
Tutors: profesor Janusz Strzelczyk, docent Adam Durczyński

Introduction

Phaeochromocytoma is a rare, usually benign, tumor descended from chromaffin cells located in the adrenal medulla. These cells are characterized by the secretion of catecholamines such as adrenaline and noradrenaline. This tumor is responsible for about 0.1% of cases of secondary hypertension. It is estimated that it mostly affects patients in the 4th and 5th decade of life.

Case report

A 31-year-old patient admitted to the General and Transplant Surgery Clinic of the Barlicki's University Clinical Hospital in Łódź on 27.03.2017 due to the giant tumor of the right adrenal gland. The examination revealed that the patient suffers from hypertension and bronchial asthma regulated by drugs: Doxazosinum and Montelukast. The patient underwent follow-up examinations, which showed the following departures from the norm: leukocytosis, lymphocytopenia, anaemia, CRP> 200, INR at the upper limit of normality. The patient was qualified for surgical treatment. The operation was carried out on 30.03.2017. The tumor has not been completely removed due to significant bleeding caused by profuse vascularity. After the procedure, the patient was in a good general condition. On 03.04.2017 an embolization procedure was performed without any complications. The patient was reoperated on 06.04.2017, the procedure was interrupted due to massive haemorrhage and the surgeons recognized the necessity of re-embolization of the tumor. On 13/04/2017 the patient was discharged home in good general condition. He was re-admitted to the hospital on 18.04.2017. On 19.04.2017 re-embolization was performed. On 21.04.2017 the tumor resection with surrounding tissue was performed, the material was transferred for histopathological examination. Phaeochromocytoma adrenale malignum was confirmed in histopathological diagnosis. On 27.04.2017, the patient was discharged home in a good general condition.

Conclusion

In this case, the patient's young age is a deviation from the standard diagnosis. The peak of illness is the highest in the 4th and 5th decade of life. Additionally, significant tumor vascularization hindered its complete resection. Tumor size was not typical for this type of cancer because it usually does not exceed several centimeters. Tumors like Phaeochromocytoma are usually benign. In the described case, the lesion turned out to be malignant.

Comparison of postoperative complications in patients undergoing laparoscopic nephron sparing surgery and laparoscopic nephrectomy.

Simona Szkarłat

Medical University of Lodz

Presenting author: Simona Szkarłat
e-mail: simona.szkarlat@stud.umed.lodz.pl
Tutors: Zbigniew Jabłonowski,

Introduction

Renal Cell Carcinoma (RCC) is the most frequent malignant neoplasm of kidneys in adults and accounts for 3% of malignant tumours. Nephrectomy and nephron sparing surgery (NSS) are surgical treatment options in renal tumors. NSS is preferred due to renal function preservation, better quality of life and lower risk of metabolic and cardiologic diseases. The Clavien-Dindo classification with 5 grades, classifies postoperative complications after surgery.

Aim of study

The aim of the study was to compare postoperative complications in patients undergoing laparoscopic surgery due to renal cell carcinoma between 2015-2017. We compared complications according to Clavien-Dindo classification after laparoscopic NSS and nephrectomy.

Material and methods

A retrospective analysis of patients undergoing laparoscopic surgery due to renal tumor was performed. The collected data included: gender, age, tumor size, type of laparoscopic surgery (NSS or nefrectomy), intraoperative and postoperative complications. Categorical values (Clavien-Dindo grade) were compared using chi-square test. Continuous variables were compared with the Wilcoxon Rank sum test .

Results

The group of 68 patients with mean age 58,9 years (range 33-79) included 24 (35%) females and 44 (65%) males. Laparoscopic nephrectomy was performed in 35 cases (51%): 17 females and 18 males. Laparoscopic NSS was performed in 33 cases (48%): 7 females and 26 males. No difference was found in the mean age of NNS vs Nephrectomy patients. Intra- and postoperative complications occured in 22 patients (32%), including 13 cases of NSS (19%) and 9 cases of nephrectomy (13%). Twenty cases (91%) of complications were classified as minor first grade according to Clavien-Dindo classification, including 12 (18%) laparoscopic NSS and 8 (12%) laparoscopic nephrectomy. Two cases were classified as second grade of Clavien-Dindo classification: 1 (3%) case of nephrectomy and 1 (3%) case of NSS, only in male. Complications of higher grades did not occur. There was no relationship between the sex of patients in the percentage of complications.

Conclusion

There was no statistically significant difference in the percentage of complications between laparoscopic NSS and laparoscopic nephrectomy patients.
The most common complications were classified to first grade of Clavien-Dindo classification.

Hepatocellular carcinoma developed due to nonalcoholic steatohepatitis related with metabolic syndrome: case report.

Olaf Dłuski

Medical University of Warsaw

Presenting author: Olaf Dłuski
e-mail: olostycze@gmail.com
Tutors: Maurycy Jonad,

Introduction

Hepatocellular carcinoma (HCC) is the most common type of liver neoplasm. It is the third cause of cancer-related death worldwide. Most cases of HCC are a result of a HBV, HCV infection and an overuse of an alcohol. Observed patient triggered liver cancer in view of nonalcoholic steatohepatitis (NASH), related with a metabolic syndrome.

Case report

60-year-old man was admitted to the university hospital for an elective resection of HCC from 6th hepatic segment. The neoplasm had 35mm in the diameter and developed due to NASH. Laboratory testing revealed increased level of alfa-fetoprotein. HBV and HCV infections were excluded and he refused an alcohol abuse. The patient had also obesity, complicated diabetes mellitus type II and arterial hypertension as the elements of metabolic syndrome. Laparotomy and intraoperational ultra sound confirmed the lesion. The liver was fatty but without visual signs of cirrhosis. In view of the tumour's localization deep in the liver tissue and high possibility of bleeding, radiofrequency ablation (RFA) was performed instead of resection. The patient was discharged from hospital 3 days after the procedure. The recommendations included only pain management. Planned follow up includes AFP level control and multiphase CT scan 3 months after recovery.

Conclusion

Increasing efficiency of viral hepatitis infections' prevention and treatment induces increasing role of NASH in the etiology of HCC. We need to consider that metabolic syndrome can trigger the HCC even without visible liver dysfunction. However, more clinical and epidemiological data are required to confirm these conditions' overlapping. It may affect on the HCC prevention or even modify the treatment.

A rare case of the intrathoracic displacement of the humeral head with the proximal humeral fracture.

Rozalia Kośmider, Łukasz Krzypkowski , Barbara Kosteczka, Aleksandra Konieczny, Jonasz Kozielski

Medical University of Silesia

Presenting author: Rozalia Kośmider
e-mail: rozalia.kosmider@gmail.com
Tutors: Mateusz Rydel

Introduction

Intrathoracic displacement of the humeral head is an extremely rare complication of severely high energy trauma. It can lead to pneumothorax and hemothorax. Proximal humeral fractures are the third most common fracture. This type of fracture is often caused by fall with the arm adducted or abducted.Coexisting of both types of injuries is very rare.

Case report

49-old patient was admitted to Thoracosurgery Clinic in Zabrze, directed from Orthopaedic Trauma Surgery Department in Blachownia due to injury two days earlier. The CT-scan revealed: left-side comminuted fracture of proximal humerus with intrathoracic displacement of a fractured humeral head which migrated to the left pleural cavity; left-sided (2-5)rib fractures with significant displacement of the fragments of third and fourth rib; subcutaneus emphysema of the chest wall and the neck and atelectasis of the inferior lobe of the left lung.On admission day anterolateral thoracotomy was performed. Desquamated head of humerus and hematoma were removed from left pleural cavity. Hematoma of superior mediastinum was observed. Protruded rib fragments were removed. Damaged pleura was sutured and orifice in chest wall was partly closed. Drainage of left pleural cavity. On CT-angiography damage of the left axillary artery and left subclavian artery was excluded. On third postoperative day, patient in stable condition was discharged from Thoracic Surgery Ward in Zabrze and the treatment was continued in Hospital in Blachownia.

Conclusion

1. Coexisting of intrathoracic displacement of the humeral head and proximal humerus fracture is extremely rare. Because of the limited number of cases, appropriate treatment modality remains individual.
2. Intrathoracic displacement of the humeral head can cause hemothorax, pneumothorax and damage of thoracic arteries, therefore control tests such as CT-angiography should be performed.

Changes in olfaction sense after laparoscopic bariatric surgery combined with ERAS protocol – pilot study.

Piotr Tylec, Julia Wierzbicka, Natalia Gajewska,

Collegium Medicum Jagiellonian University in Cracow

Presenting author: Piotr Tylec
e-mail: tylec.piotr@gmail.com
Tutors: Magdalena Pisarska,

Introduction

Number of patients with morbid obesity increase in Poland and worldwide. Bariatric surgery is an effective method of treatment and is associated with change in nutritional habits. Proper nutrition is important factor in recovery after surgery. Diet preferences consider both flavour and olfaction stimuli. A few studies showed long-term changes in sense of smell after bariatric surgery, but there are no data on short-term changes. Observation of olfaction change immediately after surgery may lead to improvement of postoperative care.

Aim of study

The aim of this study was to investigate whether there was any change in olfaction in the short period after laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass (LRYGB).

