



JUVENES PRO MEDICINA

Abstract book

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# JPM 2016

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JUVENES PRO MEDICINA

54th Polish and 12th International Annual Training & Scientific Medical  
Congress of Students' Scientific Society and Junior Doctors  
Łódź, Poland, 22-23 April 2016

## **Abstracts**





# FOREWORD



# COMMITTEES



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## BASIC SCIENCE

1. MDSC population in patients with CVID.
2. Preliminary analysis of the ABCB1 gene expression in colorectal cancer.
3. Mismatch repair (MMR) status as a determinant for cancer treatment choice - step towards personalized medicine.
4. Comparison of the sensitivity of multislice computed tomography and transesophageal echocardiography in imaging the septal pouch.
5. The impact of in vitro stimulation with nanoparticles and vitamin D on survival and cell cycle status of A549 lung carcinoma cells.
6. RUNX1 gene expression level in patients with acute myeloid leukemia
7. Epigenetic regulation of endothelial nitric oxide synthase in aneurysmal formation.
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11. Physico-chemical and biological properties of the bone cement on the basis of polymethyl methacrylate
12. Potential mechanism of action of nonylphenol on GC-2 cell line
13. Identification of selected BRAF point mutation, rearrangement and RASSF1A methylation and their mutual correlation in different types of thyroid cancer.
14. Expression of ABCG2 gene in gastric ulcers and gastric cancer.



## MDSC population in patients with CVID.

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**Introduction:** Common Variable Immunodeficiency (CVID) is a primary immunodeficiency disease characterized by decreased serum immunoglobulin (Ig) IgG, IgM and IgA levels and high susceptibility to infections. CVID include a number of phenotypes that may be caused by the various genetic mutations. Myeloid-derived suppressor cells (MDSCs) are a heterogeneous population of cells which constitute a unique component of the immune system that regulates immune responses physiologically and in various diseases. In chronic infections, cancer and inflammatory disorders it comes to accumulation of myeloid cells with immunosuppressive activity on the immune system. MDSC use arginase, iNOS and oxidative stress in conjunction with other mechanisms to induce regulatory T cell and suppress of CD4 + and CD8 + T cells. Up to now there is no data on these cells in patients with CVID. Gr-MDSCs are often found in the fraction of low-density granulocytes (LDG) which remain in the PBMC after standard density gradient centrifugation.

**Aim:** The aim of the study was to define the population of MDSC in patients with CVID.

**Materials and Methods:** Flow cytometric analysis of PBMC isolated by density gradient centrifugation of peripheral blood from adult patients with CVID and adult healthy control was performed. Immunophenotyping of MDSC was conducted with the following monoclonal antibodies: anti-CD11b-BV510, anti-CD14-FITC, anti-CD15-PECY7, anti-HLA-DR-PerCp. Population of MDSC was characterized as HLA-DR-, CD11b+, CD15+ or CD14+, describing granulocytic and monocytic MDSC, respectively.

**Results:** Immunophenotyping analysis PBMC from patients with CVID revealed the accumulation of cells that phenotypically meet criteria of MDSC, containing Gr-MDSC and Mo-MDSC subset. Additionally, we demonstrated the population of LDG increased, in CVID patients especially in these with concomitant autoimmune disorders.

**Conclusion:** CVID is disorder where there is an increased level of cells which phenotypically meet criteria of MDSC comparing to control.



## Preliminary analysis of the ABCB1 gene expression in colorectal cancer.

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**Introduction:** Colorectal cancer is the one of the most common malignant cancers among men and women worldwide. In Poland, colorectal cancer is a neoplasm of the worst prognosis. Risk factors for colorectal cancer include older age, inflammatory intestinal condition, personal history of polyps, smoking, obesity and family history of colon cancer. ABCB1 gene, located on chromosome 7, encodes P-glycoprotein which belongs to ATP-binding cassette family. This protein is responsible for the removal of hydrophobic substances and xenobiotics from the inside of the cell into the extracellular space. Physiologically, it's expressed in cells such as liver cells, pancreas and in different parts of the intestine. Increased expression of P-glycoprotein in tumor cells is a major cause of multidrug resistance of these tissues.

**Aim:** The aim of the study was to assess ABCB1 gene expression level in colorectal cancer cases.

**Materials and Methods:** The investigated group included 25 patients diagnosed with colorectal cancer (Department of Pathology, Medical University of Lodz). Material used for research were colon cancer frozen tissue slides. RNA was isolated from tissue according to the protocol. To obtain cDNA reverse transcription reaction was performed. cDNA was amplified using polymerase chain reaction (PCR) for reference gene (GAPDH) and investigated gene (ABCB1). Agarose gel electrophoresis was then used to visualize the product. A quantitative assessment of ABCB1 gene expression was performed by Real-Time PCR. Experiments for both genes were done in triplicates. The results were statistically analyzed and then relative level of ABCB1 gene expression was estimated.

**Results:** 25 samples were subjected to qualitative assessment of expression. All of them presented the gene expression and were taken into relative quantitative analysis. Relative ABCB1 gene expression level in colon cancer tissues was variable and ranged from – 2.08 to 1.68.

**Conclusion:** Varying levels of relative ABCB1 gene expression can possibly contribute to cancer development or multidrug resistance occurrence in colorectal cancer patients.



## Mismatch repair (MMR) status as a determinant for cancer treatment choice -step towards personalized medicine.

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**Abstract:** Ageing processes among others cause abnormalities on DNA level, the DNA repair systems are essential for anti-ageing abilities of human body and many experiments are focused on those complex machineries in purpose of developing ageing delaying approaches. The aim of project was of double nature: first the development of experimental method useful in the determination of the best choice anti-cancer treatment for patients with MMR deficiency based cancer, the second to indicate potential applicability of a developed method in the screening of patients MMR status, to reduce number of ineffective therapies and unnecessary costs. Those aims clearly indicate evolution of modern approaches towards the personalized medicine stream.

Alkylating agent *N*-methyl-*N'*-nitro-*N*-nitrosoguanidine (MNNG), analogue of a drug currently used in chemotherapy (Temozolamide®) was used in determination of effectiveness of therapy in U2OS cells line (ATCC® HTB-96™) transfected with siRNA against mRNA encoding MLH1 protein, to obtain experimental model of MMR deficient cancer. Transfection efficacy was determined with Western Blot, cell cycle analysis investigated with Fluorescent activated cell sorting, colony forming assay carried for determination of cell survival in different drug concentration.

Western blotting indicates correctness of an experimental model. Cell cycle analysis results indicated that treatment with MNNG of MMR efficient cells caused cell cycle arrest, while lack of treatment-cell replication progression. In MMR deficient cells observed no differences between groups. Colony forming assay showed that an increase of drug concentration reduce the number of the formed colonies in MMR effective cells, without any influence on MMR deficient cells.

The MNNG treatment of MMR efficient cells is effective, causes cell replication and in further also tumor growth inhibition- positive effects of therapy; in contrary in the MMR deficient cells which still replicate, no positive effects in cancer therapy.



Conclusions from this *in vitro* project indicate that MMR status screening of patients may play pivotal role in the determination of anti-cancer therapy, reduction of unnecessary costs and patient disappointment from ineffective treatment. Results seem to be promising, especially taken under consideration possibility of development of a patient-tailored therapeutic procedures based on genetic screening and confirmed by experimental approaches. Those facts emphasize the necessity of genetic screening of patients. It is still necessary to conduct more detailed analysis- especially *in vivo* studies, it is very important to analyze all factors influencing correctness of this investigation. Project was conducted during ARU CEHA 2015 Copenhagen Summer School- *Interdisciplinary aspects of healthy ageing*, Center of Health Ageing, Copenhagen

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## Comparison of the sensitivity of multislice computed tomography and transesophageal echocardiography in imaging the septal pouch.

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**Introduction:** The septal pouch (SP) is defined as an invaginated portion of the interatrial septum formed in the absence of the patent foramen ovale channel due to incomplete fusion of the embryological components of the septum. Left, right, and double SPs could be observed. Last findings suggest that left-sided SP may be associated with cryptogenic stroke. In this light, precise SP imaging could be very important for clinical practice.

**Purpose:** To present SP morphology and identify whether multislice computed tomography

(MSCT) or transesophageal echocardiography (TEE) is superior of SP imaging.

**Material and methods:** A total of 50 patients (62% females; mean age =  $81.7 \pm 5.6$  years; body mass index =  $26.7 \pm 4.2$  kg/m<sup>2</sup>; ejection fraction =  $52.4 \pm 14.0\%$ ) that qualified for transcatheter aortic valve implantation were included in the study. All patients underwent both: contrast enhanced ECG-retrospectively gated MSCT of the heart and TEE within a maximum time of 6 months. The morphology of the interatrial septum was assessed in the same projection by at least two independent observers. The length and height of the SPs were measured.

**Results:** In MSCT, the interatrial septum was classified as: left SP (34%), right SP (4%) or double SP (0%). The mean length and height of left-sided SPs were  $8.3 \pm 4.1$  mm and  $2.6 \pm 1.1$  mm, respectively. Right-sided SP length =  $4.8 \pm 1.1$  mm and height =  $3.0 \pm 1.9$  mm. In TEE: left SP (40%), right SP (16%) or double SP (8%). The mean length and height of left-sided SPs were  $8.7 \pm 3.4$  mm and  $1.6 \pm 0.8$  mm, respectively. Right-sided SP length =  $5.9 \pm 1.7$  mm and height =  $2.9 \pm 0.7$  mm. The agreement between the MSCT and TEE was 48%. There were no differences in left SP lengths between the two imaging methods ( $p = .75$ ); however, their heights were significantly greater when assessed by MSCT ( $p = .03$ ). There were no significant differences in any of SP characteristics between sexes and they were not correlated with age, body mass index, or ejection fraction.



**Conclusion:** The TEE is superior to contrast enhanced ECGretrospectively gated MSCT in imaging the interatrial septum. The TEE is more accurate in imaging the left and right SP. Contrast-enhanced MSCT is a weak tool for assessing the right-sided septal structures.



## The impact of in vitro stimulation with nanoparticles and vitamin D on survival and cell cycle status of A549 lung carcinoma cells.

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**Introduction:** Nanoparticles are defined as particles, which are considered highly mobile while being in free state and have at least one dimension measuring less than 100nm. Their unique properties enable them to be used as carriers of therapeutic agents into pathological areas in cancer therapy. To date, however, only few nanoparticle-based drugs have entered the clinic while many others are being thoroughly tested in preclinical models. On the other hand, the use of vitamin D has been associated with reducing the risk of breast, colon, ovarian and prostate cancers. Thus, it is tempting to hypothesize that combination of nanoparticles with vitamin D could constitute a potential novel therapeutic approach in cancer.

**Aim:** In this pilot study we aimed to determine whether nanoparticles, namely three different types of nano-hydroxyapatite: GoHAP90s (Unipress), F202 (Fluidinova), HApSA (Sigma-Aldrich), and vitamin D3 could have an effect on the viability and the cell cycle status of A549 lung carcinoma cells.

**Materials and Methods:** The study was performed on A549 human lung carcinoma cell line. Cancer cells were subjected to 24-hour incubation in presence or absence of GoHAP90s, F202 or HApSA, and vitamin D3. 7-amino actinomycin D (7-AAD) staining was used to establish cell viability and staining of DNA content with propidium iodide (PI) was used to evaluate cell cycle status. Viability and cell cycle data were acquired on FACSCalibur flow cytometer.

**Results:** We demonstrated here that incubation with nanoparticles substantially decreased survival of cancer cells. Incubation with vitamin D3 did not affect cancer cells' viability, while culture with both - nanoparticles and vitamin D3 resulted in depletion of live cells. However, despite more pronounced effects of combinatorial treatment these effects seemed to be exclusively related to nanoparticles alone. Furthermore, we found that stimulation with nanoparticles led to arrest of cancer cells in the G1-phase, with a decrease of cell number in G2-phase of the cell cycle. Interestingly, incubation with both - nanoparticle and vitamin D resulted in even greater suppression of divisions as compared to application of either agent alone.

**Conclusion:** Our preliminary data suggests that studied nanoparticles - GoHAP90s, F202 and HApSA, decrease the viability of A549 lung cancer cells. Additionally, combinatory treatment with vitamin D3 and nanoparticles significantly inhibited the



divisions of cancer cells. Further experiments are required to better explore the exact impact of these particles on cancer cells and the possibility of harnessing these actions in order to establish novel therapeutic approaches.



## RUNX1 gene expression level in patients with acute myeloid leukemia

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**Introduction:** Acute myeloid leukemia (AML) is called a cancer of the white blood cells. AML accounts for about 80 percent of all acute leukemias in adults, being thus the most common acute leukemia. Incidence of this disease also increases with age. In this disease there is a clonal proliferation and the accumulation of malignant clones of transformed blast cells derived from myeloid precursor cells. These cells predominate in the bone marrow and blood and may infiltrate other tissues. The etiology of acute myeloid leukemia is not yet fully known, however, there are many factors that can predispose to its occurrence. The *RUNX1* gene, located on 21 chromosome, encodes a Runt-related transcription factor, which is part of the *RUNX* gene family. It regulates the differentiation of hematopoietic stem cells into mature blood cells. It is also known as a tumor suppressor. At least 39 forms of *RUNX1* mutation are implicated in various myeloid malignancies, including AML. Many of these mutations are inactivating *RUNX1* and leading to loss of its function.

**Aim:** Determination of *RUNX1* gene expression level in the peripheral blood cells of patients diagnosed with acute myeloid leukemia.

**Materials and Methods:** The investigated group included 50 patients diagnosed with acute myeloid leukemia (Klinika Hematologii UM). Material used for research was peripheral blood of patients remaining after routine tests. RNA was isolated from blood according to the protocol. Reverse transcription reaction was performed in order to obtain cDNA. cDNA was then amplified using polymerase chain reaction (PCR) for *GAPDH* (reference gene) and *RUNX1* (investigated gene). In next step agarose gel electrophoresis was used to visualize the product. A quantitative assessment of

*RUNX1* gene expression level was performed by Real-Time PCR. Trials for both genes were done in triplicates. The results were statistically analyzed and then relative level of *RUNX1* gene expression was estimated.

**Results:** All of samples taken under investigation showed expression of *RUNX1* gene in qualitative assessment. So far quantitative analysis was performed on 20 samples. Preliminary results of Real-Time PCR indicate that the relative *RUNX1* gene expression level differs among patients.



**Conclusion:** Since *RUNX1* is generally regarded as a tumor suppressor in myeloid neoplasm, we suspect that patients with relative lower level of *RUNX1* expression can be more susceptible to leukemia development.



## Epigenetic regulation of endothelial nitric oxide synthase in aneurysmal formation.

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**Tutors:** Prof. Boguslaw Kapelak

**Introduction:** Genetic background of TAA seems complex and has not been elucidated, which may suggest a role of epigenetic mechanisms in its pathogenesis. Our previous unbiased molecular screening revealed significant overexpression of hsa-miR-21-5p in human aneurysmal tissue. However, the precise mechanism of its contribution to TAA pathogenesis is unclear.