Material and methods

Patients undergoing bariatric surgery between December 2017 and March 2018 had olfaction tests.Patients' olfaction sense was tested qualitatively and quantitatively using Sniff Test day before surgery and 24 hours after surgery. Sniff test contains 3 tests, the maximum result from each one is 16 points. First verify sensitiveness, second discrimination and third ability to name the smell The demographic data of patients were also analysed.

Results

Study enrolled 24 patients (16 women, 8 men). 19 patients underwent LSG and 5 patients LRYGB. Mean BMIentire group was 44.23 ± 5.12 kg. There were statistically significant differences between pre- and postoperative mean score from 1st test: 9.66 ± 3.63 vs. 7.93 ± 3.39 (p=0.027). There were no statistical differences between scores from 2ndtest: 9.67 ± 3.43 vs. 8.74 ± 2.37 (p=0.133), respectively. Meanresults from the 3rd test did not differ between measurements 14.50 ± 1.50 vs. 14.33 ± 2.10 (p=0.647), respectively. Moreover, we observed differences in mean total scores of tests: 33.82 ± 6.02 and 30.93 ± 5.52 (p=0.011), respectively.

Conclusion

Our study revealed that there is decrease in olfaction sense 24 hours after bariatric surgery. Both the result of the test confirming the sensitivity and the total sum of points from all tests had a significantly lower score after the procedure. Further research is needed to determine the impact of bariatric surgery on sense of smell.

Traecher - Collins Syndrome– difficulties in surgical treatment base on case report

Agnieszka Burak

Collegim Medicum of University of Warmia and Mazury

Presenting author: Agnieszka Burak
e-mail: agnieszka.burak93@gmail.com
Tutors: dr n. med. Rafał Pokrowiecki, dr n. med. Krzysztof Dowgierd

Introduction

Traecher-Collins Syndrome (TCS) is a genetic condition that affects the development of both, hard and soft tissues of the head and neck. Signs and symptoms vary between individuals, ranging from almost unnoticeable to severe. Individuals with TCS suffer from underdeveloped facial bones, particularly zygomatic, and hypoplastic mandible (micrognathia). Also, cleft palate, hearing loss and vision impairment are reported. TCS may be caused by mutations in the *TCOF1*, *POLR1C*, or *POLR1D*. Disease is inherited in autosomal recessive pattern.

Case Report

16-year-old male was referred for treatment continuation due to TCS associated craniofacial dismorphism. At birth, facial dismorphism and cleft palate were diagnosed. Then, he underwent palatoplasty and pharyngoplasty due to velopharyngeal insufficiency. Genetic test were negative for deletion in DiGorge (D22S75) region. Patient underwent multiple secondary reconstructive procedures: bilateral, vertical distraction of jaw (at the age of 13), bilateral osteotomy of mandibular branch with distraction (at the age of 15) and orthognathic surgery with autogenous bone transplants from the hip (at the age of 16).

Conclusion

Treatment of facial dismorphism in PRS is multidisciplinary and requires multi-stage surgery protocol. Prior to each step of treatment, patient requires meticulous diagnosis: polysomnography, fiberscopy, airways, vision (VEP) and hear (ABR) evaluation as well as radiographic tests (lateral X rays, computed tomography). However, surgical treatment protocol depends on individual problems of the patient. There is no specific protocol for TCS surgery, and each patient is treated individually.

Risk factors for prolonged hospitalization after laparoscopic appendectomy

Artur Kacprzyk, Jakub Droś, Tomasz Stefura, Kaja Trzeciak

Jagiellonian University Medical College

Presenting author: Artur Kacprzyk
e-mail: artur.kacprzyk@gmail.com
Tutors: Maciej Matyja, Michał Pędziwiatr MD, PhD

Introduction

Modern perioperative care principles in emergency surgery need to be well established. It is crucial to decrease morbidity and length of hospital stay. Therefore, we decided to determine risk factors for prolonged hospitalization (PH) for laparoscopic appendectomy, which is one of the most common minimally invasive procedure performed for acute abdomen.

Aim of study

To assess potential risk factors for prolonged hospitalization after laparoscopic appendectomy.

Material and methods

505 patients who underwent laparoscopic appendectomy during 7-year period were included in the study. We analyzed patients' demographics, preoperative symptoms, intraoperative and postoperative outcomes. Prolonged length of hospital stay (LOS) was defined as a hospital stay greater than or equal to the 75th percentile (in days) of all records. Univariate and multivariate logistic regression models were built in order to identify the predictors of prolonged hospitalization.

Results

Median LOS in the study group was 3 (IQR: 2-4) days. LOS longer than 3 days was recorded in 139 (27.52%) cases. In univariate analysis age, higher BMI, history of previous abdominal surgeries, higher ASA score, duration of symptoms > 48h, abdominal rigidity and fever on admission, longer operative time, perforation of appendix, intraabdominal abscess formation, gangrenous appendicitis, conversion, postoperative complications and reoperations were related to prolonged hospitalization. Multivariate logistic regression model revealed higher BMI [with every 1 kg/m2, OR 1.02 (1.01-1.04)], duration of symptoms > 48h [OR 1.90 (1.11-3.25)], fever [OR 1.91 (1.15-3.15)] and abdominal rigidity [OR 2.26 (1.25-4.07)] on admission, longer operative time [with every 1 minute, OR 1.01 (1.01-1.02)], conversion [OR 8.88 (2.19-36.00)], gangrenous appendicitis [OR 2.29 (1.33-3.97)] and postoperative complications [OR 10.84 (3.20-36.78)] as independent significant predictors for prolonged hospitalization.

Conclusion

We determined several significant independent risk factors of prolonged hospitalization after laparoscopic appendectomy including higher BMI, duration of symptoms, fever and abdominal rigidity on admission, longer operative time, conversion, gangrenous appendicitis and occurrence of postoperative complications. Our study indicates that intraoperative course and postoperative adverse events have greater impact on LOS after laparoscopic appendectomy than preoperative patient's characteristics.

Management of Iliac Artery Injury caused by lumbar discectomy: report of two cases

Aneta Myszka

Jagiellonian University Medical College

Presenting author: Aneta Myszka
e-mail: anetamyszka95@gmail.com
Tutors: Roger Krzyżewski, Jarosław Polak

Introduction

Vascular injury during lumbar disc surgery is a rare complication. However, if it does occur, it can cause devastating consequences if not recognized and treated immediately. In this study, I present two cases of vascular injury that occurred during routine lumbar discectomy treated with minimally-invasive endovascular technique.

Case report:

Case 1

A 40-year-old female patient admitted to the department of neurosurgery with left-sided sciatica, foot paresis, weakened knee-reflex, moderate lumbosacral pain. T2-weighted MR(magnetic resonance) revealed an extruded intervertebral disc at the L4–L5 level. During fenestration discectomy heavy venous bleeding, blood pressure decrease, tachycardia, and reduction of end-tidal CO2 was noticed suggesting intraoperation vessels injury. Immediate Computed Tomography Angiography revealed extravascular leakage of contrast medium around left common iliac artery. After consultation with vascular surgeon transluminal angioplasty was performed and stent graft was implanted in the left iliac artery. The patient was discharged without sequelae deficits after 11 days.

Case 2

A 61- year-old female patient, with no prior neurological impairment, was admitted to the neurosurgical unit with persistent lumbar pain radiating down towards left lower extremities associated with numbness and tingling without associated weakness. T2-weighted MR revealed an extruded intervertebral disc at the L4–L5 level and spinal canal stenosis at L3-L4 and L4-L5. The patient was qualified for L4/L5 discectomy and intervertebral stabilization.

After surgery patient demonstrated lower right limb pain. Physical examination revealed no pulse on the right femoral artery, marbled limb bruising. CT angiography displayed large hematoma surrounding right iliac vein and occlusion of the right iliac artery. The patient was qualified to spine-femoral supra-span with good effect. Subsequent CT scans revealed decreased enhancement contrast between the internal iliac vein and the common right. and no opacification of the right external iliac vein. The patient was qualified for surgery to supply arteriovenous fistula of right iliac vessels. After removal of the suprapubic spine, stent graft was implanted in the right external iliac artery. The consecutive treatment went without complications and patient was discharged after 12 days.

Conclusion

Although iatrogenic vascular injuries during lumbar discectomy are rare, they are especially important due to their potential life-threatening consequences. Both surgeon and anesthesiologist should interpret intra- and postoperative findings to provide a timely diagnosis and treatment with decreasing morbidity and mortality. Moreover, the significant progress in intravascular techniques can represent an excellent therapeutic alternative.

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Aneta Myszka

Jagiellonian University Medical College

Presenting author: Aneta Myszka
e-mail: anetamyszka95@gmail.com
Tutors: Roger Krzyżewski, Jarosław Polak

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Parry-Romberg syndrome (progressive hemifacial atrophy)- a case report.

Barbara Święchowicz

Medical University of Lodz

Presenting author: Barbara Święchowicz
e-mail: swiechowicz.barbara@gmail.com
Tutors: Bogusław Antoszewski, Dr n. med. Anna Kasielska-Trojan

Introduction

The purpose of this case report is to present a rare Parry- Romberg entity. The syndrome has a higher prevalence in females. Progressive hemifacial atrophy is mainly associated with slow degeneration of subcutaneous fat, sometimes accompanied by skin, cartilage, bone and muscle atrophy. Progression is rapid- from two to ten years from onset but then stabilizes.

Case report

67 –year- old female patient with Parry-Romberg syndrome reported to the Plastic and Reconstructive Surgery Department in Łódź, Poland. In the physical examination the facial asymmetry was detected. Skin and subcutaneous tissue was atrophic in the right cheek area, nasolabial fold and zygomatic region (dimensions 5cmx6cm). Patient had long-term syndrome history and was admitted to the clinic second time for fat transfer procedure. From the epigastric region, on the left side, 40 ml of fat were collected and centrifuged for 3 minutes 3000 RMP. 12 ml of adipose tissue was given to the area of right cheek.

Conclusion

Parry- Romberg syndrome is rare and poorly understood disease entity, appearing for unknown reasons. Asymmetry face is not only an esthetic problem, but also functional and psychological. The surgical treatment include autologous fat transfers, cartilage grafts, silicone injections and implants to restore a normal face contour. But all methods ale losing with time during ageing so usually patients requires further intervention. The etiology still remain unclear.

Clinical Risk and Protective Factors for the Aneurysms Rupture of Anterior Communicating Artery

Aneta Myszka

Jagiellonian University Medical College

Presenting author: Aneta Myszka
e-mail: anetamyszka95@gmail.com
Tutors: Roger Krzyżewski, Jarosław Polak

Introduction

The anterior communicating artery (ACoA) an aneurysm is the most common type of an aneurysm and its rupture being the cause of Subarachnoid haemorrhage (SAH). Therefore, it is important to identify a patient's predisposition for an increased risk of an aneurysmal rupture. It should be noted that many clinical studies have focused on the predictors for all intracranial aneurysmal ruptures. This leads me to believe that the separate factors that correlate to an increased risk of an anterior communicating artery aneurysm rupture might be underestimated.

Aim of study

The aim of this study was to identify the clinical characteristics that are strongly associated with the increase the risk of the ACoA aneurysms rupture.

Materials and methods

Data from 247 consecutive patients with ACoA aneurysms were retrospectively reviewed**.** The patients were divided into ruptured (n=135) and unruptured groups (n=112). Twenty-five aspects of the clinical characteristics were evaluated and based on statistical analysis determined as the potential risk factors of the aneurysms rupture.

Results

Atherosclerosis was more prevalent in ruptured ACoA aneurysm group (25.95% vs. 19.82%; p=0.05) as well as hyperthyroidism (3.01% vs. 0.89%; p=0.06) and coagulation disorders (2.27% vs. 0.89%; p=0.08). Intake of steroids (0.75% v 0.00%; p<0.01) or diuretics (14.50% vs. 11.10%; p<0.01) significantly increased risk of the ACoA aneurysms rupture. Besides patients who have taken ASA (22.02% vs. 4.55%; p<0.01), statins (18.35% vs. 3.05%; p<0,01), calcium channel blockers (16.51% vs. 3.82%; p<0.01) and beta blockers (32.11% vs. 5.34%; p<0.01) presented extremely decreased risk of the ACoA aneurysms rupture.

Conclusions

Rupture of the ACoA an aneurysm might be associated with atherosclerosis, hyperthyroidism, coagulation disorders. Moreover, steroids and diuretics strongly increased the risk of aneurysm rupture. Statins, ASA, calcium channel blockers and beta blockers due to endothelium-protecting properties reduce the risk of aneurysm rupture.

SURGERY 2

COORDINATORS
Kinga Dudek
Emilia Walczak

JURY
Professor Dariusz Jaskólski, MD, PhD
Professor Krzysztof Kuzdak, MD, PhD
Professor Adam Maciejewski, MD, PhD

Assessment of Surgical Treatment of Central Giant Cell Lesions (CGCL) in the Material of the Department of Maxillofacial, Oncological and Reconstructive Surgery of Jagiellonian University

Iga Janecka, Anna Banaś

Collegium Medicum Jagiellonian University

Presenting author: Iga Janecka
e-mail: janecka.iga@gmail.com
Tutors: Marcin Czajka

Introduction

Central Giant Cell Lesion (CGCL) is a rare benign, but in some cases locally aggressive, osteolytic tumor of the jaws, characterized by the presence of osteoclast-like giant cells, most frequently showing no symptoms and high tendency of recurrence. Treatment of this neoplasm may involve either surgical or non-surgical methods.

Aim of study

The aim of this research is to assess effectiveness and patients' satisfaction of surgical treatment of Central Giant Cell Lesions.

Material and methods

23 patients at the age from 4 to 84 when enrolling on the operation, who underwent the surgical treatment of Central Giant Cell Lesion in the Department of Maxillofacial, Oncological and Reconstructive Surgery of Jagiellonian University in the period of 2007-2017, were included in this trial. During the follow-up visit the patients were asked to fill in a post-operative questionnaire correlating the symptoms that had occurred before their operations with the patients' present condition, particularly taking into consideration recurrence of the lesions, post-operative complications and aesthetics of the scars and reconstructions. Moreover, the patients were asked to assess the quality and their satisfaction of received treatment in general. Furthermore, medical documentation of the aforementioned patients has been submitted for analysis.

Results

Recurrence of Central Giant Cell Lesions has occurred in 30,4 % of cases. Furthermore, in 39,1% of cases during the first surgery the lesion was not removed completely according to the result of post-operative histopathological test, hence subsequent procedure was required. Conservative treatment had been performed in 13,0% of cases prior to the surgery. Moreover, vast majority of the mandibular lesions treatment cases led to disturbances of sensation in the lower lip. Other complications were reported in 34,8% cases. Additionally, no correlation between the rate of the quality of received treatment and neither its duration, number of surgeries, recurrence of the lesion or occurrence of the complications has been found. However, there is a positive correlation between that rate and the aesthetics of the post-operative scar.

Conclusion

With a view to the results of our research, surgical treatment is an effective method of managing with Central Giant Cell Lesions, however, a combination of surgical and non-surgical methods should be taken into consideration with the aim of recurrence and reoperations rate reduction. The study showed that the level of patients' satisfaction is mainly dependent on the visual outcome of the treatment albeit also may be biased by such factors as quality of medical attention and awareness of the conducted treatment coming from the good doctor-patient communication.

The anomaly of urethra development - megaurethra.

Ainur Bishmanova, Bakitzhan Abekenov

Scientific Center of Pediatrics and Children Surgery

Presenting author: Ainur Bishmanova
e-mail: ainurbishmanova@gmail.com
Tutors: Bakitzhan Abekenov,

Introduction

Megaurethra (megalourethra) is a congenital disorder, an expressed enlargement of the hanging part of urethra, without the phenomena of disturbance of the urodynamics in its distal part. The treatment is a reconstructive-plastic surgery, urethroplasty after excision of the dilatated ventral part of urethra, but under the condition of normal development of the cavernous body.

Case study

The boy, 2 years 3 months old, with complaints about the strong curvature of the penis, the urine output in drops from his birth. When he was examined locally, it appeared that the penis is strongly curved by fluid formation along the ventral surface.

The cystography could not be done, since Nelaton's urethral catheters Fr 6-8 did not pass beyond the hanging part of urethra, it was decided to perform retrograde urethrography. Balloon extension of urethra's hanging part was diagnosed. Further the urethrocystoscopy under general anesthesia was conducted. Cystoscope Fr 9.5 has passed the distal part of urethra without any obstacles. Further, during revision, an expressed enlargement of the hanging part of urethra is determined (from the bulbar part of the urethra to the level of coronal sulcus). Data for stenosis of the urethra or urethral valve have not been revealed. Then the cystoscope was inserted into the bladder without any difficulties. Based on all the data obtained, after discussing at the medical conference, it was decided to do a reconstructive plastic surgery to eliminate the extension and subsequent urethroplasty on the urethral catheter.

The surgery. Under the general anesthesia, the glans is taken on the suture holder. Longitudinal section is made at the level of the penoscrotal part. The urethra is expressed enlargement up to 3 cm in diameter, 7 cm long, from the level of the posterior urethra to the coronal sulcus. The urethra is longitudinally is dissected, the urethral catheter is installed in the urinary bladder, the marginal excision of the urethral wall is made, followed by suturing the urethral defect with the suture material by the semisynthetic "PDS" 7/0, on the Nelaton catheter 8 Fr. The seam is strengthened by suturing surrounding tissues. The skin defect on the ventral surface is sewn.

Postoperative cosmetic effect is excellent. The urethral catheter was removed on the 9th day after the surgery, independent urination is free, painless, and regular; there was no data for the urethral fistula. The stream is wide, not intermittent, without any tense. The child has a desire to urinate.

Conclusion

Megaurethra is a very rare anomaly of the development of urethra; in total, about 100 cases in all age groups have been described. In case of the scaphoid type of congenital megaurethra, carrying out longitudinal urethroplasty resection gives excellent functional and cosmetic results, as can be seen in our case.

A prospective study of influence of surgical treatment of morbid obesity on daily glycaemia fluctuation in perioperative period.

Katarzyna Jasińska, Kaja Trzeciak, Tomasz Stefura, Jakub Karpiński

Jagiellonian University Medical College

Presenting author: Katarzyna Jasińska
e-mail: katarzyna.jasinska100@gmail.com
Tutors: Piotr Major,

Introduction

Nowadays lacks studies presenting the impact of bariatric procedures on glucose homeostasis immediately after surgery. Therefore, it is reasonable to look into changes in glucose metabolism in diabetic and nondiabetic patients with morbid obesity for better optimization of perioperative care.

Aim of study

We aimed to assess daily glycaemia fluctuation in perioperative period in patients undergoing laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass.