**Aim:** The aim of this study was to explain the mechanism in which has-miR-21-5p participate in pathogenesis of thoracic aortic aneurysms.

**Materials and Methods:** Our previous study revealed hsa-miR-21 as the most upregulated microRNA in the aneurysmal tissue. Based on bioinformatic analysis and literature search phosphatase and tensin homolog (PTEN) and endothelial nitric oxide synthase (NOS3) genes were selected as putatively regulated by this microRNA and the model with human endothelial cell cultures transfected with miR-21-5p mimic or miR-21-5p inhibitor respectively was used in order to confirm this relationship. Expression of has-miR-21-5p and selected genes was assessed by quantitative real-time PCR.

**Results:** Expression of NOS3 among cells transfected with miR-21-5p mimic was increased, whereas in cells incubated with miR-21-5p inhibitor was decreased. Opposite results were obtained for PTEN. In addition, there were statistically important correlations between hsa-miR-21-5p level and expression of NOS3 in endothelial cells transfected with miRNA mimic.

**Conclusion:** hsa-miR-21-5p was up-regulated in aneurysmal tissue and it acts indirectly by phosphorylation of NOS3 augmenting nitric oxide (NO) production. NO is the major mediator causing relaxation of VSMC and delimited production of nitric oxide within the aneurysm may mechanistically explain aneurysm progression. In our previous study, NOS3 transcripts paralleled miR-21 in TAA tissue. Thus, miR-21 could be a molecule perpetuating NOS3 overexpression within aneurysm and causing the progression of the disease.



## Microbiological evaluation of laboratory classrooms contamination

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**Introduction:** A Medical University of Lodz is one of the largest medical universities in Poland. Every day classes for several thousands of students take place in the lecture and laboratory rooms. Epidemiologists indicate that depending on the activity performed the human body can emit from one thousand to five million inorganic and organic particles per minute, including diasporas of microorganisms colonizing human body. The aim of the study was to assess the biodiversity of microorganisms emitted by the students of the Medical University of Lodz during laboratory classes.

**Materials and Methods:** The study was conducted in two laboratory rooms at the end of didactic classes, in which participated more than three hundreds of students. The material consisted of swabs and rinsings of work surfaces and equipment of laboratory rooms. Obtained on nutrient agar microbial colonies were microscopically evaluated by Gram staining, and then passaged on differential media. Isolates were identified on the basis of the biochemical properties. Statistical analysis of the data obtained was performed.

**Results:** A total of 56 samples were collected. In the 33 samples (59%) microorganism growth was obtained while 23 (41%) were sterile. 186 isolates of microorganisms were obtained. On sanitary facilities (taps, sinks, etc.), a number of gram-positive bacteria, including *Staphylococcus epidermidis*, were found. Molds were isolated more often from the surface of electrical devices (refrigerators, incubators). In the detergent for cleaning microscopes and the disinfectant presence of microorganisms wasn't seen.

**Conclusion:** The presence of a typical skin *Staphylococcus* (*S. epidermidis*) among the species isolated indicates contamination of surfaces examined by particle emissions from human skin.





## Anti-inflammatory and antibacterial effects of KR12 - a novel potential therapy of inflammatory bowel disease

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**Introduction:** Inflammatory bowel diseases (IBD), which consist mainly of Crohn's Disease (CD) and Ulcerative Colitis (UC) is a group of gastrointestinal tract diseases with an unknown etiology. Several treatment options are used in IBD therapy; the choice of the treatment depends on disease activity, behavior and extent. Analogs of 5-aminosalicylic acids (5-ASA) administered orally or rectally are basic drugs. Glucocorticoids, anti-inflammatory agents or biological therapy are used when remission has not been achieved. In portion of patients none of available therapies is effective and surgical intervention is necessary. Therefore novel pharmacological treatment options are still sought in order to avoid the disabling procedures. Cathelicidins derives from a family of antimicrobial peptides (AMPs). In addition to their potent anti-pathogenic ability, they exhibit chemotactic, immunomodulatory and angiogenetic properties. The sole human representative of cathelicidins, LL-37, was found to be potentially implied in the pathogenesis of IBD. Additionally, shorter analogues of LL-37 are under development.

**Aim:** We sought the anti-inflammatory and anti-bacterial actions of LL-37 and its shortest derivative, KR-12 in the rodent model of colitis.

**Materials and Methods:** The anti-inflammatory activity of LL-37 and KR-12 (1-5 mg/kg, i.p., twice daily) was characterized in two mouse models of colitis, induced by 2,4,6-trinitrobenzenesulfonic acid (TNBS) and dextran sulfate sodium (DSS). The extent of inflammation was evaluated based on the macroscopic score, quantification of myeloperoxidase (MPO) activity and microbiological analysis of stool samples.

**Results:** The results of a preliminary study with low doses of LL-37 and KR-12 showed a non-significant decrease in macroscopic score, ulcer score and MPO activity. Overall, the anti-inflammatory effect of KR-12 was more pronounced than that of LL-37; hence, further studies were performed exclusively with KR-12. The peptide at the dose of 5 mg/kg (i.p., twice daily) non-significantly reduced macroscopic score ( $p=0.0514$ ), MPO activity ( $p=0.7315$ ) and significantly reduced ulcer score ( $p=0.0002$ ) in the TNBS model. Bacteria were less abundant in stool samples from treated mice. Furthermore, KR-12 significantly attenuated intestinal inflammation demonstrated by a significant reduction in clinical score ( $p=0.0252$ ) and a nonsignificant reduction in stool score, weigh/length index score and MPO activity in the DSS model.



**Conclusion:** We demonstrated the potential ability of KR-12, a derivative of LL-37 to ameliorate the inflammation in the mouse models of colitis. Although we did not achieve significant reduction in all parameters, we believe our research contributes to the field of IBD treatment. We conclude that KR 12 and cathelicidins as a whole are worth being considered as a potential therapeutic option in the treatment of IBD.



## Assesment of the potential role of promoters isolated from CPS and HMGR2 genes in regulation of GUS gene expression in transformed *Salvia miltirrhiza* treated with auxin.

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**Introduction:** Higher plants, like Chinese medical herb – *Salvia miltirrhiza*, synthesize tanshinones, one of many isoprenoid compounds, required to control and regulate basic metabolic processes. Tanshinones are produced by secondary metabolite pathways and they are known to have medical applications in treatment of cardiovascular diseases, cerebrovascular diseases, myocardial infarction, hypertension, hyperlipidemia or acute ischemic stroke. Many of them have anticancer properties.

Their biosynthesis is generally regulated by transcriptional control, primarily by *cis*-active sequences in the gene promotor and the *trans*-active factors recognizing them. This transcriptional control concerns genes encoding significant enzymes, like copalyl diphosphate synthase gene (*CPS* gene) and 3-hydroxy-3-methylglutaryl coenzyme A reductase 2 gene (*HMGR2* gene). Isolated promoters of *CPS* and *HMGR2* genes was ligated with the *GUS* gene, which is used as reporter gene in genetic engineering. Its presence causes changes in phenotype and chemical composition of plants, which allows to distinguish transformants. The gene construct was used to obtain transformants. Initial and in silico studies indicated the potential positive regulation of both genes by auxin.

**Aim:** Assesment of the potential role of promoters isolated from *CPS* and *HMGR2* genes in regulation of *GUS* gene expression in transformed *Salvia miltirrhiza* treated with auxin.

**Materials and Methods:** Material for the study included the RNA isolated from leaves of transformed *Salvia miltirrhiza*. Qualitative analysis of *GUS* gene expression, containing artificially inserted promoter, (PCR, ethidium-bromide gel electrophoresis with molecular weight standard) were conducted. The investigated group (transformed plants) were used to assess the role of both promoters (*CPS* and *HMGR2* genes) in *GUS* gene expression connected with auxin dependent regulation. The control groups consisted of plants not treated by auxin. This study was conducted in the Laboratory of Molecular Diagnostics and Pharmacogenomics in cooperation with Department of Pharmaceutical Biotechnology and Medical Garden of the Department of Pharmacognosy at the Faculty of Pharmacy Medical University of Lodz.



**Results:** RNA was isolated according to the protocol. Quality of RNA was verified by nanophotometer analysis. For gene expression analysis cDNA was obtained by reverse transcription (RT) reaction. Then qualitative analysis of reference gene *ubiquitine* expression by PCR were done. In all samples presence of *ubiquitine* gene expression was observed. In the next step qualitative analysis of *GUS* gene expression by PCR was checked. Expression was present also in all investigated samples. Samples positive in qualitative analysis would be analyzed by Real- Time PCR for determination of expression level.

**Conclusion:** The studies confirmed the effect of the positive regulation of *GUS* expression by *CPS* and *HMGR2* genes promoters in transformed *Salvia miltiorrhiza*.



## Physico-chemical and biological properties of the bone cement on the basis of polymethyl methacrylate

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**Introduction:** The group of bone cements which are the mixture on the basis of polymethyl methacrylate are the most widely used in orthopedics. These are the two components system which consist of two components - liquid and powder. These cements harden within a few minutes after proportionally mixing these two constituents. The radical polymerization takes place. The cement is used in percutaneous vertebroplasty, kyphoplasty, filling the bone void and in stabilization of fractures. The endoprosthesis' fastening is also its application.

**Aim:** The aim of the study is an evaluation of the surface's morphology, chemical structure and a thermodynamical characterisation of the bone cement. Researches of the blood cells' adhesion, activation and aggregation to the bone cement's surface are also conducted.

**Materials and Methods:** The morphological testing of the surface with the map of respective components in the polymeric matrix was conducted using SEM (Scanning Electron Microscopy).

The chemical structure was examined with FTIR (Fourier Transform Infrared Spectroscopy). The amount of heat generation during polymerization was delimited using DSC technique (Differential Scanning Calorimetry) in 27°C and 37°C. Additionally, the time of hardening was set up by direct thermal measurements of cement's surface and measurements in Shore's scale in three temperatures. Wettability of the surface was evaluated on the basis of geometrical measurements of water's drop on the cement's top area. The degree of blood cell's activation and aggregation was established using SEM microscope. Researches of blood cell's adhesion, activation and aggregation on the cement's surface were made after direct sample's contact with blood.

**Results:** The morphological research of the cement's surface has shown that the manually mixing powder with liquid enables even placement of each component in the polymeric matrix. FTIR research validated the presence of each chemical structure coming both from organic and inorganic compounds. DSC measurements have shown that the bone cement generates approximately 85 J/kg



of heat in 27C and 37C. The time of this process is also essential. It lasts respectively 7 min 29 sec and 6 min 53 sec. These short times are confirmed by researches of hardness. The 'final' hardness is 90 HSA. The bone cement during hardening process achieves temperature 82C. On the basis of conducted researches, the cement's surface is hydrofobic. Analysis of SEM samples's photos indicates that there are blood cells in two lowest activation degrees on the control sample's surface. Their number halves (316L steel). The small, numerous plate aggregats (up to 10 blood cells) are also noticeable.

**Conclusion:** The surface analysis proved that the respective bone cement's components place evenly in the polymeric matrix. Thermodynamical researches have shown that the amount of the heat is independent of the crosslinking process' temperature. The polymerization of polymethyl methacrylate is strongly exothermic. The final cement's hardness is high. The non-polar groups are dominated and thanks to the fact the surface is hydrofobic. This cement characterised with very good injection- it enables application. It is a biocompatible material. Thanks to foregoing factors it is the most widely used ortopedic product.

**Acknowledgment:** This work was entirely supported by NCBiR under the project code of PBS3/B9/45/2015 with acronym IIVbF.



## Assessment of SMAD4 gene expression in cases of colorectal cancer- preliminary research

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**Introduction:** SMAD proteins family is a unique group of particles responsible for transducing the signal induced by TGF- $\beta$  into the nucleus. These molecules, after receiving a signal from activated TGF- $\beta$ , act on transcription factor in the nucleus, leading directly to the expression of the corresponding genes. Studies have revealed that disturbances in the functioning of SMAD proteins are present in the number of diseases, also in cancerogenesis. *SMAD4* gene is located on chromosome 18 at the q21.2 locus and belongs to the SMAD family, which is divided into three groups: R-SMAD, Co-SMAD and I-SMAD. It encodes SMAD-4 protein, the pivotal factor of the TGF-beta pathway and functioning both as a key suppressor and promoter of tumours. SMAD-4 binds to R-SMAD proteins and they penetrate from cytoplasm to the nucleus as a complex. This complex triggers transcription of several TGF- $\beta$  dependent genes regulating apoptosis and stimulating cell divisions. Colorectal cancer is the second of the most frequently occurred, in both women and men, in Poland. Environmental factors, as well as genetics, have been implicated in pathogenesis of this cancer. Variable expression of the *SMAD4* gene is observed in patients with colorectal cancer, what could indicate potential role in its development.

**Aim:** The aim of the study was qualitative and quantitative evaluation of the *SMAD4* gene expression in cases of colorectal cancer.

**Materials and Methods:** The material for the study consisted of 38 samples of colonic mucosa taken during surgery from patients diagnosed with colon cancer. 32% were patients in whom the TNM rated 4 and it was the greatest percentage in the study group. For an assessment of the expression: PCR and real-time PCR were used. For this analysis *ACTB* gene encoding  $\beta$ -actin was used as a reference gene.

**Results:** In all 38 samples qualitative *SMAD4* gene expression was demonstrated. Quantitative analysis indicated that gene expression of the tested *SMAD4* relative to the reference gene *ACTB* was in the range of from 3.86 to 2.33 with a median 0.02 (lower quartile -0.67; 0.95 upper quartile).

**Conclusion:** In all 38 analyzed samples relative level of expression of *SMAD4* was highly varied.



## Potential mechanism of action of nonylphenol on GC-2 cell line

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**Abstract:** The industrialization is associated with human exposure to exogenous substances that can interfere with the hormonal regulation through interaction with steroid hormone receptors. These include nonylphenol (NP) - an organic compound used in the industry to produce plastic products. It has been hypothesized that NP, as an environment contaminant, adversely affect male reproduction. The main objective of this study was to evaluate mechanism of action of NP in GC-2 cells, a mouse spermatocyte-derived cell line. Cells were exposed to NP for 24-72h. Cell viability was observed by MTT assay and changes in gene expression using RT-qPCR after NP exposure were also evaluated. Statistical analysis was performed by One-way ANOVA using GraphPad PRISM v.5.0 (GraphPad Software, Inc., San Diego, CA). Cytotoxic effect was observed only after 24h NP treatment at concentrations found in the environment. Moreover, it was demonstrated the growth promoting effect after 72h NP exposure. There were observed significant changes in oxidative stress markers and steroidogenic genes expression. 24 h exposure to NP in the presence of specific inhibitors and antagonists confirmed that ER $\alpha$ / $\beta$  and GPER signaling interaction participates in cell survival. Inhibition of EGFR and GPER abolished cytotoxic effects of NP. These results indicated that even very low concentrations of NP induce changes in cell viability. Our findings provide new insights into mechanisms underlying toxicity of NP in spermatocytes, although more research is needed to be done to fill in the data gaps.