Material and methods

Prospective study enrolled patients qualified to laparoscopic sleeve gastrectomy or gastric bypass. Inclusion criteria: diabetes mellitus type 2 diagnosed within 5 years (G1) or no glucose metabolism disorders (G2); morbid obesity; informed consent to participate. Patients underwent clinical evaluation one day prior surgery. Continuous glycaemia monitoring (CGM) using iPro2® system started from admission, throughout surgery, until first days after discharge. Study was approved by the Bioethics Committee of UJ (122/6120/5/2017).

Result

Both groups consisted of 8 patients, predominantly females (63%), in mean age of 43±10 years old. BMI on admission, type of procedure did not differ groups (p=0.83; 0.142). In G1 ASA class 3 was present in 3 cases, while ASA 2 in 5 vs. 8. HbA1c% did not differed groups (5.7±0.7 vs. 5.4±0.5; p=0.46). Average glucose concentration (glc) overtime in CGM did not differ groups (81.6±11.1 mg% vs. 89.1±26.3; p=0.47). Percentage of glc in targeted compartment (70-120 mg%) were lower in first group – 66.5 (51.5-75.5) vs. 72 (30-82.5), but not significantly (p=0.71). Measurements below target were present in 26% of time in G1 26 (9-45) vs. 17.5 (4.5-40) in G2 (p=0.64). Mean number of hypoglycemia events overtime was 14±5 in G1 vs. 9±6 in G2 (p=0.11). Mean preoperative daily glc was 78.3±19.6 vs. 74.6±22.8 (p=0.76), on days 2-3 – 91±15.3 vs. 91.3±15.3 (p=0.98), on days 4-6 – 86.4±31.1 vs. 77.1±11.7 (p=0.42), and on days 7-10 – 74.1±40.2 vs. 74.1±13.6 (p=0.99).

Conclusion

Despite surgical stress, the perioperative period is a time of desirable glycemic control. Risk of hypoglycemia is existent, and patients should be monitored for symptoms. Glucose metabolism recover to preoperative state after 7-10 days.

Does the presence of prolonged appendicitis symptoms is a predictor of inferior perioperative outcomes of laparoscopic appendectomy?

Jakub Droś, Artur Kacprzyk, Tomasz Stefura

Jagiellonian University Medical College

Presenting author: Jakub Droś
e-mail: jakub.dros@gmail.com
Tutors: dr hab. med. Michał Pędziwiatr,

Introduction

Conventional experiences in general surgery teach about an increasing risk of appendix perforation with time after the onset of appendicitis symptoms, which may influence outcomes of the surgical treatment. Some patients report prolonged symptoms at the time of admission to the emergency department.

Aim of study

To assess whether the presence of at least 48-hour appendicitis symptoms is a predictor of worse perioperative outcomes of laparoscopic emergency appendectomy.

Material and methods

This retrospective analysis was conducted among patients who underwent laparoscopic appendectomy for suspected acute appendicitis. Appendectomies as the parts of extended surgeries were excluded from the study. Patients reported <48-hour and ≥48-hour symptoms on admission were included in groups A and B, respectively. Intra- and postoperative parameters recorded within 30 days after the surgery were considered endpoints of the study. All data were gathered from the hospital electronic database.

Results

588 patients were included in the study. Groups A and B comprised 442 (75.17%) and 146 (24.83%) cases, respectively. Patients from group A were characterized by significantly higher preoperative Alvarado score comparing to group B [median 7 (6-8) vs. median 6 (5-8), $p<0.001$]. Intraoperative diagnosis confirmed more gangrenous and less phlegmonous appendicitis in group B ($p<0.001$). Furthermore, the rates of perforation and intraperitoneal abscess were higher in group B (5.75% vs. 16.20%, $p<0.001$ and 5.52% vs. 16.90%, $p<0.001$, respectively). The analysis of the perioperative course revealed longer operative time [median 65 (50-90) min vs. median 72.5 (55-100) min, $p=0.018$] and conversion rate (4.41% vs. 9.86%, $p=0.022$) in group B, but the incidence of intraoperative adverse events and postoperative complications did not significantly differ between the groups ($p=0.632$ and $p=0.120$, respectively). Longer hospital stay [median 3 (2-3), mean 3.17 vs. median 3 (2-5), mean 4.43, $p<0.001$] as well as more reinterventions and readmissions (1.58% vs. 6.85%, $p<0.001$ and 2.26% vs. 7.53%, $p<0.001$, respectively) were required among patients from group B.

Conclusion

Although patients subjected to laparoscopic appendectomy who report at least 48-hour symptoms on admission are prone to longer operative time and higher conversion rate, the incidence of overall postoperative complications is not increased. However, higher reintervention risk and readmission rate may be observed.

Clavien-Dindo classification and its usefulness in the assessment of complications after surgery

Pawel Hackemer, Fryderyk Menzel, Anna Otlewska, Grzegorz Szpotowicz

Wroclaw Medical University

Presenting author: Pawel Hackemer
e-mail: phackemer@gmail.com
Tutors: Janusz Dembowski,

Introduction

Complications are adverse events, but they are a permanent component of hospitalization in wards with a surgical profile. The set of possible complications is so large that can be called even infinite. There is a lot of scientific research aimed at detecting the causes of complications and then eliminating them. For this purpose, a scale is needed to unify all adverse events.

Aim of study

In 2004 Clavien and Dindo proposed a classification of complications, which was named after them. The aim of the study is to prove the rightness of using the Clavien-Dindo classification in the assessment of complications in operated patients. The first stage corresponds to the necessity of administering drugs such as painkillers, diuretics, etc. The second degree is a case requiring the administration of more specialized drugs or blood transfusion. The third stage is a group requiring surgical intervention. The fourth degree is life-threatening complications such as myocardial infarction, stroke (not TIA), and fifth grade is a fatal complication.

Material and methods

The study group consisted of 200 patients operated in the Department of Urology and Urological Oncology in Wroclaw. All patients were subjected to cystectomy - removal of the bladder.

Results

A number of complications occurred in the study group, such as infection (57), wound dehiscence (4), mechanical bowel obstruction (3), bleeding requiring reoperation (2), myocardial infarction (8), stroke (3) and others. A large proportion of patients required a transfusion of the packed red blood cells. Individual types of complications do not provide enough groups of patients to be able to subject these complications to statistical analysis. The Clavien Dindo classification divides complications into 5 main groups, of which the third and fourth groups are divided into two subgroups.

Conclusion

The division into five main groups enables easy multicenter analysis of hospitalization in surgical wards. The example of the surveyed group yielded data in a much more accessible form. All patients after such extensive surgery as cystectomy require the supply of painkillers, which in the first group included 62 patients. Due to frequent blood transfusion, 101 patients were included in the second group. The third group is made up of 15 patients, the fourth one is 17 and the fifth is 5. The presented scheme of complications is clear and legible. It provides unification, which allows to compare the quality of services over the years in the same center, or multi-center analyzes.

Factors affecting intraoperative blood loss.

Pawel Hackemer, Fryderyk Menzel, Anna Otlewska, Grzegorz Szpotowicz

Wroclaw Medical University

Presenting author: Pawel Hackemer
e-mail: phackemer@gmail.com
Tutors: Janusz Dembowski,

Introduction

Intraoperative blood loss is an important variable in all surgical procedures. In case of large abdominal procedures, the loss of blood may vary in a large range. The most extensive urological operation is cystectomy, i.e. removal of the urinary bladder. The treatment is different in both sexes. In men, the bladder is removed, prostate and seminal vesicles. In women outside the bladder, the uterus with appendages and the front wall of the vagina are also removed.

Aim of study

Intraoperative blood loss depends on many factors, their emergence seems crucial when preparing the patient for surgery. The aim of the study is to determine the prognostic factors before cystectomy, which correlate with intraoperative blood loss.

Material and methods

the study group consisted of 213 patients who underwent cystectomy at the Department of Urology and Urological Oncology in Wroclaw. Retrospectively, the history of hospitalization and operation descriptions were analyzed. An attempt was made to establish a correlation between intraoperative blood loss and age, sex, hemoglobin concentration, INR, APTT, platelet count, BMI and ASA scale. For this purpose, the correlation using the Spearman method and the Student's T-test were used.

Results

The average intraoperative blood loss was 1020ml with a standard deviation of 711ml. The lowest recorded volume of blood that the patient lost during the treatment is 200ml and the largest is 5400ml. There was no correlation between blood loss and patient's age, APTT, platelet count and ASA score. The study group was divided into men (176) and women (33), a statistically significant difference in intraoperative blood loss was observed using the T-Student test. Women lost an average of 1286ml and men 968ml, it is highly probable that the difference is the scope of the treatment. As mentioned in the introduction, treatments of both sexes differ in the package of additionally removed organs beyond the bladder. A correlation was also observed at the level of 0.21 between the concentration of hemoglobin determined before surgery and blood loss. The correlation of 0.17 between INR and bleeding is not surprising. The highest correlation coefficient was obtained for the BMI variable, as much as 0.28. The above results are statistically significant.

Conclusion

Gender should not be taken into account as a factor influencing blood loss during cystectomy, due to differences resulting from the scope of the procedure. However, BMI as the factor with the highest degree of correlation should be taken into account when the patient is selected for surgery. Due to the large number of patients for cystectomy, waiting time reaches even three months. During which the obese patient should reduce body weight. Which will not only improve the course of the treatment but also convalescence. Excess adipose tissue makes it technically difficult to perform the procedure but also the adipose tissue is the source of intraoperative bleeding.

Clinical analysis of urinary tract infections in patients admitted for transurethral resection of bladder tumor

Fryderyk Menzel, Paweł Hackemer, Anna Otlewska, Małgorzata Milnerowicz

Wroclaw Medical University

Presenting author: Fryderyk Menzel
e-mail: fryderyk.menzel@gmail.com
Tutors: Janusz Dembowski,

Introduction

Majority of newly diagnosed bladder cancer are superficial, confined to mucosa of the bladder wall. Transurethral resection of bladder cancer (TURB) is a standard treatment procedure in patients diagnosed with non-muscle-invasive bladder cancer. The bladder tumor or multiple tumors are resected at their base with the resection loop, while the visible vessels are coagulated. Urinary tract infections (UTI) in those patients are strong indication for antibiotic treatment due to increased risks of urosepsis.

Aim of study

The aim of the study was to analyze the association between selected laboratory results including inflammatory markers and positive urinary culture in patients admitted for transurethral resection of bladder tumor (TURB). Furthermore, the frequency of urinary tracts infections and etiological agents were evaluated.

Material and methods:

We retrospectively evaluated medical data obtained from 549 patients who underwent TURB between January 2016 and September 2017 at Urological Department of University Hospital in Wroclaw. One the first day of admission laboratory tests including blood tests and C-reactive protein (CRP), urinalysis and urine culture were ordered. Urine samples suspected of contamination were excluded from the study. To evaluate the influence of individual factors statistical analysis was performed using multivariate regression and correlation analysis.

Results

Urinary tract infection confirmed by positive urinary culture was present in 148 patients (27%). The most frequent etiological agents were Enterococcus spp. (45%) and Escherichia coli (36%). The mean serum level of CRP was 20,25 (0,1-543) mg/dl and elevated level of CRP (>5mg/dl) associated with urinary tract infection ($p < 0.05$). The mean white blood cells (WBC) was 8,25 (3,93-41,6) thousand/ul and was elevated above normal range in 107 patients (19,5%). However, in almost 75% patients with positive urine culture and clinical symptoms of UTI, WBC were within the norm.

Conclusion

Urinary tract infections (UTI) are common clinical problem in patients undergoing urological transurethral procedures. Elevated level of CRP is significantly associated with higher risk of UTI presence and is reliable diagnostic factor. Adequate antibiotic treatment should be administered prior to the procedure to prevent from severe infections including urosepsis or septic shock.

Analysis of factors affecting the length of hospital stay in patients undergoing transurethral resection of the prostate.

Fryderyk Menzel, Aleksandra Drabik, Paweł Hackemer, Grzegorz Szpotowicz

Wroclaw Medical University

Presenting author: Fryderyk Menzel
e-mail: fryderyk.menzel@gmail.com
Tutors: Janusz Dembowski,

Introduction

Benign prostate hyperplasia (BPH) is a common condition in older men characterized by enlargement of prostate gland, which is a primary cause of bladder outlet obstruction. Typical symptoms include frequent urination, troubles with initiation micturition, nocturia, urinary intermittency and may lead to acute urinary retention which requires immediate intervention. According to epidemiological studies more than half of 60-year-old men suffer from BPH. Transurethral resection of the prostate (TURP) is a standard treatment of BPH, especially in patients presenting symptoms despite the pharmacotherapy.

Aim of study

This study was aimed to analyze the factors affecting the length of hospital stay in patients undergoing transurethral resection of prostate. Furthermore, we wanted to identify modifiable factors, that could reduce the length of hospitalization.

Material and methods

The medical data of 86 patients who underwent TURP between January 2016 and December 2016 was retrospectively analyzed. Patients were admitted to hospital one day prior to surgery. In our analysis, we included number of laboratory test results: red blood cells (RBC), white blood cells (WBC), platelets (PLT), hemoglobin (HGB), C-reactive protein (CRP), creatinine level, estimated glomerular filtration rate (eGFR), urinalysis, urine culture. Furthermore, we assessed procedure time, operator experience (specialist/resident), prostate volume, patient's age. Statistical analysis was performed with STATISTICA software using analysis of variation (ANOVA), correlation analysis and Student's t-test for group comparison.

Results

The median length of hospital stay was 4 days (mean: 5,3 days, min: 2 days, max: 42 days). The mean patient's age was 72,1 years old and was not correlated with the length of hospitalization. We observed statistically significant ($p<0.01$) correlation with length of hospital stay and CRP ($r = 0,62$), WBC ($r = 0,33$), RBC ($r = -0,38$), hemoglobin ($r = -0,47$) and PLT ($r = 0,35$), while there was no correlation with procedure time($p=0.56$), creatinine level ($p=0.25$) or eGFR ($p=0.57$). There was no statistically significant difference ($p=0.23$) in length of hospitalization between resident (mean: 5,7 days) and specialist (mean: 4,3) operators.

Conclusion

The length of hospital stay in patients after trans urethral resection of the prostate was associated with increased level of inflammation markers such as CRP and WBC. Moreover, it was inversely correlated with red blood cells (RBC) and hemoglobin level. However, there was no significant association with duration of the procedure or operator's experience.

Thoracoscopy vs. thoracotomy - comparison of surgical methods of treatment of congenital oesophageal atresia

Ewa Gabrys, Hanna Jarolim

Medical University of Silesia in Katowice

Presenting author: Ewa Gabrys
e-mail: ewa.gabrys28@gmail.com
Tutors: Andrzej Grabowski ,

Introduction

Oesophageal atresia (OA) with or without trachea-oesophageal fistula is an anomaly of the oesophagus, and is characterised by a complete discontinuity of the oesophagus, with or without an abnormal fistula between the oesophagus and the trachea. Due to EUROCAT the prevalence of OA had increased from 2/10.000 births in 2003-2004 to 2.24/10.000 in 2011-2012.

Aim of study

Comparison of surgical methods of treatment of congenital oesophageal atresia.

Material and methods

Retrospective analysis assumed 20 medical histories of infants addmitted to Department of Children's Developmental Defects Surgery and Traumatology in Zabrze in years:2011-2017 and treated due to OS. Collected data evaluated method of surgical treatment, postoperative complications, duration of hospitalization, comorbid diagnoses and demographical neonatal outcomes.

Results

5 infants underwent thoracoscopy (1 group) and 15 thoracotomy (2 group). In the 1 group, postoperative complications occurred in 40%, in the 2 group 60% and were more severe. Comparison of the time of hospitalization in both groups due to the Mann-Whitney U test revealed statistically significant difference ($p < 0.05$). The time of hospitalization after thoracoscopy was significantly lower than after thoracotomy. The probe-feeding time and extubation did not show statistically significant differences between two groups ($p > 0.05$).

Conclusion

Thoracoscopy enabled shortening of hospitalization, reduced risk of postoperative complications and allowed faster convalescence.

Pre-transplantation treatment factors in predicting long-term kidney graft function

Krzysztof Krajewski, Marcin Krzysiak, Marcin Kaszkowiak, Agnieszka Poznańska

Medical University of Łódź

Presenting author: Krzysztof Krajewski
e-mail: krzysztofkrajewski.kra@gmail.com
Tutors: Piotr Hogendorf, Adam Durczyński

Introduction

Kidney transplantation (KTx) is a commonly used method of treatment in patients with end-stage renal disease. Inflammation takes an important part in kidney graft rejection. The changes in balance of particular blood properties are indicators of inflammation, therefore assessing them could be useful in predicting short- and long-term graft function.

Aim of study

The aim of our study was to evaluate if pre-treatment morphology results can be used to predict short-term (21st day) and long-term (1 year after the KTx) kidney graft function.

Material and methods

We have conducted a retrospective single center study. We have collected data on 231 patients admitted to Department of General and Transplant Surgery due to renal transplantation and 61 of them monitored after the transplantation by the Department of Nephrology. We have taken into considerations our study from 2017 ('Pre-transplantation treatment factors in predicting short-term kidney graft function', namely in 21st day post transplantation). Patients' basic demographic data, pre-treatment morphology and clinical information were analyzed. We have obtained serum creatinine level (sCr) on the 1st, 2nd and 21st post-transplantaton day as well as about 1 year after the Ktx. Using this data, we have calculated pre-treatment factors such as: Neutrophil to Lymphocyte ratio (NLR), Platelet to Lymphocyte ratio (PLR), Lymphocyte to Monocyte ratio (LMR) and creatinine reduction ratio (CRR) (difference in sCr between 1st and 2nd post-transplantation day in %). eGFR was calculated using MDRD formula. Patients were divided into two groups - those with good graft function (eGFR>=30) and poor graft function (eGFR<30).

Results

The study group consisted of 61 patients, 53 of them with good graft function. Our groups were homogenous in terms of gender and immunosupression regimens distribution, age, WIT, CIT. Statistically significant difference was found only for one of the calculated factors - NLR (Mean of group>=30=10,02 vs Mean of group<30= 2,45; p=0,02). The ROC curve built for the model had area under curve (AUC) of 0,75. With the optimal cut-off point specificity of 70% and sensitivity 75% were achieved.

Conclusion

Suggested pre-treatment factor (NLR) could be used with good results to predict which patiens will develop good graft function on long-term period. This study, along with our previous study regarding short-term graft function, shows that NLR can be used in predicting both short-term and long-term graft function.