## Identification of selected BRAF point mutation, rearrangement and RASSF1A methylation and their mutual correlation in different types of thyroid cancer.

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**Introduction:** Thyroid cancers are the most common cancers of endocrine gland. Affecting more women than men. Among several types of thyroid cancer, those derived from follicular cells: papillary thyroid cancer (PTC) and follicular thyroid cancer (FTC) are most common. Identification of pathologically altered tissue in preoperative diagnostic biopsies (FNAB) is often unclear. Unequivocal diagnosis may be obtained base on the postoperative histopathological verification. In order to improve the preoperative diagnosis (to exclude the false positive results) in histopathologically examined tissue, search for molecular prognostic marker is necessary. The study of *BRAF* V600E point mutation, *AKAP9-BRAF* rearrangement and *RASSF1A* methylation whose presence or absence may be associated with the development of specific type of change seem to be helpful.

**Aim:** Qualitative assessment of *BRAF* V600E point mutation, *RASSF1A* methylation and *AKAP9-BRAF* rearrangement analysis, and analysis of the correlation between them in different types of thyroid cancer.

**Materials and Methods:** Examined material (thyroid tissue) was obtained during thyroidectomy from 117 patients with following diagnosis: 41 PTC, 12 FTC, 14 follicular adenoma (FA) and 50 nodular goiter (NG); the controls were derived from macroscopically unchanged thyroid tissue. The *BRAF* V600E point mutation was analyzed by the ARMS-PCR assay followed by sequencing of selected samples. In order to detect of *RASSF1A* gene promoter methylation, DNA after bisulfite conversion was amplified in MS-PCR. For *AKAP9-BRAF* rearrangement identification the cDNA was amplified in PCR, products were electrophoresed on 2% agarose gel and verified on DNALabChip.

**Results:** The *BRAF* V600E mutations were identified with ARMS-PCR in 19 patients, however only in 3 patients (2 PTC, 1 FA) were verified in direct sequencing. *RASSF1A* gene promoter methylation was observed in 60 patients (16 PTC, 7 FTC, 13 FA, 23 NG). In 2 patients with V600E *BRAF* mutation the weak *RASSF1A* methylation was observed. *AKAP9-BRAF* fusion was observed in 7 patients (3 PTC, 1 FTC, 2 FA, 1 NG). The occurrence of two changes *AKAP9-BRAF* fusion and *BRAF* V600E mutation was no observed simultaneous in any patient.



**Conclusion:** *BRAF* point mutations and fusion were observed not only in malignant lesion (PTC, FTC) tissue, but also in benign lesion (FA) and in NG, however those alterations are not present concordantly. *RASSF1A* gene promoter region methylation was observed in all histopathological groups, also in patients harboring the *BRAF* mutation. Final confirmation of the results based on ARMSPCR for *BRAF* V600E mutations by direct sequencing is necessary.



## Expression of ABCG2 gene in gastric ulcers and gastric cancer.

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**Introduction:** A protein ABCG2 is expressed in cancer cells and normal tissues such as the placenta and the gastrointestinal tract. The physiological role of the protein is to transport out of the cell: ions, proteins, hormones, prostaglandins, some cytokines, vitamins and certain medications. For this reason, ABCG2 has become a subject of research of many scientists seeking the causes of multidrug resistance (MDR - *multidrug resistance*). ABCG2 protein is involved in the active transport of cytostatics outside the cell, and thereby reduce the effectiveness of therapy.

**Aim:** The aim of this study was to evaluate the expression of ABCG2 gene in patients with gastric ulcer and gastric cancer.

**Materials and Methods:** 72 samples of RNA, derived from District Hospital named Faustyna Kowalska in Łęczyca. These 56 samples came from patients with peptic ulcer disease, and 16

from patients with gastric cancer. Reverse transcription reaction was used to get cDNA. Afterwards, PCR reaction was carried out for the examined gene. The presence of the PCR product was assessed on the basis of electrophoresis in agarose gel. At the end of study samples of patients were subjected to the qualitative and quantitative analysis carried out with the Real-Time PCR reaction.

**Results:** The results of the study have not proven any statistically significant relationship between sex, age or the presence of *Helicobacter pylori* infection, and the frequency of ABCG2 gene expression in the population analyzed. The study confirmed the presence of ABCG2 gene in 62.5% of patients with gastric ulcer and 100% of patients with cancer.

**Conclusion:** The presence of the ABCG2 gene was confirmed at all patients with the stomach cancer. This may indicate the potential impact of the gene for malignant transformation, and further studies may help clarify the role it plays ABCG2 gene in the pathogenesis of gastric cancer. It seems reasonable to carry out studies on a larger population, taking into account the quantitative assessment of ABCG2 gene expression.



# CARDIOLOGY

1. Speckle tracking echocardiography for detecting viability in patients with non-ST-segment elevation myocardial infarction.
2. Coronary fistula - description of pathology based on two case reports.
3. Does ivabradine improve physical effort tolerance in patients during cardiac rehabilitation program?
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9. A new-onset atrial fibrillation after atrial flutter ablation.



## Speckle tracking echocardiography for detecting viability in patients with non-ST-segment elevation myocardial infarction.

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**Department:**

**Purpose:** The aim of the study was to assess the prognostic value of parameters obtained with speckle tracking echocardiography during hospitalization for the prediction of regional systolic function recovery in patients with non-ST elevation myocardial infarction.

**Materials and Methods:** The study group comprised 33 patients (11 women; mean age 67 +/- 11) admitted to the Department of Cardiology with first non-ST-segment myocardial infarction (NSTEMI), single vessel disease, who were treated with successful coronary intervention within 24 hours of admission. Transthoracic echocardiography with visual assessment of regional systolic function was performed in all the patients on day 1., 2., 3. and 7. of hospitalization and after 6 months of follow-up. Moreover, images were analyzed by speckle tracking echocardiography, which allowed measurement peak systolic longitudinal strain (SLS), peak systolic longitudinal strain rate (SRS) and peak diastolic longitudinal strain rate in early phase (SRe).

**Results:** At baseline 148 left-ventricular segments were dysfunctional. During 6-month-long follow-up the function of 128 (86,49%) segments have improved. The highest prognostic value of speckle tracking parameters was observed on day 3. for SLS (AUC=0,745) and on day 7. for SRS (AUC=0,729) and for SRe (AUC=0,763).

The criterion of  $SLS \leq -13,99$  had sensitivity of 82,8%, specificity of 60,0% and 79,7% accuracy for detecting preserved viability, whereas the criterion of  $SRS \leq -1,15$  reached sensitivity of 84,4%, specificity of 55,0% and accuracy of 80,4%. The sensitivity, specificity and accuracy of the criterion of  $SRe > 1,41$  was 67,2%, 80,0% and 68,9% respectively.

**Conclusion:** The speckle tracking echocardiography parameters of regional systolic and diastolic function obtained during hospitalization are useful for predicting recovery of regional systolic function in dysfunctional segments during 6-month-long follow-up.



## Coronary fistula - description of pathology based on two case reports.

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**Introduction:** Fistula in medicine is an abnormal connection between two hollow spaces. Coronary fistulae can be congenital anatomical anomalies or can occur in vessels damaged by atherosclerosis or infection. Approximately half of the cases pertain to small arteries and may be asymptomatic and clinically undetectable. However, larger fistulae should be considered as a serious medical condition and ought to be properly treated. Potential complications of this condition include ischemia due to coronary steal phenomenon, bacterial endocarditis, rupture of the fistula and pulmonary hypertension. Prognosis for patients with such pathology also depends on other cardiovascular risk factors such as hypertension, atherosclerosis.

### Case report:

#### Patient I

60 y.o. male with HA, DM II, dyslipidemia was admitted to cardiology clinic because of recurring chest pain, radiating to upper limbs, aggravating on exertion. Coronary angiogram showed stenosis in 2 major coronary arteries and coronary fistula. The patient was qualified for coronaroplasty procedure – stent graft was implanted into left coronary artery which resulted in positive clinical response. After few days of observation patient was discharged from the hospital with modified hypertension and dyslipidemia treatment. Patient was appointed to second phase of coronaroplasty treatment.

#### Patient II

57 y.o. male with exacerbation of chest pain on exertion and shortness of breath was referred to the Department of Cardiology. Patient suffers from hypertension. Physical examination revealed murmur at the left sternal border. Electrocardiogram showed LV hypertrophy. Echocardiogram showed hypokinesis of the anterior wall with fraction of 53%. Transesophageal echocardiogram revealed normal flow and morphology of proximal coronary arteries. Color Doppler flow mapping showed abnormal vessel into the pulmonary artery 1 cm above the pulmonary valve. Coronary angiography also showed coronary fistula originating from the 1<sup>st</sup> diagonal branch of the LAD into the pulmonary trunk. The patient has performed a surgical



ligation of the fistula. After operation patient was stable and without any symptoms. At follow-up visit after 3 months the patient complained of shortness of breath and physical examination revealed again systolic murmur but refused control coronary angiography. After four years he was readmitted because of angina symptoms. Echocardiography and coronary angiography confirmed the fistula. The patient underwent closure using a stent graft (JostentGraftMaster 3.5mm × 12mm). The patient's postprocedural course was uncomplicated. The symptoms (systolic murmur, angina symptoms) disappeared. One year after echocardiography showed minimal flow in the fistula.

**Conclusion:** Most coronary artery fistulas are small, do not cause any symptoms and are clinically undetectable until echocardiography or coronary arteriography is performed for an unrelated cause; they usually do not cause any complications and can spontaneously resolve. However, larger fistulae are usually 3 times the size of a normal caliber of a coronary artery and may or may not cause symptoms or complications. The diagnosis of these fistulae is very difficult and coronary angiography could be the best examination to reveal it. To date, the literature has primarily provided only case reports and reports of small series. In our cases the transcatheter closure was successful. However, the preferred approach for any individual patient depends on the anatomy of the fistula (the size and the location of the feeding arteries) and the presence or absence of associated defects.



## Does ivabradine improve physical effort tolerance in patients during cardiac rehabilitation program?

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**Introduction:** Ivabradine is a substance that selectively decreases frequency of heart rate (depends on a dose) and does not affect other cardio-vascular parameters. In particular, it does not influence on ejection fraction (EF) and does not inhibit relaxation of vessels during an effort. That makes, that ivabradine can be used in patients, in which using of beta-blockers or escalation of its dose is not recommended. In case of decreased tolerance for beta-blockers, we can include ivabradine in order to make heart rate lower without any affection of others parameters. As a consequence patients with stable coronary disease have longer time of total exercise duration (TED). Additionally, during exercise test, ivabradine makes the time to ST segment depression longer. Described properties suggest that giving ivabradine during cardiac rehabilitation of patients with intolerance of beta-blockers, can improve their physical effort tolerance.

**Aim:** The aim of the research is to compare the improvement of physical effort in patients on ivabradine or without this treatment during cardiac rehabilitation program.

**Materials and Methods:** 32 patients with included ivabradine during cardiac rehabilitation were enrolled into this retrospective study. The control group was matched by sex, age and other comorbidities and consisted of 32 subjects. Patients who didn't finish their exercise test at the admission and at the end of treatment were excluded from this study. The association between intake of ivabradine and tolerance for physical effort was assessed.

**Results:** The analysis of results of the exercise test expressed in Metabolic Equivalent of Task (MET) suggested positive impact on improvement of tolerance of physical effort. Percentage improvement was significantly higher in patients on ivabradine than in control group ( $30,95 \pm 27,2$  vs.  $7,46 \pm 16,46$ ;  $p < 0,001$ ). No relationship was found between the patients who already was on ivabradine and patients who started taking ivabradine during rehabilitation program. Also no significant relationship was found between ejection fraction and percentage improvement of METs.

**Conclusion:** Including ivabradine during cardiac rehabilitation improves tolerance of physical effort in cardiac patients.





## Cardiac complication of blunt chest trauma.

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**Abstract:** I present a case of a 55-years-old male patient admitted to the Department of Cardiology with exercise tolerance impairment (NYHA class II). The patient had a history of hyperlipidemia, hypertension and a motorbike accident associated with blunt chest trauma. ECG showed atrial fibrillation and right bundle branch block. Echocardiography revealed normal left-sided cardiac chambers with preserved systolic left ventricular function, but enlarged right ventricle and right atrium. Furthermore, severe tricuspid regurgitation due to ruptured chordae tendineae was observed. The coronary angiography showed 75% stenosis of LAD. Post-traumatic tricuspid regurgitation was diagnosed and the patient was referred for cardiothoracic surgery. The patient underwent tricuspid valve repair and coronary artery bypass grafting (LIMA to LAD) with uneventful recovery.

This case illustrates one of cardiac complications of blunt chest trauma. Other complications include: cardiac rupture, aortic rupture, valvular regurgitations, thrombosis or arrhythmias and others. Cardiac complications of blunt chest trauma significantly influence patient's prognosis.



## Comprehensive assessment and technical consideration of FFR. FFR in case study.

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**Department:**

**Abstract:** Nowadays Fractional Flow Reserve (FFR) is the gold standard for assessing the significance of stenoses in coronary arteries and an irreplaceable procedure in revascularization decision-making in clinical practise. FFR helps to compare the pressure in a vessel with a stenosis with a hypothetical vessel without a stenosis. Numerous studies have shown that FFR is more effective in identifying which lesions should be stented and is also cheaper in the long term than classical angiography. PCI-guided FFR improves the chance of patients suffering from coronary artery disease. However, FFR is an invasive procedure and the technical aspect is particularly important to obtain proper results. Our presentation focuses on a broad assessment of this procedure and shows how FFR can be used in a practical case.

A 57-year-old man, suffered from a coronary disease, a chronic kidney disease, hypertension, hypercholesterolemia, diabetes type 2 and had a history of acute coronary syndrome NSTEMI and percutaneous transluminal coronary angioplasty of circumflex branch of LCA with implantation DES stent. The patient was admitted to hospital because of deteriorating heart failure from class II to class III. After performing CBC, ECG and chest X-ray, the patient was referred for coronarography. During the examination FFR was used to assess the severity of lesions in the left anterior descending coronary artery, I diagonal branch and intermediate artery. Based on the results of FFR, it was decided that these stenoses were not eligible to revascularization. The patient was referred to non-invasive treatment and was discharged from hospital.



## 10-year risk of atrial fibrillation in patients hospitalized in the Department of Cardiology.

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**Tutors:** Małgorzata Lelonek Professor, MD, PhD, FESC

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### **Department:**

**Introduction:** Atrial Fibrillation (AF) is the World's second most common rhythm and concerns 1.5-2% of general population. Its occurrence is associated with a fivefold increased risk of stroke, threefold of developing heart failure and with raised mortality.