Tacrolimus metabolism rate influence on graft function in kidney transplant patients.

Maja Nowicka, Monika Górska, Zuzanna Nowicka, Sebastian Wiślicki

Medical University of Lodz

Presenting author: Maja Nowicka
e-mail: maja.nowicka@stud.umed.lodz.pl
Tutors: Ilona Kurnatowska,

Introduction

Tacrolimus (TAC) is the main component of immunosuppressive regimens in kidney transplant (KTx) recipients. As a potent calcineurin inhibitor (CIN) it has nephrotoxic potential leading to impaired graft function. Thus, it is of high clinical impact to identify factors which can denote those endangered by CNI toxicity development. Reports suggest that the TAC metabolism rate expressed as the blood level normalized by the dose (C/D ratio) may be such a predictor.

Aim of study

A retrospective analysis of the relationship between the patients' TAC metabolism rate and kidney graft function.

Material and methods

The relationship between the C/D ratio and post-transplant kidney function in 56 patients (34M; 22F) out of 179 transplanted between 2012 and 2017 in one centre, who attended two years follow-up in Outpatient Clinic and underwent treatment with the same immunosuppressive regimen including TAC, mycophenolate mofetil and prednisolone was analyzed. The estimated glomerular filtration rate (eGFR) calculated with the Modification of Diet in Renal Disease equation, TAC trough level and the total daily TAC dose on the same outpatient visit at 3, 6, 12 and 24 months after KTx were analyzed. The patients were divided according to the C/D ratio at 6 months after KTx into two groups, fast (FM, C/D≤1.7) and slow (SM, C/D>1.7) metabolizers.

Results

We identified, retrospectively 28 FM and 28 SM. The mean C/D ratio increased in both groups, from 1.03±0.47 at 3 months to 1.6±0.64 at 24 months, p=0,01 in FM and from 2.1±0.97 to 2.7±1.45, p=0,03 in SM, respectively. Despite that, the patients' group affiliations remained fairly consistent. Six months after KTx, FM had significantly lower mean eGFR than SM: 40.3±16.0 vs 51.0±19.0 ml/min/1.73 m^2; p=0.03. A similar relationship was observed in the third month (36.2±15.0 vs 44.0±15.8 ml/min/1.73 m^2, p=0.06), the twelfth month (46.0±21.1 vs 53.8±18.3 ml/min/1.73 m^2, p=0.2) and two years after KTx (50.6±23.3 vs 60.0±16.3 ml/min/1.73 m^2, p=0.2). The eGFR showed a consistent improvement throughout the studied period in both groups. TAC trough levels were similar in both groups. However, the FM required significantly (p=0.001) higher TAC doses during the analysed period than SM; at 3 (11.9±4.8 vs 6.4±3.1 mg), 6 (7.5±3.9 vs 3.5±1.3 mg), 12 (5.3±2.0 vs 3.1±0.9 mg) and 24 months post KTx (4.5±1.2 vs 2.6±0.9 mg). No statistically significant difference was observed in the age or sex dispersion within the studied groups.

Conclusion

Fast TAC metabolizers presented notably worse kidney graft function during two years follow-up after KTx, statistically significantly at six months after surgery. Therefore, fast TAC metabolizers may benefit from immunosuppressive therapy conversion in early periods after KTx.

Air embolism in liver resection - the level of platelets in the postoperative period

Dorian Peisert, Agnieszka Poznańska, Ewa Szumacher, Maciej Wójtowicz, Bartosz Szmyd

Medical University of Łodź

Presenting author: Dorian Peisert
e-mail: peisertdorian@gmail.com
Tutors: Janusz Strzelczyk, Adam Durczyński MD, PhD

Introduction

Air embolism is the presence of gas bubbles in the lumen of blood vessels. It occurs most often in patients undergoing neurosurgical, gynecological surgeries as well as in the divers . This is a poorly understood phenomenon in liver surgery. During liver resection, massive air embolisms are rare, causing severe haemodynamic disturbances and a significant reduction in end tidal carbon dioxide (ETCO2). The concentration of ET CO2 is a cheap parameter that allows the detection of an embolism. However, this is a low specificity method while the use of a sensitive method such as transesophageal echocardiography (TEE) allows to conclude that air embolisms, especially those of small intensity, which are frequent. Even a small volume of air increases the risk of intraoperative and postoperative complications. TEE monitoring is associated with high costs and the need of specialized equipment and qualified personnel. Therefore, routine control of all patients undergoing liver resection would be difficult to perform.

Aim of study

The aim of the study was to show the correlation between post-operative decrease in the level of blood platelets and the presence of air embolism.

Material and methods

We performed a retrospective analysis of material collected from 60 patients undergoing liver resection in 2010-2013 on the basis of peripheral blood morphology taken on admission, on the first, second postoperative day and at discharge. The presence of air embolism was confirmed by the TEE method. Patients had permanent intraoperative ETCO2 monitoring. The statistical analysis was performed using. Statistica Software version 13.1 PL.

Results

Among 60 patients who participated in the study, 50 patients had air embolism in TEE, 15 had massive air embolism, 35 small air embolism, 10 no air embolism. A significant relationship was found between EtCO2 min and the occurrence of massive air embolism (for the cut-off point ≤26 sensitivity of 94%, specificity of 72%). Platelets were compared before surgery and on the first day after surgery and there was a statistically significant difference between the number of platelets in the absence of embolism (median 38,000) and the presence of massive embolism (median 54,000).

Conclusion

Among patients after liver resection we have seen a significant decrease in the number of platelets among patients with massive air embolism compared to patients without air embolism. We assume that this is related to damage of the vascular endothelium through air bubbles and aggregation of platelets in the location of endothelial damage.

Liver biopsy during cholecystectomy – method's safety

Agnieszka Sus, Olga Długołęcka, Justyna Jóźwiak, Klaudia Klima, Agnieszka Świątek, Bartosz Szmyd

Medical University of Lodz

Presenting author: Agnieszka Sus
e-mail: agasus94@gmail.com
Tutors: Adam Durczyński, Professor Janusz Strzelczyk,MD, PhD, janusz.strzelczyk@umed.lodz.pl

Introduction

Cholecystectomy has become one of the most frequent surgical procedures worldwide. In September 2009 The European Association for the Study of the Liver suggested that liver biopsy during cholecystectomy should be performed. Liver biopsy is a method of great importance in regard to diagnosis and treatment of every liver pathology. Despite this fact, few cholecystectomies associated with liver biopsy are performed because of the potential side effects.

Aim of study

The purpose of our research is to establish if liver biopsy combined with cholecystectomy is a safe method and benefits from this procedure outweigh the potential risks.

Material and methods

We have conducted a retrospective single-center study. We reviewed a database of 3000 patients hospitalized at the Department of General and Transplant Surgery in Lodz between January 2014 and December 2017. We have collected data of 584 patients (male 154 and female 430) aged from 18 to 87 who underwent cholecystectomy. Concomitant liver biopsy was performed in 47 patients. We have taken into account demographic factors (age, gender), the time of hospitalization, operation time, serum AST and ALT levels. The analysis was performed using STATISTICA version 13.1 (Mann-Whitney U test).

Results

The analysis was conducted on data of 612 patients (27% males and 73% females) hospitalization time among patients undergoing cholecystectomy was 2 days (IQR=2-3), while cholecystectomy with a simultaneous biopsy - 3 days (IQR=2-7)($p < 0.001$). Cholecystectomy' s operation time was 35 minutes(IQR=30-50) and with a biopsy 45 minutes(IQR=35-50)($p=0.048$). We also observed that laparoscopic cholecystectomy with a biopsy lasted shorter than open cholecystectomy without biopsy - 40 minutes(IQR=30-47.5) vs 65 minutes(IQR=50-85)($p<0.001$).Patients who underwent the biopsy had higher AST and ALT level while hospital admission.

Conclusion

The operation as well as hospitalization time of laparoscopic cholecystectomy combined with liver biopsy prove to last shorter than open cholecystectomy. Taking into account our results, we can conclude that liver biopsy during cholecystectomy is a safe method. We suggest that it should be performed more often.

Reversal of Hartmann's procedure

Damian Peterson, Maciej Kupczak, Agnieszka Sus, Anna Włodyka

Medical University of Lodz

Presenting author: Damian Peterson
e-mail: dmn.peterson@gmail.com
Tutors: Marcin Włodarczyk,

Introduction
The Hartmann's procedure involves resection of the rectosigmoid colon with closure of the anorectal stump and formation of a colostomy. Despite the fact that this technique was first described in 1921, it is still used nowadays. Indications includes colorectal cancer, colonic obstruction and perforation, complicated diverticulitis, complicated inflammatory bowel diseases or sigmoidal torsion. The reversal of Hartman's procedure is an operation performed to restore digestive tract continuity and improve patient's quality of life. The procedure is difficult and related with wide variety of complications.
Aim of study
The aim of the study was to assess outcomes of restoration of intestinal continuity following Hartmann's procedure.
Material and methods:
In this retrospective study 50 patients hospitalized at Department of General and Colorectal Surgery between 2008 and 2017 who underwent reversal of Hartmann's procedure were included. There were 26 male and 24 female. Their age ranged from 19 to 77 years (mean age 54). The collected data included demographic and clinical characteristics (age, gender, body mass index, comorbidities, ASA score), time between Hartmann's procedure and reversal, hospitalization time, postoperative complications and operation characteristics.
Results
The most common causes of Hartmann's procedure were: colon cancer in 22 patients, diverticulitis in 6 and injury in 6. Postoperative complication occurred in 8 patients (16%). 5 cases of wound dehiscence, 2 cases of ileus mechanicus and 1 case of anastomotic leak was observed. Higher values of BMI and increased average time interval from prior surgery to reversal of the stoma have been noted compared to noncomplicated surgeries (29,02 vs. 25,6 p=0,03; 15,0 months vs. 10,2 months p=0,01 respectively). There was no significant correlation between patients' gender, their age and the incidence of complications (p=0,52; p=0,66 respectively). Univariate logistic regression demonstrated that a BMI levels, patients' age and average time interval from prior surgery to reversal procedure were significantly associated with complications related to restoration of intestinal continuity.
Conclusion
Postoperative complications in patients after Hartman's procedure are major problem of current surgery. They are more frequent in those ones with higher values of BMI and increased average time interval from prior surgery to reversal of the stoma. Patients' gender does not seem to have any influence on the incidence of complications.

The impact of Ileal transposition on Histomorhometric parameters of ileum in Zucker Lerp(fa) rats.

Diana Ali, Agnieszka Dulska, Wojciech Kazura, Agnieszka Maziarz, Justyna Maciarz

Medical University of Silesia in Katowice

Presenting author: Diana Ali
e-mail: peace.n.smoke@gmail.com
Tutors: Tomasz Sawczyn,

Introduction

Ileal transposition (IT) improves insulin sensivity and weight loss. So far, the reasons for improvement in glucose homeostasis after IT have been poorly understood, however, it is known, that there are incretins secreted by the cells in part of transposed ileum responsible for metabolic effect. The effect of increased illeum stimulation reveals macroscopically by the hipertrophy of ileum and the increase of its diameter. Macroscopic changes are the reason to focus on possible microscopic changes that have occurred in transposed ileum six months after surgery.

Aim of study

The analysis of histomorphometric response by transposed ileum.

Material and methods

Ileal transposition and sham operations were performed on 17 ZuckerLepr(fa) (IT, n=8 / SHAM, n=9) after which rats were bred for 6months. After this time, rats were euthanized and intestine was collected in an attempt to perform a histomorpfometric assessment. Intestinal villi length, crypt depth and enterocytes density per 10 goblet cells were assessed in transposed part and in distal ileum (SHAM).

Results

Significantly longer intestinal villi was observed in IT group (0,75±0,02mm) than in SHAM group (0,62±0,13mm). Crypt depth was lower in IT group than in SHAM group (0,24±0,12mm vs. 0,27±0,08mm). The difference between number of enterocytes per 10 goblet cell was 22±13 e/10 g.c. in IT-operated, and 19±5 e/10 g.c. in SHAM-operated, was not statistically significant.

Conclusion

The hypertrophic changes with no signs of hyperplasia were observed during the histomorphometric analysis of the transposed ileum. Under physiological conditions food bolus contacting the ileum is poorer in nutrients, compared to the proximal jejunum. Probably hypertrophy of the ileum, observed also in short bowel syndrome (SBS) as well as after bariatric surgery, which excludes the passage of the proximal part of the jejunum, is induced by the chime rich in nutrients.

Fatigue among inflammatory bowel disease patients

Maciej Jaromin, Małgorzata Wilczek, Martyna Wróbel,

Medical University of Lodz

Presenting author: Maciej Jaromin
e-mail: maciek.jaromin@wp.pl
Tutors: Łukasz Dziki, Marcin Włodarczyk

Introduction

Chronic fatigue is usually defined as a continuing overwhelming sensation of tiredness or lack of energy with no improvement after rest or sleep. This condition is very common among patients with inflammatory bowel diseases (IBD), mainly Crohn's disease (CD) and Ulcerative Colitis (UC). It is likely to occur especially during exacerbations of disease. Chronic fatigue may affects many aspects of patients' life significantly impairing the quality of life.

Aim of study

The aim of the study was to characterize fatigue among patients with IBD and to investigate the association between the course and severity of disease and level of fatigue. Additionally we aimed to establish which area of patients' life is mostly afflicted by chronic fatigue.

Material and methods

12 patients admitted in 2018 to the Department of General and Colorectal surgery, Medical University in Lodz were asked to complete the chronic fatigue questionnaire assessing the level of fatigue during past two weeks. Questions pertained to different life sectors such as work and education, relationships, emotions, social life, physical activity, memory and concentration. Afterwards patients' medical data was retrospectively collected from the patients' medical records. The association between the level of fatigue and the course of the disease was evaluated.

Results

Based on standardized IBD rating scale average level of fatigue was 66,5 (range from 0-120). More than half of patients (n=7; 58%) presented with fatigue, that has a severe effect on patients daily activities.

The most disturbing issues influencing fatigue among all patients was abdominal pain and diarrhoea. Highest level of fatigue was noted in aspects of life such as relationships (avg. 3; range from 0-4) and work and education (avg. 2,8; range from 0-4).

The age of patients did not influence level of fatigue (p=0,52); as well as duration of fatigue did not influence it's intensity. Patients who underwent previous surgeries related with IBD expressed a slight increase level of fatigue (statistically irrelevant; 73,4 vs 60,8; p=0,56).

Conclusion

Problem of fatigue among IBD patients is quite underestimated and certainly needs more attention. More than half of our patients expressed severe fatigue, which requires specialized medical advice. Fatigue has significant effect on patients' relationships and work which impairs their quality of life.

TECHNICAL MEDICINE AND BIOENGINEERING

COORDINATORS
Juliusz Hanke
Judyta Nowak

JURY
Dorota Bociąga, PhD
Witold Kaczorowski, PhD
Justyna Kiszałkiwicz, PhD
Gianluca Padula, PhD
Bożena Pietrzyk, PhD

3D well-founded choice of optimal titanium plates for osteosynthesis

Olena Hudymenko, Demianenko M.M.

Sumy State University

Presenting author: Hudymenko O.O.
e-mail: o.gudimenko@med.sumdu.edu.ua
Tutors: Kuzenko Y.V.,

Introduction

Unfortunately, there are some complications when using plates for osteosynthesis. These complications are difficult to avoid. The most common complications include: exposure, fracture of the plates, screw detente. The cause of complications is the strength created by the chewing muscles. That is why need to develop the most optimal design of the titanium plate for osteosynthesis.

Aim of study

The aim of our study is the creation of anatomic-functional plates. This is includes the method development of optimal plates for osteosynthesis. We have considered vectors of the chewing muscles to decrease the metal amount in plates to their better survivability.

Materials and Methods

We have used the computer tomography, 3D computer simulation in the ANSYS Workbench software program (Shape Optimization module), mathematical methods.

Results

Based on the research given, plates for metal osteosynthesis have developed taking into account the strength of chewing muscles: straight, y-plate, n-plate and plate-square. We compared some of the characteristics of the «plate-bone» systems to determine the more optimal of them.

In all cases of simulation using different titanium plates the fragments of the lower jaw contacted in the lower part. We have gotten different contact area of fragments and the greatest distance between them in each case. For a plate having a straight form this distance reached 0.75mm, for the y-plate – 0.15mm, for the n-plate – 0.14mm and for the plate-square – 0.13mm. However, all the plates worked on the bend and torsion.

It is necessary that the tension in the used plates does not exceed the limits of the material strength and the yield strength. We analyzed each of the above-mentioned titanium plates.

The maximum stresses in the plates: for the straight plate have determined 481 MPa, the y-plate – 487 MPa, the plate-square – 301 MPa, the n-plate – 364 MPa. As can be seen from these data, the stresses do not exceed the yield strength of the titanium Grade 1 (ERTi-1, IMI115), the smallest of them occur in the plate-square. However, analyzing stretched-deformed state in the plate-square it can be concluded that one part of the plate-square practically does not accept the load. Therefore, excluding this plate, we have obtained that the n-plate is the most optimal design plate for metal osteosynthesis.

Conclusion

The n-plate is the most optimal plate for metal osteosynthesis of the lower jaw, satisfying all the tasks we have posed: 1. Have developed taking into account the strength of chewing muscles; 2. Have simulated to decrease the metal amount in plates to reduce the flow of metal ions to the body; 3. Provides the most rigidity and reliable fixation of fragments, improves the healing fractures of the lower jaw with the preserved chewing function and the musculoskeletal system integrity.

Development of the low-cost, smartphone-based heart auscultation training manikin.

Dominik Karch, Krzysztofa Kopyt, Izabela Palasz, Joanna Tyton

Jagiellonian University Medical College

Presenting author: Dominik Karch
e-mail: dexterdk@gmail.com
Tutors: Michal Nowakowski,

Introduction

Auscultation is a crucial part of the physical examination. Computer-aided learning is a valuable way to learn basic heart sounds. The main disadvantage of currently available solutions is usually a limited sound base without the possibility of adding your own records.

Aim of study

Our goal was to design and manufacture a functional prototype of heart auscultation manikin, controlled via Bluetooth, with an open sounds base.