**Purpose:** Based on Framingham Heart Study 10-year AF risk score the aim was to assess the risk of AF (atrial fibrillation) in patients hospitalized in the Department of Cardiology.

**Materials and Methods:** The research involved 230 randomly hospitalized patients. Population of interest consists of patients free of AF at baseline. Predictors that are taken into account in AF score are as follow: age, sex, BMI, systolic blood pressure, treatment for hypertension, PQ interval, significant murmur (systolic murmur  $\geq 3/6$  in Levine grading scale and any diastolic murmur) and heart failure. For each variable participants gets points which summed up define the risk of AF. Finally it was assigned to level of risk: low ( $<5\%$ ), intermediate ( $5-15\%$ ) and high ( $>15\%$ ). There is also available to download more accurate risk estimator which additionally calculates "comparative risk" of a person of the same age and gender with BMI  $20-24.9 \text{ kg/m}^2$ , normal systolic blood pressure ( $120-129 \text{ mmHg}$ ), no treatment for hypertension, PQ interval  $160 \text{ ms}$  and no significant murmur or heart failure. All patients had filled out a questionnaire survey concerning cardiovascular risk factors. Obtained data, including information contained in patients' medical documentation, enabled the use of Framingham Heart Study 10-year AF risk score in order to assess patients' risk of AF. The score is available on the website [www.framinghamheartstudy.org](http://www.framinghamheartstudy.org).

**Results:** Of all 230 examined patients 157 (68.26%) were free of AF at baseline and 73 (31.74%) have already suffered from AF. The population free of AF consisted of 48.41% female ( $n=76$ ) and 51.59% male ( $n=81$ ) patients aged 45 to 90 (mean age  $65.75 \pm 9.34$  years). Mean BMI in the population of interest was  $27.86 \pm 5.16 \text{ kg/m}^2$ , systolic blood pressure  $125.34 \pm 16.68 \text{ mmHg}$  and PQ interval  $171.97 \pm 28.52 \text{ ms}$ . Majority of patients (84.08%) were treated for hypertension and significant murmur was observed only in 12.1% of population. Slightly more than half of participants (56.69%) suffered from heart failure. 10-year risk of AF was elevated in 96.18% ( $n=151$ ) of patients in comparison to "comparative risk" and 56.69% ( $n=89$ ) was in high-risk group.



**Conclusion:** The risk factors of AF are common in the population of patients without AF in anamnesis treated in the Department of Cardiology making it particularly vulnerable to developing AF in the next 10 years according to Framingham Heart Study AF score (10-year risk). Therefore AF prevention must gain more attention especially in cardiologic patient.



## Diagnosis and treatment of secondary mitral regurgitation – case report.

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**Department:**

**Abstract:** Mitral regurgitation -the most common form of heart disease is leakage of blood backward from left ventricle to left atrium. It is caused by the valve which does not close properly. Taking into consideration the mechanism of regurgitation MR may be primary or secondary. Secondary MR is the effect of changes in geometry of left ventricle, dilation of mitral valve annulus and disorder of contractility affecting function of papillary muscles. Prognosis estimated on the base of 5 the 5-year survival rate for people with this form of regurgitation is much better than for patients with primary MR.

**Case study.** 72 y.o. patient suffering from heart failure, hypertension (WHO class 2) , persistent atrial fibrillation diabetes mellitus type 2 and hiperlipidaemia was admitted to the Cardiology Clinic due to increasing limit of exercise tolerance, exercise induced dyspnea and swelling of lower limbs. The patient's ECG upon arrival revealed atrial fibrillation with extra ventricular beats. Echocardiography revealed severe MR secondary to leaflets remaining in restrictive position, moderate tricuspid regurgitation with vast segmental disorder of left ventricular contractility and ejection fraction 30%. Coronography revealed multivessel coronary arteries disease with closure of anterior descending branch and marginal branch. Concerning whole clinical image, after heart team consultation patient was qualified for cardiosurgery treatment. On 13.11.2015 surgeons made coronaro-aortal bypassing simultaneous with mitral valvuloplasty and tricuspid valve plasty, including sewing rings. Additionally, auricle of left atrium was sutured.

After lunching duratic treatment, Decreased peripheral edema was observed. In the face of bloody-purulent efflux, which apared from stemotomy wound resuture of sternum. During couple of next days, doctors observed progressive recovery of patients clinical condition. After echocardiography control test slight improvment of systolic function of left ventricle was developed, with good effect of valvuloplasty - without previous regurgitation. Because of patient's proper overall condition, in respiratory and circulation matters, patient was transfered to the department of cardiac rehabilitation, where medical staff observed improvment of patient's physical capacity.



Described case, shows diagnostic and therapeutic pathway of patient with heart failure against the background of deriative mitrial regurgitation leading to impaired left ventricle, treated according to standards of European Society of Cardiology.



## Relationship between resistin and platelet parameters in patients with arterial hypertension.

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**Department:** Department of Cardiology and Internal Diseases

**Introduction:** Arterial hypertension (AH) is one of the largest problems of contemporary medicine and the main cause of cardiovascular (CV) complications. AH can also coexist with metabolic disturbances, increased secretion of adipocytokines and prothrombotic state. Mean platelet Volume (MPV) and mean platelet volume to platelet count ratio (MPV/PLT) revealed to be related with higher CV risk.

**Aim:** To investigate the relationship between resistin and platelet parameters in patients with arterial hypertension.

**Materials and Methods:** 137 patients (94 men; mean age: 44,9 years; mean blood pressure 141/90 mmHg) with essential AH and no other serious diseases were enrolled in this study. All subjects underwent laboratory tests, including: fasting glucose, total cholesterol (TC), HDL, LDL, TG, blood morphology (MPV, PLT) and resistin. The statistical analysis was performed with respect to sex.

**Results:** The average values of platelet parameters were as follows: PLT - 229,5 (+/-) 53,4 ( $10^3/\text{mm}^3$ ). MPV - 9,29 (+/-) 1,00 (fl), MPV/PLT - 0,044 (+/-) 0,001 and no significant differences between men and women were observed. The mean value of resistin concentration was 9,42 (+/-) 3,69. In females platelet parameters correlated with resistin: MPV/PLT ( $R=0,39$ ;  $p=0,011$ ) and MPV ( $R=0,43$ ;  $p=0,005$ ). In males the only statistically significant correlation was observed between PLT and HDL ( $R=-0,26$ ;  $p=0,012$ ). No correlation between platelet parameters and FG, TC, HDL (in females), LDL, TG, resistin (in males) and blood pressure were observed.

**Conclusion:** Some platelet parameters revealed positive correlations with resistin in females with arterial hypertension what can indicate its association with metabolic disorders. This sex-dependent relations need further studies.



## Sinus venosus atrial septal defect with persistent left superior vena cava diagnosed by cardiac magnetic resonance imaging – case report.

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**Introduction:** Sinus venosus atrial septal defect (SVASD) is an uncommon type of interatrial communication, commonly associated with partial anomalous pulmonary venous drainage (PALVD). Clinical symptoms usually occur in the fifth decade of life. The right ventricle volume overload and pulmonary flow increase may lead to development of heart failure and pulmonary hypertension.

**Aim:** The aim of this study is to present very interesting case of patient with SVASD and PALVD that mimic acute cardiac state.

**Materials and Methods:** A 41-year-old woman, fitness instructor came to the cardiology outpatient clinic with complaints of substantial worsening of physical capacity of four week's duration and episodes of rest chest pain since two weeks. Due to sudden onset of symptoms, the patient was referred to the I Department of Cardiology with a suspicion of an acute coronary syndrome. Physical examination on admission did not reveal any abnormalities. Laboratory studies documented serial negative troponin I and elevated BNP (157 pg/ml).

An ECG showed sinus rhythm, q wave in III, aVF leads and biphasic T wave in V1, V2 leads. An echocardiography revealed a dilatation and volume overload of the right ventricle (45 mm), normal systolic function of both ventricles (EF>60%, TAPSE-30mmHg), mild tricuspid regurgitation and extended inferior vena cava (25mm). An Angio-CT scan excluded pulmonary embolism. A coronarography did not indicate significant atherosclerotic lesions in coronary vessels. A cardiac catheterization showed normal pressure in right heart chambers and in the pulmonary trunk (16 mmHg) - pulmonary hypertension was excluded, but high value of cardiac output (8.82 l/min) suggested the existence of leakage defect.

**Results:** A cardiac magnetic resonance (CMR) confirmed the presence of SVASD associated with PALVD and concomitant PLSVC. Qp:Qs was 2,5. The defect was





sutured with pericardial patch in extracorporeal circulation. The intra- and post-operative clinical course was uneventful.

**Conclusion:** SVASD is a diagnostic challenge and requires much attention. CMR imaging may be an alternative for the leakage defect diagnosis in case of questionable results of echocardiograms.



## A new-onset atrial fibrillation after atrial flutter ablation.

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**Department:**

**Background:** A new-onset atrial fibrillation (AF) is not rarely seen among patients who underwent ablation procedure for treatment of an atrial flutter (AFL).

**Objectives:** To determine the incidence of AF in patients after successful ablation of AFL.

**Materials and Methods:** A total of 29 consecutive patients presenting with AFL who underwent ablation from January 2011 to December 2015 in the Department of Interventional Cardiology and Cardiac Arrhythmias of the University Clinical Hospital Military Memorial Medical Academy in Lodz were enrolled in the study. A 9-question telephone survey was used to evaluate the symptoms suggestive of tachyarrhythmias. The assessment whether patients were diagnosed with this condition was based on electronic medical follow-up record.

**Results:** The mean follow-up duration for study was  $34 \pm 16$  months. During the follow-up period AF occurred in 55% of the patients after successful catheter ablation.

**Conclusion:** Over half of the patients developed a new-onset atrial fibrillation after ablation for atrial flutter. AF following AFL ablation procedure plays a vital role in the selection of further management of this patient subset.



# CARDIOSURGERY AND INTERVENTIONAL CARDIOLOGY

1. Evaluation of clinical usefulness of implantable cardioverters-defibrillator heart rate analysis algorithms.
2. Early results of aortic valve replacement with the use of biological prostheses in patients under the age of 65.
3. Early results of mitral valve replacement with use of biological prostheses in patients under the age of 70.
4. Rotational atherectomy as a treatment of coronary artery disease in patients with coronary artery calcification.
5. ICD defibrillation lead as a trigger for VT
6. Early results of mitral valve replacement with use of biological prostheses in patients under the age of 70.
7. Endomyocardial biopsy –clinical significance and safety.
8. Prenatal severe complex heart defect and postnatal outcome - A case report.
9. Quality of life and long-term clinical outcomes in patients with resistant hypertension treated with renal sympathetic denervation.
10. Invasive cardiac procedures - the coronary sinus access pitfalls



## Evaluation of clinical usefulness of implantable cardioverters-defibrillator heart rate analysis algorithms.

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**Institute:** Medical University of Lodz

**Introduction:** Serious heart diseases which lead to fatal arrhythmias like ventricular fibrillation are becoming more and more frequent in the community. Fortunately, development of advanced implantable devices like implantable cardioverter-defibrillators (ICD) makes the effectiveness of the treatment constantly rising. Beside therapeutic function, hi-tech ICD's are also equipped in diagnostic algorithms, which allows constant heart rate analysis. There is no data unequivocally showing that ICD heart rate analysis algorithms are reliable.

**Aim:** The purpose of the study was to examine whether heart rate measurements based on ICD's records correspond to the heart rate measurements analyzed from standard 24-hour Holter monitoring.

**Materials and Methods:** The study enrolled 20 consecutive patients with ICD who underwent heart rate evaluation with ICD counting algorithms and 24-hour Holter monitoring. Mean heart rate (mHR), minimal heart rate (minHR), maximal heart rate (maxHR) and heart rate distribution were assessed with both methods and compared.

**Results:** The preliminary results are comparable in terms of all analyzed parameters.

**Conclusion:** The heart rate analysis algorithms are comparable to the results obtained with 24-hour Holter monitoring. These results allow to use these facilities in clinical practice.



## Early results of aortic valve replacement with the use of biological prostheses in patients under the age of 65.

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Paweł Zając  
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Łukasz Sadowski  
Kamil Kornicki  
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**Institute:** Medical University of Lodz

**Introduction:** Aortic Valve Replacement is considered a standard surgical procedure in cases of aortic valve disorders. Although using bioprosthesis for such operations is recommended for patients older than 65 years, there is a growing trend to perform bioprosthesis implantation on younger patients..

**Aim:** Evaluation of legitimacy of surgical treatment in younger patients based on postoperative state

**Materials and Methods:** Between 2008 and 2014 in the Department of Cardiac Surgery, Medical University of Łódź, 179 patients under the age of 65 were operated due to aortic valve disorder with the use of biological prosthesis. The group consisted of 60,9% males (109) and 39,1% females (70) of various age, with various BMI and number of comorbidities. EuroSCORE Risk Profile of those patients varied from 0,5% to 38,6% , with the average of 1,86% . Clinical data has been gathered and analyzed.

**Results:** Analysis showed significant improvement of echocardiographic parameters in all patients. Operation lead to average reduction by 50,9 mmHg in patients with aortic stenosis. In patients with aortic insufficiency operation caused the average growth of 7,5 mmHg . Early postoperative mortality was 3,35% (6). The complications occurred in 71 patients (39,66%). The most common complication was cardiac rhythm abnormalities which formed 18,18 % of all complications. Further, fluid in pleural cavity which needed medical intervention was presented in 6,22%.

**Conclusion:** Analysis showed that implantation of bioprosthesis in patients younger than 65 is legitimate and their early outcome seems to be good. In most cases there were no complications noticed in early postoperative state. Analyzed group requires further clinical observation.



## Early results of mitral valve replacement with use of biological prostheses in patients under the age of 70.

**Authors:** Edward Koziróg  
Paweł Zając  
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Filip Dziwisz  
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Kamil Kornicki

**Tutors:** Ostrowski Stanisław Prof.

**Institute:** Medical University of Lodz

**Introduction:** Mitral Valve Implantation is used as method of treatment in mitral valve diseases. Among patients over 70 years old it is recommended to use bioprosthesis instead of artificial valve. However, in recent years cardio surgeons began to apply mitral bioprothesis also in younger patients.

**Aim:** The aim of our study was to evaluate the benefits of Mitral Valve Replacement with bioprosthesis in patients under 70 years old.

**Materials and Methods:** We conducted a single centre (Cardiac Surgery Department, Medical University of Lodz) retrospective study. Between 2009 and 2014, 19 patients were applied mitral bioprothesis. The group was consisted of patients under age of 70 (6 males and 13 females) with various BMI and number of comorbidities. EuroSCORERisk Profile of these patients varied from 0.8 to 16.78, with the average of 5.42.