Materials and Methods

The designed system consists of three main components: manikin's torso, electronic stethoscope and smartphone application. All components communicate witch each other via Bluetooth. The complexity of the manikin is reduced to a minimum. It is only an input device that informs the smartphone about which valve is currently auscultated. The torso housing is based on a simple shop mannequin. Inside, in four typical points of heart valve auscultation there are Hall effect switches (which conduct current in response to a magnetic field), responsible for locating the position of the electronic stethoscope head. The Nano v3 CH340 microcontroller and the HC-06 Bluetooth module are responsible for processing and sending the data to the smartphone app. The electronic stethoscope consists of two parts: wireless Bluetooth headphones and head with small magnet, which activates the sensors inside of the manikin. The core of the entire system is an Android app prepared by the authors. After synchronizing the application with the manikin and applying the stethoscope head to one of the auscultation points the information about selected point is sent to the smartphone. Then application plays (via wireless headphones) the corresponding sound from the base on user's device. The user can choose one of the sets of 4 sounds related to the particular heart pathology, control the playing speed or volume and turn on/off the respiratory sounds playing in background to raise the level of difficulty.

Results

The result of our work is fully functional heart sound auscultation learning system prototype, ready for uploading recorded heart sounds to the base. The approximate cost of parts for the manufacturing of one device was less than 100 PLN (excluding the wireless headphones and smartphone).

Conclusion

The created system is an example of using mobile devices in medical education. The main advantages of described solution are low cost, portableness and possibility of manual management of heart sound base. Despite some limitations of this technology, these features make the device suitable for pre-clinical auscultation training.

Evaluation of the possibility of detecting asymptomatic atrial fibrillation using mobile electrocardiography (iECG)

Dominika Sawicka, Anna Szałek, Patrycja Bogdaniec

Poznan University of Medical Sciences, Poznań, Poland

Presenting author: Dominika Sawicka
e-mail: sawickadominika9@gmail.com
Tutors: dr n. farm. Tomasz Zaprutko, lek. Joanna Zaprutko, lek. Wojciech Telec, Prof. dr hab. Andrzej Szyszka, Prof. dr hab. Elżbieta Nowakowska

Introduction

Stroke is the second cause of cardiovascular death after myocardial infarction and the observations show that 1/3 of these events result from atrial fibrillation (AF). One of the innovative solutions to improve the detection of AF is conducting screening tests using smartphones equipped with overlays which enable the performance of single-lead electrocardiogram (ECG) examination.

Aim of study

The aim of the study is to carry out, using smartphones (equipped with AliveCor Heart Monitor), electrocardiographic screening of asymptomatic AF and to assess the feasibility of such examination in selected community pharmacies in the Greater Poland.

Materials and Methods

The research is free of charge and participation is voluntary. The inclusion criteria is ≥ 65 years of age and one-time participation in the study. The exclusion criteria are age <65 years and atrial fibrillation detected in the interview. (The age is outlined by the guidelines of the European Society of Cardiology). A single-lead ECG recording will be performed by applying two thumbs to the AliveCor overlay, saved in the phone's memory and sent to the computer, and then interpreted by the cardiologist. The research was conducted in the timeframe from 09.2017 to 04.2018 in a group of 876 patients.

Results

So far, 876 people have been proposed to participate in the study. 27% of patients refused to participate in the study, 11% of potential participants were people under 65 years old, while 11% had already diagnosed arrhythmia. Finally, 441 ECG tests were performed. AF was detected in the amount of 7 patients (1.59 % of subjects).

Conclusion

The obtained results confirm the effectiveness of the used equipment to detect asymptomatic AF and indicate the possibility of dissemination of the method and effective prevention of strokes. As a result, it may lead to the improvement of pharmacoeconomic indicators and achievement of the cost-effectiveness of iECG. Moreover, it can also indicate the direction of development and propagation of the Pharmaceutical Care Model.

Using the White's method to assess the hydroxymethylfurfural (HMF) concentration after heating in honey samples

Konstancja Jabłońska, Mateusz Grabowski

Medical University of Silesia in Katowice

Presenting author: Konstancja Jabłońska
e-mail: mateusz.m.grabowski@gmail.com
Tutors: Jarosław Barski,

Introduction

The natural ingredient of honey and sugar products is hydroxymethylfurfural (HMF). It is a heterocyclic aldehyde resulting from the separation of water molecules from fructose or glucose after its transition into the enol form or may be the product in the initial phase of the Maillard reaction which is non-enzymatic browning responsible for changing the color and taste of food. The concentration of HMF indicates the quality of honey and is associated with its long-term storage and heating to a temperature about 150OC. In honey, the concentration of HMF may be an indicator of the presence of added invert sugar, which is the product of acid hydrolysis of sucrose. Hydroxymethylfurfural is defined as a compound that adversely affects organisms.

Aim of study

The purpose of the study was a comparative analysis of the honey quality from apiaries and retail stores by White's method before and after exposition to thermal conditions.

Material and methods

In the study we used linden honey, buckwheat honey, honey with the addition of ginseng, multi-flower honey, rape honey. Samples of honey were examined in 950C thermal conditions. HMF can be detected quantitatively by White's method. The principle of the White's method is based on the absorbance detection at wavelengths of 284 and 336 nm by means of a UV-VIS spectrophotometer in a clarified aqueous honey solution.

Results:

The honey which was treated with hot temperature contained a relatively higher content of methylhydroxyfurfural in relation to honey which was not subjected to thermal conditions. This proves that honeys treated with thermal conditions may lose their quality.

Conclusion

The study showed differences in HMF concentration in honey samples exposed and not exposed high temperature. White's method based on UV-VIS spectrometry is useful for determining HMF concentration in honey samples.

Does the ketogenic diet affect the intestinal microflora in rats?

Konstancja Jabłońska , Mateusz Grabowski, Dagmara Kuca

Medical University of Silesia in Katowice, University of Life Sciences in Lublin

Presenting author: Konstancja Jabłońska
e-mail: mateusz.m.grabowski@gmail.com
Tutors: Jarosław Barski (1), dr Łukasz Wlazło

Introduction

The diet can affect the large intestinal microflora qualitatively and quantitatively. The ketogenic diet is low-carbohydrate, high-fat diet and is used for treatment of patients suffering from obesity, intractable epilepsy and diabetes.

Aim of study

The purpose of presented study was the quantitative assessment of the overall number of bacteria, bacteria of the coliform group,E.coli bacteria, anaerobic bacteria – Clostridium spp., Salmonella spp. bacteria and the overall number of fungi present in the Long Evans rats large intestine.

Material and methods

The faeces from the Long Evans laboratory rats were divided into four groups. Examined samples were collected from rats fed with ketogenic diet for one month, two months and rats who returned to standard diet after one month of the ketogenic diet treatment. As a control were used feaces from rats fed with standard diet. The faecal samples were incubated on: nutrient agar for overall number of bacteria, Endo Les agar for bacteria of the coliform group, mFc medium for E.coli bacteria, TSC medium for Clostridium spp., SS medium forSalmonella spp. and Sabourauda medium for the general number of fungi.

Results:

The results of the study was a gradual decrease in the number of E. coli bacteria and anaerobic bacteria during the feeding with the ketogenic diet. Moreover, the discontinuation of the ketogenic diet and return to the standard one, resulted in a significant increase of all analyzed parameters above the standard value established in the control group.

Conclusion

The study shows that the ketogenic diet affects the intestinal microflora quantitatively.

Feasibility study of 3D printing in endovascular aneurysm repairs: not useful for experienced surgeons?

Mateusz Sitkowski, Jan Witowski, Julia Krzywoń

Jagiellonian University Medical College

Presenting author: Mateusz Sitkowski
e-mail: mateusz.sitkowski@yahoo.com
Tutors: Michał Pędziwiatr, Jerzy Krzywoń; MD, PhD

Introduction

A success of endovascular aneurysm repairs (EVAR) depends on proper selection of candidates based on meticulous preoperative imaging that allows both surgeons and technicians to prepare for the procedure. The proximal neck of aneurysm is a fixation place for upper part of stent-graft. It is extremely important to place it tightly to the wall of aorta in order to avoid leakage or displacement of the graft. The proper length, angle of inclination and shape of the neck are essential to qualify patients to these procedures. The gold standard method for preoperative imaging is computed tomography (CT), enhanced by specialized software extending the capabilities of 3D CT scanning / CTA imaging.

Aim of study

To assess the feasibility of 3D printing (3DP) in planning and guidance of endovascular aneurysm repairs and to discuss various 3DP fabrication techniques and their impact on surgeons' decision-making. Although 3DP is widely known in multiple surgical disciplines, most of the papers previously published in the field of vascular surgery were only single case studies or technical notes. This is also one of very few studies in the field presenting implementation of low-cost 3DP fabrication methods in vascular surgery.

Material and methods

Eight patients undergoing endovascular aneurysm repair in a single department were enrolled in the study. Their CTA images were acquired and processed to produce virtual models of aneurysms, which after proper preparations were sent to a desktop 3D printer and printed with polylactic acid. Patients' data was assessed and analyzed after treatment.

Results:

3D models of aneurysms were created for all included patients and delivered to surgical team for preparation, planning and guidance during the procedure. After analyzing patients' anatomy with aid of models, surgeons decided to perform an open surgery in one case and disqualify another. In other cases, proper endovascular treatment was performed. Less experienced members of surgical team expressed more satisfaction with models.

Conclusion

Three-dimensional printing is a feasible technique to aid decision-making in complex aneurysm repairs. It also appears to be very cost-effective method of precise visualization, especially for younger vascular surgeons. Larger, prospective studies are required to decide if it can also significantly affect clinical outcomes.