**Results:** The analysis showed significant improvement in echocardiographic parameters in all patients. Complications appeared in 47.4% of patients. Notably, in 55.6% of patients, rethoracotomy was performed. Need for Intra-aortic balloon pump formed 22.2% of all complications. The risk of early postoperative mortality in case of mitral valve replacement was 21.1%.

**Conclusion:** Presented data suggests that Mitral Valve Bioprothesis Implantation in patients under 70 years old cause positive results. In most cases there were no complications noticed in direct postoperative period. However, the analyzed group requires further clinical and echocardiographic follow-up observation.



## Rotational atherectomy as a treatment of coronary artery disease in patients with coronary artery calcification.

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**Introduction:** Coronary artery disease is known as a local impairment of perfusion in heart muscle. This condition is caused by atherosclerosis in epicardial arteries. Such changes are often accompanied by calcified lesions, which make classic method used to dilatation vessels (e.g. Plain Old Balloon Angioplasty- POBA) more difficult or even impossible to perform. In these cases rotational atherectomy can be used. RA enables to modify calcified plaque, prior to making angioplasty and putting a stent into artery. The small burr is put on the catheter, which goes into the vessels and by rotating at the very high speed crushes atherosclerotic plate into small particles. Then they are removed by reticul endothelial system.

There are also known other methods of treating coronary artery calcification such as laser coronary atherectomy or coronary artery bypass graft surgery.

The first rotational atherectomy in Łódź was performed on 12.02.2016 in W. Bieganski Hospital. Five patients with heavy coronary artery calcification were classified to this method of treatment. Each of them had a coronarography and IVUS. Most of them underwent POBA, however the attempts turned out to be unsuccessful.

Rotablation gives hope of treating the patients with heavy calcified coronary artery and is great alternative to more invasive coronary artery bypass graft surgery.



## ICD defibrillation lead as a trigger for VT

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**Institute:** Medical University of Lodz

**Introduction:** We present a case of a 53-year-old male, admitted to the Department of Electrocardiology because of recurrent, pharmacologically non-responsive ventricular tachycardias (VTs). Patient had a long standing past medical history of ischaemic heart disease – six myocardial infarctions, multiple percutaneous coronary intervention and an ischemic cardiomyopathy in symptomatic NYHA class II. He underwent an implantable cardioverter-defibrillator (ICD) implantation in a secondary sudden cardiac death prevention (after VT with hemodynamic instability). The frequency of VT recurrences on admission met the requirements of an electrical storm diagnosis. An echocardiography revealed the sections of the left ventricle with contractile dysfunction (akinesis of inferior wall basal segments, posterior wall apical segments and hypokinesis of basal segment of intraventricular septum (IVS), with left ventricle (LV) ejection fraction of 45%. The coronarography revealed an isolated 60% stenosis of left anterior descending coronary artery, which was proved to be hemodynamically irrelevant using fractional flow reserve.

After consideration of all available data, patient was referred for a catheter radiofrequency ablation (RFA) of the arrhythmogenic substrate.

**Materials and Methods:** Firstly the endocardial bipolar potential map of LV was performed using the CARTO electroanatomic mapping system. It revealed the area of low endocardial potentials (defined as  $<1,5\text{mV}$ ) on the inferior-posterolateral wall, corresponding with post myocardial scar visualised by echocardiography. During the catheter manipulation VT was induced – cycle length (CL) 430ms and QRS morphology equivalent to the clinically observed VT. Due to a sufficient hemodynamic tolerance of the arrhythmia the local activation time (LAT) mapping of LV was performed. The focus of earliest activation was localized on IVS, in the area with no potential amplitude abnormalities. Then, the right ventricle (RV) LAT map was performed - earliest activation was localized on septal area, close to the tip of an ICD defibrillating lead and it was a mirror image of the earliest activation area in LV. Moreover, during the ventricular stimulation from ICD (CL=400ms) we were able to observe the QRS morphology identical with QRS during VT.

The RFA of the arrhythmic substrate was performed in RV, nonetheless, VT could still be triggered. Because of that, the complementary ablation was performed on the LV side (the mirror image). After the procedure arrhythmia was non-inducible by any stimulation.

**Conclusion:** Considering the entire clinical picture of the aforementioned case we can conclude that the area surrounding the ICD electrode was the reason of the clinically manifesting VT. In most similar cases mentioned in literature, the RFA was insufficient in avoiding VT recurrences and total lead extraction had to be performed.





## Early results of mitral valve replacement with use of biological prostheses in patients under the age of 70.

**Authors:** Edward Koziróg  
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**Institute:** Medical University of Lodz

**Introduction:** Mitral Valve Implantation is used as method of treatment in mitral valve diseases. Among patients over 70 years old it is recommended to use bioprosthesis instead of artificial valve. However, in recent years cardio surgeons began to apply mitral bioprothesis also in younger patients.

**Aim:** The aim of our study was to evaluate the benefits of Mitral Valve Replacement with bioprosthesis in patients under 70 years old.

**Materials and Methods:** We conducted a single centre (Cardiac Surgery Department, Medical University of Lodz) retrospective study. Between 2009 and 2014, 19 patients were applied mitral bioprosthesis. The group was consisted of patients under age of 70 (6 males and 13 females) with various BMI and number of comorbidities. EuroSCORE Risk Profile of these patients varied from 0.8 to 16.78, with the average of 5.42.

**Results:** The analysis showed significant improvement in echocardiographic parameters in all patients. Complications appeared in 47.4% of patients. Notably, in 55.6% of patients, rethoracotomy was performed. Need for Intra-aortic balloon pump formed 22.2% of all complications. The risk of early postoperative mortality in case of mitral valve replacement was 21.1%.

**Conclusion:** Presented data suggests that Mitral Valve Bioprothesis Implantation in patients under 70 years old cause positive results. In most cases there were no complications noticed in direct postoperative period. However, the analyzed group requires further clinical and echocardiographic follow-up observation.



## Endomyocardial biopsy –clinical significance and safety.

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**Institute:** Poznan University of Medicine sciences

**Introduction:** The endomyocardial biopsy has proven to be an integral diagnostic tool for surveillance of cardiac allograft rejection and identification of myocardial diseases. Nevertheless this invasive procedure is not risk-free.

**Aim:** This study focuses on the risk of complications and diagnostic performance of right ventricular endomyocardial biopsy.

**Materials and Methods:** In this single center retrospective study, we analyzed 315 endomyocardial biopsy(EMB) procedures performed between July 2008 and March 2016.

All EMB procedures were made via the right femoral vein approach under fluoroscopic control to evaluate suspected myocarditis, unclear heart failure, unexplained cardiomyopathy, assumed infiltrative and storage disease or as a part of routine allograft rejection monitoring and clinically suspected rejection diagnosis after heart transplantation (HTx). Obtained specimens were diagnosed histopathologically by one experienced pathologist. All patients underwent a 12-lead electrocardiogram (ECG), ECG monitoring, transthoracic echocardiography before and after endomyocardial biopsy to obtain a detailed assessment of the incidence of heart rhythm disorders, pericardial effusions or worsening valve insufficiency. Complications resulting from the procedure were classified as major or minor according to the risk of death.

**Results:** Among all the 315 biopsies, 86.67% were performed in patients after HTx, 3.81% in patients with myocarditis, 2.54% in patients with dilated cardiomyopathy and 1.9% in patients with amyloidosis. The overall complications rate was 1.9% (6 of 315 procedures). Major complications included perforation requiring pericardiocentesis occurred in 0.64%. There was no death associated with the biopsy. Minor complications included: pericardial effusion (0.32%), local hematoma (0.64%) and right coronary artery-right ventricular fistula in HTx recipient (0.32%).

**Conclusion:** EMB is a safe procedure with low risk of serious complications and high effectiveness for the evaluation of unexplained left ventricle dysfunction and monitoring allograft rejection after HTx.



## Prenatal severe complex heart defect and postnatal outcome - A case report.

**Authors:** Barbara Świąchowicz  
**Tutors:** Maria Respondek-Liberska Prof  
**Institute:** Medical University of Lodz

**Introduction:** Heart defects are the most common birth defects, usually successfully operated on as early as possible. This is a case report of a complex heart defect detected by an obstetrician in the third trimester of pregnancy and diagnosed at the referral center for fetal cardiology at 35<sup>th</sup> week of gestation such as: DORV, with small LV and LSVC with partly visible pulmonary veins to left atrium. Prenatal echocardiography showed an increased diameter of pulmonary trunk and decreased aortic diameter. CHD was assessed from a prenatal cardiology point of view such as severe and not critical but due to suspected respiratory problems. The elective cesarean section was performed at 40<sup>th</sup> week of gestation. Neonate was born with 2800 g birth weight and 8 point Apgar score and was in a stable condition on prostin infusion since day 1<sup>st</sup>. Clinical deterioration was noticed on 20<sup>th</sup> day and cardiac catheterisation was performed with an attempt of Rashin balloon atrial septostomy, however with no success. The next day Norwood procedure was performed, but 2 days later the baby died. An autopsy confirmed the aortic cardiac surgery procedure however pulmonary hypertension was also present which was not mentioned in medical history of our patient so far.

**Conclusion:** Long waiting for cardiac surgery and pulmonary hypertension contributed to patient death?  
Are dimensions of the pulmonary trunk and aorta in prenatal echocardiography valid to identify high probability for neonatal pulmonary hypertension?



## Quality of life and long-term clinical outcomes in patients with resistant hypertension treated with renal sympathetic denervation.

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Agata Krawczyk-Ożóg

**Tutors:** Prof. Dariusz Dudek, MD, PhD

**Institute:** Collegium Medicum UJ

**Introduction:** Pharmacological treatment alongside lifestyle modifications is an effective treatment for hypertension. However, there are still patients who do not respond to standard treatments. Patients with pharmacological resistant hypertension may benefit from renal denervation(RDN).

**Aim:** The aim of this study was to assess long-term quality of life (QoL), reduction of blood pressure (BP) and periprocedural safety of RDN.

**Materials and Methods:** In this prospective study we included patients with previously diagnosed resistant hypertension between 2011-2014. The QoL was assessed using polish version of the Nottingham Health Profile questionnaire (NHP).

**Results:** The median age was 54 (IQR:51-57.5). Mean baseline ambulatory pre-procedural BP for the whole group was 188/115( $\pm$ 29.74/17.95)mmHg.

The mean values of systolic and diastolic BP measured perioperatively, 3, 6, 12 and 24 months were 138/86, 138/85, 146/82, 152/86, 157/91 (respectively p-values for systolic and diastolic BP before versus consecutive periods after RDN were: p=0.02, p=0.02; p=0.01, p=0.02; p=0.02, p=0.02; p=0.01, p=0.005; p=0.02, p=0.02). Improvement of QoL was observed in one of the dimensions of health in Part I NHP - Emotional reaction. The analysis of patients response in Part II of the questionnaire showed significantly less problems with work, social life, interests and hobbies, vacations causing of state of health after RDN in comparison with answers before the procedure. The RDN procedure was not associated with any significant adverse events.

**Conclusion:** Patients treated with RDN achieved significant reduction in BP during 24-month observation period following the procedure. Furthermore, a significant improvement in the QoL was reported in observation period .



## Invasive cardiac procedures - the coronary sinus access pitfalls

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**Introduction:** The coronary sinus (CS) is the central vein of the coronary venous system. CS has become an important structure due to providing access for advanced invasive cardiac procedures. The detailed anatomy of the CS as a potential anatomic barrier for these procedures has not been described.

**Aim:** The study was designed to evaluate the spectrum of CS variants, with emphasis on the presence and morphology of the Thebesian valve (TV). We also assessed the anatomic relationships among the mitral annulus and coronary sinus in human cadaver hearts.

**Materials and Methods** We performed macroscopic measurements in 101 cadaver hearts (mean age  $47.7 \pm 20$  years, 20% of female). We evaluated the morphology of the CS ostium and measured the ostium surface area as follows  $\pi r^2$ . The types of TV were classified according to their shape as semilunar/fenestrated/a fold/a chord. The length and maximum diameter of the CS, and the distance between the CS and the mitral annulus were measured.

**Results:** The mean heart mass in all studied group was  $390.0 \pm 93.6$  g, and was lower among women than men ( $317.75 \pm 62$  g vs.  $407.63 \pm 91.9$  g,  $p = 0.0012$ ). The mean CS ostium surface area was  $97.8 \pm 93.8 \text{ mm}^2$  and positively correlated with heart mass ( $p = 0.009$ ). The TV was present in 62% of specimens. Semilunar was the most common type of TV in terms of shape (68%). A chord was observed in 13%, a fold in 11%, while fenestrated CS in 3%. Mixed-shaped (both semilunar and the chorda) CS accounted for 4% of Thebesian valves. The mean CS length was  $63.7 \pm 19.5$  mm and correlated with left ventricle thickness ( $14.9 \pm 3.0$  mm), ( $r = 0.572$ ,  $p = 0.0001$ ). The mean distance between the CS and the mitral annulus ( $10.4 \pm 5.4$  mm) correlated with CS length ( $r = -0.423$ ,  $p = 0.001$ ), left ventricle thickness ( $r = -0.33$ ,  $p = 0.011$ ) as well as with CS ostium surface area ( $p = 0.008$ ).

**Conclusion** Our results indicate that the best access to the CS is through the superior vena cava. The close proximity of the CS to the mitral annulus is still not a paradigm.



# ENDOCRINOLOGY

1. Pediatric obesity - a tedious problem or challenging riddle? Case report
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## Pediatric obesity - a tedious problem or challenging riddle? Case report

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Obesity in children is defined as BMI above 95<sup>th</sup> percentile and may result from caloric overload and/or insufficient physical activity. It is important to distinguish primary obesity from the secondary one that accompanies other diseases. These obesity-related disorders include endocrinologic conditions as well as genetic-based syndromes. Despite their low prevalence separately, together they need to be kept in mind by a pediatrician.

### Case report

L.E., a fifteen-year-old girl, presented with a constellation of obesity, impaired fasting glucose and primary amenorrhea. Her medical history included hypothyroidism (treated with L-tyrosine) and excessive weight gain since the age of six. Previous ultrasound scans did not reveal ovaries. In extended family there had been cases of type 2 diabetes mellitus, but history of familial obesity was unremarkable.

On examination we found thoracolumbar scoliosis, body mass index of 26,4 kg/m<sup>2</sup> (95<sup>th</sup> percentile) and waist circumference of 98 cm. The excessive fat tissue was distributed in the upper part of the body, with lean extremities. We detected stretch marks on hips and stomach with acanthosis nigricans present on the neck and in the armpits. The physical development was assessed with Tanner's scale as thelarchae I<sup>0</sup> with steatomasty, pubarchae IV<sup>0</sup>, axilarchae (++).

Laboratory tests revealed impaired glucose tolerance with normal glycated hemoglobin, hypercholesterolemia and hyperurikemia. Insulin resistance was confirmed by calculating HOMA-IR index. The endocrine panel showed elevated levels of TSH, decreased testosterone, borderline low estrogen, elevated LH and FSH. Ultrasound examination showed a small uterus without visible endometrium or ovaries.

We increased the dose of L-tyrosine and devised a weight reduction plan. Home-based blood pressure monitoring was also recommended. L.E. received referral for bone densitometry, karyotype testing and was scheduled for an in-patient visit to undergo magnetic resonance imaging (MRI) of pelvis.

During second hospitalization we observed a moderate weight reduction. MRI confirmed the presence of small uterus without visible endometrium or ovaries. Laboratory tests revealed a low level of anti-müllerian hormone.

After receiving genetic tests results that revealed karyotype 46XY, L.E. was diagnosed with Swyer's syndrome. It is caused by a loss-of-function mutation in the sex-determining region of the Y chromosome.



It results in a female phenotype but the lack of ovaries (and thus estrogens) probably underlies the metabolic disorders. Untreated patients never reach puberty. Moreover, they face an increased risk of tumorigenesis in dysgenetic gonads. The treatment involves vitamin D3 supplementation, hormones and continuous weight reduction.

### **Conclusions**

In this case, genetic testing proved a key diagnostic tool. However, it was obesity coupled with a reproductive system disorder that alerted the physician and led to successful diagnosis.





## 73-year-old woman with neck pain and dysphagia

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### Introduction

Neck pain and dysphagia are highly alarming symptoms that make the patient quickly seek medical attention. Malignant disease should be always excluded, but similar symptoms may also be caused by a number of various non-malignant conditions, including subacute thyroiditis and acute esophageal diverticulitis.

### Aim:

To present potential diagnostics problems in a patient with neck pain and dysphagia.

### Materials and Methods:

We describe the clinical, laboratory and radiologic findings in a patient with neck pain and dysphagia

### Results:

A 73-year-old woman with a past medical history of hyperthyroidism and radioactive iodine treatment was admitted to the Endocrinology Department due to neck pain and dysphagia, with an initial diagnosis of subacute thyroiditis. Although blood tests revealed only slightly elevated ESR and CRP serum levels, while TSH, fT3 and fT4 levels stayed normal, NSAIDs treatment was administrated with a good clinical effect. However, the thyroid ultrasound examination did not support the diagnosis of subacute thyroiditis, revealing instead an abnormal mass of uncertain origin located in the left part of the neck. Since the laryngological examination and esophagogastroduodenoscopy showed no abnormalities of the larynx and esophagus, a fine-needle biopsy of the lesion was performed, suggesting an inflamed esophageal diverticulum. Barium swallow fluoroscopy confirmed the diagnosis of a diverticulum located in the left upper part of the esophagus. Moreover, a second smaller diverticulum in the lower part of the esophagus was also found and an elective surgical treatment was recommended.

### Conclusion:

The differential diagnosis in patients with neck pain and dysphagia may be sometimes misleading and complicated. Even though



esophagogastroduodenoscopy reveals no abnormalities of the esophagus, acute esophageal diverticulitis cannot be excluded. NSAIDs are treatment of choice in both, subacute thyroiditis and acute esophageal diverticulitis.



## Effects of vitamin D supplementation on immunological parameters in women with Hashimoto's disease

**Authors:** *Agnieszka Plesińska*

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**Institute:** *Medical University of Lodz*

### Introduction

Although emerging evidence suggests that low levels of vitamin D may contribute to the development of autoimmune disease, the relationship between vitamin D deficiency and autoimmune thyroid disease (AITD), which includes Hashimoto's thyroiditis (HT), is still controversial. Recently, several studies have shown that low levels of vitamin D contribute to Graves' disease (GD) and Hashimoto's thyroiditis (HT) and that combining vitamin D with anti-thyroid drugs or thyroid hormone contributes to the treatment of AITD by suppressing the autoimmune reaction and reducing serum levels of thyroid autoantibodies (anti-TPO and anti-TG antibodies).

### Aim of the study

The aim of this study was to evaluate vitamin D3 concentrations in blood serum of patients with compensated Hashimoto's disease and to assess a demand for vitamin D3 in this group. We wanted to show the connection between vitamin D3 supplementation and thyroid autoantibodies concentrations.

### Material and methods

A group of 64 female patients was qualified, all of them attending the Outpatient Clinic of Endocrinology at the Regional Centre of Menopause and Osteoporosis of Medical Military University Hospital. Their age:  $\geq 18$  years, before and after menopause - with diagnosed Hashimoto's disease. Blood samples were collected to assay: serum calcium & phosphorus, vitamin D Total, PTH, TSH concentrations, anti-TPO antibody, anti-TG antibody levels. The patients were divided into 2 subgroups. Group 1, with vitamin D concentration  $\geq 20$  ng/ml, and group 2, with vitamin D concentration  $< 20$  ng/ml, were receiving vitamin D for 3 months in dose of 4000 IU/d or 6000 IU/d, respectively. A group of 12 female patients underwent all the examinations, both at admission and after 3 months of vitamin D supplementation.

### Results

In the group of patients with the mean age of 52, the mean vitamin D level was 22.7 ng/ml (SD 8.19). In 34.38 % of the patients, vitamin D levels were lower or equal to 20 ng/ml, whereas 64.06% of the patients revealed vitamin D concentration higher than 20 ng/ml (max 43.16 ng/ml). The mean anti-TPO antibody concentration was 242.88 IU/ml (SD 171.37) and the mean anti-TG antibody concentration was 428.64 (SD 519). The mean TSH level was 2.33  $\mu$ U/ml (SD 1.9).



Subsequent calculations included: the mean PTH concentration – 45.69 pg/ml (SD 16.07), the mean calcium excretion rate – 4.7 mmol/24 h (SD 2.4) and the mean serum calcium level – 2.47 mmol/l (SD 0.008). After 3 months of supplementation, a statistically significant increase in vitamin D concentration ( $p < 0.05$ ) was noticed.

Although the results were not statistically significant, in the group of 12 patients, TG antibody levels decreased from 414.93 IU/ml to 314.5 IU/ml and the TPO antibody levels from 268.68 IU/ml to 148.68 IU/ml.

### **Conclusions**

Vitamin D deficiency in patients with HT is a common problem. Supplementation effectively increased vitamin D concentration. We were not able to confirm any positive correlation between vitamin D concentration and immunological parameters, probably due to the limited number of patients.



## Psoriasis in type 1 diabetes mellitus - coincidence or shared pathogenesis?

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### Introduction

There is a growing body of evidence that multifactorial autoimmune diseases tend to cluster together in epidemiological studies. Type 1 diabetes mellitus (DM1) and psoriasis are a good example of autoimmune diseases that may coexist – either purely by chance or due to shared genetic background or environmental triggers. Reports about increases insulin resistance in psoriasis urged us to investigate whether patients with DM1 and psoriasis have a different, possibly more severe course of diabetes.

### Aim

The aim of the study was to compare the clinical course and lipid profiles of children affected by both DM1 and psoriasis versus ones with only DM1.

### Methods

All patients treated in the Department DM1-specific autoantibody-confirmed diabetes (N=830) were evaluated for the presence of psoriasis or suspected psoriasis on the basis of their medical records. Afterwards, 10 patients with only DM1 were matched to every individual with psoriasis and T1DM using propensity score matching. The patients were matched using a logistic-regression model constructed to make the groups as similar as possible in terms of sex, age and duration of diabetes. Individuals with monogenic diabetes were excluded from the study. We collected data on patient's weight, height, body mass index (BMI), daily insulin dose per kg (ins/kg), glycated hemoglobin (HbA1c), total cholesterol (TC), low- and high-density lipoproteins (LDL, HDL) and triglycerides (TG). The data were collected in three time points: 6 months after DM1 diagnosis, 24 months and on the latest visit available.

### Results

We collected records of 13 patients with DM1 and psoriasis. Propensity-matched score yielded a control of 133 patients with only T1DM. Altogether groups comprised 76 boys (52%) and 70 girls (48%), with no significant disproportion in sex between psoriasis and control group ( $p < 0.05$ ). The median age of diagnosis was 11.02 (7.88 to 13.12) years. The preliminary analyses showed that none of the variables (mean HbA1c, TG, TC, HDL, LDL and ins/kg) were significantly different between the groups ( $p > 0.05$ ). However, in DM1+psoriasis group we found tendencies toward later age of DM1 onset (13.17 years vs 10.98 years;  $p = 0.09$ ), lower TC (143 mg/dl vs 158 mg/dl;  $p = 0.11$ ), and HbA1c (6 % vs 6.7%;  $p = 0.056$ ). The psoriasis group also started with



slightly higher BMI (19.23 vs 18 kg/m<sup>2</sup>; p=0.26). These differences did not persist over the two following time points due to a limited sample size of patients available throughout the observation period.) The detailed results, including multivariate regression models, will be presented during the conference.

**Conclusions**

We found no significant impact of psoriasis on DM 1 management and lipid profiles in general. However, we suspect that patients with concomitant psoriasis are diagnosed later and in less severe conditions. Still, DM 1+psoriasis patients have an increased risk of developing insulin resistance in future and thus should be closely monitored by their doctors.



## Correlation between betatrophin serum concentration and BMI in Hashimoto thyroiditis patients

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### Introduction

Betatrophin also called TD26/RIFL/lipasin/ANGPTL8/C19orf80 is a newly identified protein derived from liver, WAT and BAT. Physiological mechanism of betatrophin has not been fully recognized yet. This substance has a vast influence on production and metabolism of lipids and is considered to induce proliferation of pancreatic  $\beta$ -cells. Hashimoto thyroiditis (HT) is a chronic autoimmune disease in which elevated levels of TSH, anti-TSH receptor antibodies (TRAb), anti-peroxidase antibodies (TPOAb) are present. HT is manifested mostly by hypothyroidism which can lead to obesity, higher BMI, WHR and fat mass measures.

### Aim of the study

The purpose of our study was to investigate the association of betatrophin levels and BMI in HT patients and healthy individuals.

### Materials and methods

The group studied consisted of 133 patients with HT in euthyreosis and 42 healthy individuals. Serum concentrations of TSH and TRAb were measured using RIA TPAbs, betatrophin were measured by commercial ELISA. All patients were checked with INBODY 220 (Direct Segmental Multi-frequency Bioelectrical Impedance Analysis Method).

### Results

Most importantly serum concentration levels of betatrophin was increased in HT patients compared with control group ( $p=0,008$ ). Our data shows positive correlation between betatrophin level and BMI ( $p=0.000$ ;  $p=0.000$ ), fat mass ( $p=0.000$ ;  $p=0.001$ ), age ( $p=0.001$ ;  $p=0.03$ ), body mass ( $p=0.001$ ;  $p=0.03$ ), Waist-Hip Ratio ( $p=0.01$ ;  $p=0.001$ ) in HT patients and healthy participants, respectively. Whereas betatrophin levels correlated positively with anti-peroxidase antibodies only in HT group ( $p=0,005$ ;  $R=0,39$ ).

### Conclusion

Based on our findings we suggest that betatrophin concentration levels are higher in patients with HT than in healthy adults, even when patient is in euthyreosis. Furthermore patients with higher BMI revealed higher betatrophin levels. The question for further investigation is whether higher betatrophin concentration levels cause obesity or another way around.



## Effects of vitamin D supplementation on anthropological parameters in women with Hashimoto's disease

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**Tutors:** *Ewa Sewerynek, M.D., Ph.D*  
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### Introduction

Recent studies highlight vitamin D pleiotropic activity. The effects of its active form (1,25(OH)<sub>2</sub>-vitamin D) is determined by vitamin D receptors (VDRs) which are present in various tissues, including the skeletal muscles. As vitamin D affects the majority of body cells, it also known to be significantly associated with muscle strength. The mechanisms of this effect are not fully understood but could be related to an independent effect on muscle mass or to enhanced muscular functions. The active form of vitamin D has also been shown to induce apoptosis in adipocytes. Its supplementation may lead to reduction in body weight and adipose tissue volume.

### Aim of the study

The goal of our study was to show changes in some anthropological parameters among patients after 3 months of vitamin D supplementation and to examine the connection between vitamin D concentration and body composition.

### Material and methods

A group of 12 female patients was qualified, all of them attending the Outpatient Clinic of Endocrinology at the Regional Centre of Menopause and Osteoporosis of the University Military Medical Hospital. Their age: ≥18 years, before and after menopause - with diagnosed Hashimoto's disease. After qualification to study, blood samples were collected to assay vitamin D Total.

All of the patients underwent body composition analysis, which was carried out with a BODYSTAT®1500 (body composition measurement, analysis and tracking device). Also muscular strength was measured with a Hand-Grip Analogue Dynamometer.

The patients were divided into 2 subgroups. Group 1, with vitamin D concentration ≥ 20 ng/ml, and group 2, with vitamin D concentration < 20 ng/ml, were receiving vitamin D for 3 months in dose of 4000 IU/d or 6000 IU/d, respectively.

The patients underwent all the examinations, both at admission and after 3 months of vitamin D supplementation.

### Results

In the group of patients with the mean age of 52 (SD 14), the mean vitamin D concentration was 22.7 ng/ml (SD 8.19). The mean BMI in that group was 27.98 (SD 7.46) and rose slightly, up to 28.33 (SD 7.55), after 3 months of supplementation. A group of 34.38 % revealed vitamin D levels being lower or equal to 20 ng/ml, whereas 64.06% of the patients demonstrated vitamin D levels higher than 20 ng/ml (max 43.16 ng/ml). After 3 months of supplementation a statistically significant increase of lean weight ( $p < 0.05$ ) was observed. In 63.6% of the patients, muscular strength





increased at an average rate of 5.17 kg. The body fat percentage dropped slightly by 2.11% in 66.7% of the patients. We observed an improvement of body water percentage among 66.7% of the patients.

## Conclusions

Vitamin D deficiency and overweight (obesity I) in patients with HT is a common problem. The supplementation supported lean weight, which means that muscle weight grew. We were, however, not able to confirm many correlations between vitamin D levels and anthropometric parameters, as the group was too small in the number of patients. Still some positive trends were observed, assuming their increasing significance with the growing number of involved patients.



## A story of drug-related syndrome of inappropriate antidiuretic hormone secretion and life-threatening hyponatremia: A case report

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### **Introduction:**

Syndrome of inappropriate antidiuretic hormone secretion (SIADH) is characterized by excessive release of antidiuretic hormone from the posterior pituitary gland or another source. Although the sodium level is low, SIADH is brought about by an excess of water rather than a deficit of sodium. Drug-induced hyponatremia characteristically presents with subtle psychomotor symptoms due to its slow onset, which permits compensatory volume adjustment to hypo-osmolality in the central nervous system.

### **Case report:**

A 68-year-old unresponsive woman in bad condition was admitted to hospital with a normal physical examination and laboratory values, except of a serum sodium  $[Na^+]$  of 112 mEq/L. She had recently (2 days earlier) had doxepine (altogether 20mg) and mirtazapine (altogether 60mg) prescribed for anxiety disorder. During first 24 hours of hospitalization her status got even worse and she went into coma. As a respond, intensive treatment was initiated including limitation of fluids (0,5l per day) and putting away neuroleptic drugs. Correction of hyposmolality resulted in progressive improvement over several days, and she returned to her baseline mental status.

### **Conclusion:**

Life-threatening hyponatremic encephalopathy in this case likely resulted from co-occurring SIADH and sodium depletion due to doxepine and mirtazapine, respectively.



## Evaluation of the hypothalamic-pituitary-adrenal axis before and after the treatment with somatostatin analogues among patients with neuroendocrine neoplasm.

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### **Introduction:**

Gastroenteropancreatic neuroendocrine neoplasms (GEP NENs) belong to a heterogenic group with various morphologies, hormonal activities and clinical courses. The essence of GEP NENs is demonstrated by the fact that over the last 30 years the incidence of this type of neoplasms has increased.

### **Aim:**

The aim of this study was to analyse the effects of the treatment by somatostatin analogues (SSA) on diurnal rhythm of cortisol secretion and chromogranin A concentration in reference to the grading, age and sex of patients with GEP NEN.

### **Material and methods:**

Retrospective analysis included 47 patients (38 women and 9 men) aged from 28-85 treated by SSA. The studied group included 32 patients with NEN G1 and 15 with NEN G2. The study was based on experiences and findings obtained at Endocrinology Clinic of the Medical University of Silesia. The data were analysed in STATISTICA 12.5 (StatSoft, Krakow, Poland). The normal t-test and Mann-Whitney test were used to compare the quantitative variables. To check the links variables used Spearman correlations. To check the difference of dependent variables were used Wilcoxon signed-rank test. The level of statistical significance was taken as  $p < 0.05$ .

### **Results:**

The influence of SSA on stabilisation the GEP NEN secretion was confirmed. There were no statistically significant differences in the groups divided by gender and grade of the tumor. There was a significant correlation ( $p < 0.05$ ) in morning cortisol secretion before treatment, but after treatment the similar dependence was not observed. Treatment significantly affect the concentration of chromogranin A ( $p < 0.05$ ) in patients with NEN G1 and NEN G2.

### **Conclusions:**

Results of the treatment by SSA among patients with NEN G1 and NEN G2 do not show a statistically significant effect on the diurnal rhythm of cortisol secretion and chromogranin A concentration depending on the histological type of the tumor. The therapy among patients with GEP NEN require further observations in order to optimize the treatment with SSA.



## SESJA FARMACEUTYCZNA

1. Selected edible Mushrooms as a source of phenolic acids with antioxidant activity
2. Synthesis and evaluation of antiviral and cytotoxic activity of novel phosphonate derivatives
3. Evaluation of synergism between new type antimicrobial compounds - thiosemicarbazide derivatives and antibiotics
4. Preliminary assessment of the polymorphism T-129C of the gene ABCB1 in the group of patients with recurrent depressive disorders.
5. In vitro effect of novel metformin pro-drugs on plasma haemostasis.
6. Development and characterization of lipoplex-loaded nanostructures for gene therapy
7. Transformation of *Salvia bulleyana* Diels. by *Agrobacterium rhizogenes*



## Selected edible Mushrooms as a source of phenolic acids with antioxidant activity

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**Introduction:** A large number of researches are reported about the content of organic compounds in the fruiting bodies of the edible mushrooms, but there are no data regarding their release from this material.

**Aim:** So the aim of this work was to determine the physiologically important phenolic compounds released from edible mushrooms to the digestive juices in conditions mimicked human gastrointestinal tract. The results may be useful to the determination of mushrooms' significance in human prevention against civilization diseases.

**Materials and Methods:** The fruiting bodies of the selected edible species of mushrooms were under study: *Boletus badius*, *Boletus edulis*, *Cantharellus cibarius*, *Lactarius deliciosus*, *Leccinum scabrum*, *Suillus bovinus*, *Suillus luteus*, *Pleurotus ostreatus*, *Tricholoma equestre*, *Armillaria mellea*, *Agaricus bisporus*, *Auricularia polytricha*. The contents of phenolic acids were analyzed using high-performance liquid chromatography method.

**Results:** Phenolic acids, protocatechuic acid, p-hydroxybenzoic acid, syringic acid, and gallic acid were examined in actually work. Syringic acid in maximum content up to 18.99 mg/100 g dry matter was examined. Amounts of protocatechuic acid ranged from 0.60 to 8.64 mg/100 g dry matter, p-hydroxybenzoic acid from 0.03 to 1.26 mg/100 g dry matter, gallic acid from 0.02 to 14.75 mg/100 g dry matter, and syringic acid from 0.28 to 18.99 mg/100 g dry matter. The species *C. cibarius*, *B. badius*, and *P. ostreatus*, in which four phenolic acids were determined, were proved to be the mushroom species in which only syringic acid was determined. In contrast, none of these phenolic acids was determined in the fruiting bodies of *A. mellea*. *B. badius* released the highest total amount of phenolic acids, that is, 23.54 mg/100 g dry matter.

**Conclusion:** Determination of release and bioavailability, as well as the content of constituents of the food, which are fruiting bodies of edible mushrooms, may be



important as a food comments which is important for prophylactic of human diseases. This is the first such comprehensive study presented the significance of edible mushrooms in human diet supplementation with physiologically active phenolic compounds.



## Synthesis and evaluation of antiviral and cytotoxic activity of novel phosphonate derivatives

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**Introduction:** The emergence of drug resistance, newly arising pathogens and increasing number of patients diagnosed with cancer have become a challenging problem for human health all over the world. The situation requires to develop novel antiviral agents with possibly new mode of action. 1,2,3- Triazole and naphthalimide moieties are present in many biologically active compounds. 1,2,3 Triazole proved to be a good, polar bridge group for linking biologically beneficial fragments. A naphthalimide group has a unique structure exerting noncovalent forces such as  $\pi$ - $\pi$  stacking and hydrogen bonds. Linking these two frameworks with addition of an alkyl chain can potentiate strong interaction with DNA and RNA chains, which result in a mechanism of antiviral activity of such compounds.

**Aim:** The aim of the study was to synthesise novel phosphonate derivatives linked by an alkyl chain with 1,2,3-triazole and naphthalimide moieties and to evaluate their activity against a wide variety of viruses and some cancer cell lines.

**Materials and Methods:** The compounds were synthesised using 1,3 dipolar cycloaddition with Cu(I) salts as a catalyst known as Huisgen reaction. The synthesis was conducted with microwaves. Purification was conducted using chromatographic methods. Structures were proven with spectroscopic methods as NMR and IR. The evaluation of antiviral activity was conducted on a wide variety of DNA and RNA viruses. In addition, cytotoxicity of compounds was tested against several cancer cell lines.

**Results:** No inhibitory activity was noticed against any viruses for the synthesised compounds with 4-amino-naphthalimide group. Some cytotoxic activity has been observed. However not all results of synthesised compounds have been received yet.

**Conclusion:** The need of new antimicrobial and antiviral drugs is bigger than ever. The results showed that there are still new, potentially biologically active compounds to be found. The 1,2,3-triazole and naphthalimide moieties are ones to be taken into consideration while designing new active compounds.



## Evaluation of synergism between new type antimicrobial compounds - thiosemicarbazide derivatives and antibiotics

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**Introduction:** Spreading drug resistance among bacterial pathogens is a serious problem in wide sphere of public health. Synthesis of new chemotherapeutics against microbial strains resistant to most of the drugs used in the treatment of infections is one of the main challenges for current medicine. Recently, we have reported that thiosemicarbazide derivatives from our collection showed strong antibacterial activity mainly against reference strains of Staphylococci.

**Aim:** In this study we investigated if there occurs a synergism between thiosemicarbazide derivatives and commonly used antimicrobial agents such as oxacillin, ciprofloxacin and nitrofurantoin.

**Materials and Methods:** 1,4-disubstituted thiosemicarbazide derivatives are small molecules arising from the reaction of heterocarboxylic hydrazine with required isothiocyanate. The minimal inhibitory concentration (MIC) for thiosemicarbazide derivatives as well as for the antibiotics was determined as the lowest concentration of the compound preventing growth of the tested microorganism using microdilution method on 96 wells plates. Four bacterial strains were used in this study: two reference strains - E. coli NCTC 8196 and S. aureus ATCC 29213, and two clinical isolates of MRSA (methicillin-resistant Staphylococcus aureus) - D15 and D17. MICs for those strains were estimated in the presence of antibiotics: oxacillin, ciprofloxacin, and nitrofurantoin as well as four tested derivatives of 1,4-disubstituted thiosemicarbazide: 1a, 1b, 1c and 1d. In the next stage synergism between analysed compounds (at the concentration equal to 1/2, 1/4 and 1/8 MIC) and antibiotics was analysed. Synergism results were evaluated by calculating the Fractional Inhibitory Concentration Index (FICI).

**Results:** Studies have shown synergism between four derivatives (at the concentration equal to 1/2 and 1/4 MIC) and ciprofloxacin or oxacillin against S. aureus strains. Interestingly, even MRSA strains which were originally resistant to





oxacillin became sensitive. In case of Gram-negative bacteria - *E. coli* was sensitive to derivatives 1a and 1b alone but there was no synergistic effect with antibiotics.

**Conclusion:** Dual application of oxacillin or ciprofloxacin together with derivatives of 1,4-disubstituted thiosemicarbazide: 1a, 1b, 1c and 1d leads to improvement of antimicrobial effect against Gram-positive *S. aureus* (even MRSA). Lack of such a phenomenon in case of Gram-negative *E. coli* can be connected to the cell membrane structure or the efflux pumps presence. Taking into account good antimicrobial activity against MRSA and synergism between those compounds and common antibiotics such as ciprofloxacin or oxacillin tested thiosemicarbazide derivatives could be good candidates for the development of new drugs in the treatment of infections caused by multidrug resistant *S. aureus* strains.



## Preliminary assessment of the polymorphism T-129C of the gene ABCB1 in the group of patients with recurrent depressive disorders.

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**Introduction:** Depression is considered to be a civilization disease of the XXI century. The extent of the causes, symptoms and mechanisms inducing depression makes it difficult to diagnose and implement the appropriate treatment. Many studies proved that it is the family disorder which means that the etiology of its occurrence should be investigated in genes. Gene ABCB1, encodes the glycoprotein P. This protein acts as ATP-dependent efflux transporter. For example outflow of xenobiotics from cells into extracellular environment plays a protective role. P-gp is a part of many tissues of our organism (intestines, lungs) and barriers (barrier blood-brain). So far over 50 single nucleotide polymorphisms (SNP) were identified of the ABCB1 gene. One of this polymorphisms is substitution C to T at position -129. ABCB1 polymorphisms may significantly affect the functioning and expression of glycoprotein P. The excessive elimination of endogenous substances, lead to occurrence of the multidrug resistance (MDR). This phenomenon prevents the achievement of expected therapeutic drug concentration in cells, resulting failure of the pharmacotherapy. On the other hand, low concentration or decreased activity of glycoprotein P may contribute to toxic substances accumulation inside the cells or tissues.

**Aim:** The aim of the study was to assess the polymorphism at position T-129C in the promoter of the gene ABCB1 in the group of patients with recurrent depressive disorders.

**Materials and Methods:** The material for the study consisted of 65 blood samples collected from patients with diagnosed recurrent depressive disorders (investigated group). While control group accounted for 68 blood samples taken from blood donors. For genotyping of ABCB1 at position T-129C PCR-RFLP method was used.

**Results:** Preliminary assessment of the polymorphism in the T-129C gene ABCB1 showed that TT genotype accounted for 100% of the investigated group. However, in



the control group, the TT genotype occurred in 97.1% of all cases. The rest part (2.9%) constituted CT genotype

**Conclusion:** Conducted analysis did not reveal the existence of the relationship between polymorphism at position T-129C of the ABCB1 gene and the occurrence of recurrent depressive disorders. However, the results need to be confirmed on a larger group of patients with depression.



## In vitro effect of novel metformin pro-drugs on plasma haemostasis.

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**Introduction:** Our current researches are focused on investigating the potential demonstrated by the metformin and biguanide derivatives in terms of their impact on the processes of clot formation and fibrinolysis.

**Aim:** The aim of the study was to develop a screening model to assess the impact of novel biologically active sulfenamide pro-drugs of metformin on plasma haemostasis and to evaluate in vitro the effect of five biguanide derivatives on the process of clot formation, its stability and fibrinolysis, as well as extrinsic and intrinsic coagulation pathway (APTT, PT).

**Materials and Methods:** Assessment of the impact of biguanide derivatives on plasma hemostasis was performed by means of the optical method for determination of the overall potential of clot formation and its lysis (CL-test) [1]. Further, the evaluation of APTT in human plasma for the appraisal of clotting, tests aimed at the assessment of the extrinsic coagulation pathway (PT), and quantitative measurement of fibrinogen (FBG) in the test plasma were carried out.

The material for tests was human blood delivered by the Regional Blood Center in Lodz. Metformin, phenformin and 3 newly synthesized pro-drugs, i.e. comprising the 4-carbon alkyl chain (I), 8-carbon alkyl chain (II) and cyclohexane (III), were probed (synthesis K. Huttunen, University of Eastern Finland, Kuopio).

**Results:** In this study, it was demonstrated that metformin within the range of concentrations used (0.06  $\mu$ M/ml-3  $\mu$ M/mL), unlike phenformin does not affect the overall coagulation and fibrinolysis potential (CLAUC and T constant parameters). The III pro-drug significantly increased the fibrinolysis time (Tl) and, consequently, the total duration of the process of coagulation and fibrinolysis (T). In the case of the I compound, a statistically significant reduction in the maximum coagulation (Fmax), maximum fibrinolysis (Lmax) and the initial time of fibrinolysis (Lvo) was observed. The II pro-drug did not significantly affect the overall potential of coagulation and fibrinolysis (CLAUC), as well as individual kinetic parameters of the investigated



process. The analyzed compounds did not have an influence on the APTT with the exception of the highest concentrations ( $1.5\mu\text{M/mL}$  and  $3.0\mu\text{M/mL}$ ) of II pro-drug. There were no effects of the pro-drugs on the PT, FBG and INR.

**Conclusion:** Analyzed compounds (I,III) in a statistically significant way influenced the overall potential of coagulation and fibrinolysis, however, they did not show any influence (except for highly concentrated II pro-drug) on APTT, PT, FBG and INR. Observed effects might be of a clinical importance.



## Development and characterization of lipoplex-loaded nanostructures for gene therapy

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**Abstract:** The recent discovery of RNA interference (RNAi) and its role in the regulation of cellular metabolism offers perspectives on the development of novel therapeutic tools in cancer treatment. Although RNAi has a considerable potential, several hindrances prevent its clinical application. Short half-life in plasma due to rapid degradation by RNase and high instability of siRNA in biological media are ones of the biggest hurdles.

Novel nanocarriers represent a promising alternative to encapsulate and protect genetic material, which helps to overcome problems related to unfavorable pharmacokinetics of siRNA. In this work, lipid nanocapsules (LNC) prepared through phase inversion technique were used to encapsulate siRNA via LPX (lipoplex: siRNA-liposome complex) formation. The influence of the size of LNC and the charge ratio (C/R) on the siRNA encapsulation efficiency (EE) was studied. Also, a new protocol of the quantitative analysis of encapsulated siRNA was established. This protocol was based on previous isolation and separation of the LPX-LNC fraction followed by fluorescent detection of the genetic material. The results showed a strong correlation between the size and EE of the systems: decreasing the size of LPX-LNC (from 70nm to 30nm) resulted in a ~50% reduction of siRNA encapsulation. Whereas, changes in C/R (from 5 to 2.5), intended as the charge ratio between positively charged liposomes to negatively charged siRNA, did not affect the EE. 70 nm LPX-LNC was the most successful system that showed the best characteristics in terms of siRNA association (60%) as compared with 30nm LPX-LNC (encapsulation efficiency of 30%).

Globally, the characterization performed on these systems and the establishing of the protocol for siRNA detection constitute the bases for the improvement of siRNA delivery strategies.



## Transformation of *Salvia bulleyana* Diels. by *Agrobacterium rhizogenes*

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**Introduction:** *Salvia bulleyana* (Lamiaceae family) is a folk medicinal plant native to Chinese Yunnan Province. This is one among over 20 *Salvia* species which have been used as related to Danshen (roots of *S. miltiorrhiza*). This species contains such products of metabolism as diterpenes and polyphenols, derivatives of caffeic acid, which are responsible for therapeutic potential in relation to heart and vascular diseases such as angina pectoris, myocardial infarction or stroke. Moreover, *S. bulleyana* was also used in traditional Chinese medicine in treatment of insomnia, liver fibrosis, osteoporosis and chronic inflammation of kidneys. Furthermore, due to the presence of rosmarinic acid (the derivative of caffeic acid) *S. bulleyana* is thought to have an anti-cancerous properties.

**Aim:** The aim of this study was to obtain the hairy roots of *Salvia bulleyana*. The process of transformation leads to the establishment of stable root cultures, which grow rapidly and produce high amount of plant secondary metabolites.

**Materials and Methods:** In this study the root cultures were initiated on shoots and leaves of *S. bulleyana* by infection with the strain A4 of *Agrobacterium rhizogenes*. Bacteria were incubated on YEB agar medium at 26°C for 72 hours. Explants were infected by wounding with a sterile needle dipped into bacterial culture. Afterwards all explants were incubated on MS agar medium in the dark.

**Results:** The roots began to develop in the second week of culture period. The transformation frequency was determined every seven days during six weeks. The frequency of root formation depended on type of explant. The percentage of the explants forming roots on shoots as a result of infection with A4 strain was 29%. After infection of leaves it was about 56%. When the roots reached an length of 1 cm, they were transferred into WPM liquid medium which contained ampicillin (500 mg/l) and incubated in darkness on a rotary shaker at 100 rpm.

**Conclusion:** After 8 seven-day-passages ampicillin was omitted from the medium and 4 root lines, which showed the best growth, were selected for further research. In the next study obtained hairy roots will be examined to confirm transformation process (PCR analysis) and to evaluate their ability to synthesize pharmacologically active metabolites.



# FORENSIC MEDICINE

1. 90 years old baby mummy
2. Analysis of the structure of deaths caused by deliberate action of the perpetrators in the years 2007-2012 based on the assessment of autopsy reports from the Department of Forensic Medicine, Medical University of Lodz – final results.
3. Crimes against sexual freedom in 2012-2015.
4. Ethyl alcohol in the pathomechanism of death
5. Unusual methods of suicide in men in Cracow over a twenty-five-year period
6. Woman choked on fries-a case report of brutal murder





## 90 years old baby mummy

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**Introduction:** In mid-September 2015, during renovation of a tenement house in the center of Lodz, workers found the remains of a child under the floor-board. It was wrapped in a newspaper of the year 1926.

**Results:** Examination of the body was performed by a certified forensic medicine examiner. Initially he ruled out the involvement of third persons, but due to unknown cause of death, it was decided to perform an autopsy. Autopsy revealed the infant's body of 55 cm length and weighing 360 g. The remains were almost completely mummified and skeletonized. There were fragments of soft tissue preserved, mainly in the form of brown dry masses. The bones were joined together with the remains of ligaments and muscles. There was no post-traumatic or congenital pathology within the skeleton. Based on the dimensions of the external skeleton and morphological features, it was found that it probably had been a full-term newborn infant. Because of the fact that at this stage of neonatal development there are no signs of dimorphism, it was impossible to determine the sex of the baby.

**Conclusion:** Basing on the autopsy findings and circumstances, it was established that remains had dwelled in the place of disclosure for decades. The cause of death remained undetermined. The authors attempted to make a historical investigation of the building and people, who had been living there at that time.



**Analysis of the structure of deaths caused by deliberate action of the perpetrators in the years 2007-2012 based on the assessment of autopsy reports from the Department of Forensic Medicine, Medical University of Lodz – final results.**

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**Introduction:** The deaths caused by deliberate action of the perpetrator include those due to murders, fight injuries, fatal beatings and intentionally inflicted injuries with fatal outcome. A murder is an intentional crime involving deprivation of human life. In the case of a fight, or fatal beating, as well as intentionally inflicted injuries with fatal consequences, we do not deal with a murder because the fatal result is unintentional.

**Aim:** The aim of the study was to analyze the structure of deaths due to deliberate action of the perpetrators on the basis of autopsy material of the Medical University of Lodz Department of Forensic Medicine from the years 2007-2012.

**Materials and Methods:** For the purposes of the study, all autopsy reports prepared in the Medical University of Lodz Department of Forensic Medicine in the years 2007-2012 were analyzed. The cases in which the results of autopsy clearly indicated deaths due to murders or fatal beatings were identified. The cases were characterized with respect to the age and gender of the victims, the type of injuries, the immediate cause and the place of death, sobriety status of the victims as well as the seasonal nature of the homicides.

**Results:** Among the analyzed autopsy reports, 205 deaths associated with deliberate action of the perpetrators, accounting for 5.7% of all autopsies performed during the analyzed period, were identified. Murders were less frequent than deaths as a result of fights and fatal beatings, as well as intentionally inflicted injuries with fatal outcome. Male victims were predominant (75.6%), and most of them belonged to the 50-60 age group (22.4%). The most frequent cause of death were craniocerebral injuries complicated with brain edema. Death most often occurred at the site of the incident (72.2%).

**Conclusion:** In all the analyzed years, deaths associated with deliberate action of the perpetrators most often occurred as a result of fights, fatal beatings and



intentionally inflicted injuries with fatal outcome. During the analyzed period, an increase in the percentage of deaths due to bleeding from the wound inflicted with a sharp or pointed tool and a decrease in the number of deaths associated with the use of firearms was observed.



## Crimes against sexual freedom in 2012-2015.

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**Introduction:** Crimes against sexual freedom in Poland subject to prosecution are listed in art. 197-200 of the Criminal Code. According to data provided by the Police Headquarters (current data as of 09.02.2016), in 2012 1,786 investigations relating to art. 197 of the Penal Code (rape) were initiated, finally crimes were found in 1,432 of the cases (83.3% detection) in 2013 as a result of 1,885 investigations initiated, 1,362 crimes were detected (84.1% detection), and in 2014, 2,444 and 1,254 respectively (78.2% detection). The reportability of crimes against sexual freedom is not known, but the literature suggests that in many cases law enforcement agencies are not notified. Police statistics show that in 2012 males accounted for 98.5% of suspects of the crime pursuant to art. 197 of the Penal Code.

**Aim:** Rating forensic medical opinions issued by the doctors of the Medical University of Lodz Department of Forensic Medicine in terms of age, sex, knowledge of the perpetrator, place of the incident, injuries including those located in the genital area, the time elapsed between the incident and the examination, the type of intercourse or another sexual act. Comparison of the results with the available publications.

**Materials and Methods:** A retrospective analysis of medico-legal opinions of the years 2012-2015, issued by the Medical University of Lodz Department of Forensic Medicine, concerning the cases where crimes against sexual freedom of the persons subjected to forensic medical examinations could have been suspected.

**Results:** We analyzed 2,796 medico-legal opinions issued at the Department of Forensic Medicine, Medical University of Lodz in 2012-2015. There were 42 cases in which committing crimes against sexual freedom was suspected. In 86% of cases they were reported by women, and in 14% by men. Most victims reported the crime later than 48 hours, but within 7 days after the event. In 17% of cases they were persons under 16 years of age. The predominant age groups were 21-30 and 11-20 years, the fewest cases were recorded in the 61-70 and 51-60 age groups. The injuries suffered by the victims in most cases resulted in an impairment of a bodily organ function for a period no longer than 7 days.



**Conclusion:** Rape is a significant social problem, whose victims are mostly women. Both Polish government agencies and international institutions deal with the issue of crimes against sexual freedom. There are indications that a significant proportion of crimes against sexual freedom is not reported to law enforcement, therefore, the activities of State and non-governmental organizations, aimed at informing the public about their rights, should be emphasized.



## Ethyl alcohol in the pathomechanism of death

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**Introduction:** Nowadays, alcohol is the most popular and freely available psychoactive substance in Poland. Alcohol consumption, including beverages with a high percentage content of alcohol, has been increasing in the recent years. Consequently it is no surprise that WHO enumerates ethanol among the five most important risk factors of disease, disability and death. Alcohol abuse is a significant causative factor of many disorders, such as liver cirrhosis, neoplasms, acute pancreatitis, alcohol dependence syndrome and injuries leading to temporary or permanent disabilities. Moreover, high ethanol blood concentration increases the incidence of traffic accidents, suicides, drownings and accidents at work.

**Aim:** The aim of the study was to conduct an analysis of the reasons of death among the intoxicated deceased based on post mortem examinations performed by the Department of Forensic Medicine in 2009.

**Materials and Methods:** The analysis was conducted on the basis of 576 post-mortem examinations performed in the Department of Forensic Medicine in Lodz in the year 2009. Out of that number, 218 cases were distinguished, which were characterized by ethanol concentration over 0,5‰, or by an assumption made on the basis of medical documentation that an event being a direct cause of death had occurred under the influence of alcohol. The level of ethyl alcohol was measured in blood, urine, and the vitreous body or thigh muscle. In the case of people who had died during hospitalization, the opinion about insobriety was based on medical history of the patient.

**Results:** The analysis revealed that the cases with high alcohol concentration constituted 38% of all autopsies performed in the Department of Forensic Medicine in the year 2009. Approximately 84% of all deceased were men. The highest ethyl alcohol concentration was 8.05‰ and the average concentration approximated 3.0‰. The youngest person covered by the study was 17 years old and the oldest was 84 years old. Moreover, only 20.2% of deaths occurred in the hospital, indicating that in the majority of cases prehospital medical care had been provided too late. Fatal acute ethanol intoxications represented 18% of all cases. It is also worth mentioning that traffic accidents were a very significant death reason, comprising 13.8% of all reasons.



**Conclusion:** The aforementioned statistics allow to conclude that ethanol abuse is a serious social problem and has significant influence on national mortality in Poland. It is also important to note that the presented age structure indicates that alcohol problem affects the whole cross-section of the population. The highest number of deaths has been observed in winter and summer months characterized by the highest amplitude of temperatures.



## Unusual methods of suicide in men in Cracow over a twenty-five-year period

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**Introduction:** Deaths by suicide are frequent cases analysed by forensic doctors. The most common ways of committing suicide in Poland are hanging (66,9%), jumping from height (10,8%) and drowning (7,8%). However, in our work we have tried to establish the most common unusual methods, analysing the cases by sociodemographic characteristics. We have taken into consideration only the cases of suicide committed by men, due to its higher incidence in that gender. In Cracow, the male to female ratio of unusual suicide is, roughly, four to one.

**Materials and Methods:** We divided our work into three steps. Firstly, we searched through all the cases over a twenty-five-year period (1990-2015) from the Faculty of Forensic Medicine archives in order to select those that could be defined as unusual methods of committing suicide. Secondly, we verified the obtained data using detailed necropsy reports. Simultaneously, in each case we specified the age, sex and blood alcohol concentration of the deceased. The final step was analysing the results of the investigation.

**Results:** Annually, the number of deaths by uncommon methods of suicide in men oscillates between 1 and 11 cases. From the obtained data it can be stated that the most common unusual methods of committing suicide in Kraków were cut wounds and poisoning (e.g. by heavy metals, arsenic, acid, alkali, pesticides, gas) - the cause of death in, respectively 61 and 34 of the analysed cases. There was an individual case of suicide by decapitation with a chainsaw. Other methods included:





gunshot (29), self-immolation (9), suffocation using a plastic bag (3) and electrocution (6). The blood alcohol concentration was elevated in 34% of all cases. The oldest suicide victim was 84 years old, the youngest- 17. The most cases (96) have been recorded in the age group of 30-59, the least (21) in the group below 30.

**Conclusion:** A detailed analysis of the gathered data shows that unusual (other than previously specified) methods of committing suicide have remained largely the same throughout the last twenty-five years. Excluding a small number of isolated incidents each year, i.e. in individuals with access to professional tools or equipment, the distribution of means of suicide is distinctive and shows no dramatic changes in time. This could be attributed to some methods being more widely represented in popular culture and, thus, social awareness.



## Woman choked on fries-a case report of brutal murder

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**Introduction:** At the end of January 2013 the ambulance team was called to the suffocating woman. On their arrival at the place she was already dead. The doctor who completed the information card did not rule out the participation of a third person. The police decided to call a forensic medicine examiner. The testimony collected at that time from the unmarried partner, who was staying in the apartment, suggested that the woman aspirated French fries while eating and, despite all attempts of her children to resuscitate her, she died.

**Results:** The expert immediately drew attention to the injuries of the face and upper limbs, but the cohabitant explained that this was the result of beatings by an unknown person. The police wanted to treat this case as an unfortunate accident of choking and, because of the late hour, hoped that the external examination of the body would be completed quickly. However, during the thorough investigation of the body the examiner found multiple rib fractures and ruled that the death was a result of battery. That opinion was not approved by the policemen, who tried hard to persuade the expert to change his mind, resorting even to undermining his authority and calling a more experienced examiner. However, their actions were not effective. Autopsy was performed few days after the death. Examination of the body revealed multiple rib fractures, penetrating rupture of the rectum into the vagina and the bladder and multiple ruptures of these organs. In addition, it revealed the presence of scattered bruises on the trunk and limbs.

**Conclusion:** Based on the autopsy, it was found that these injuries arose intravitaly and were the result of beatings. Injuries of the genital tract, bladder and rectum resulted from rape with the use of a broomstick. In view of the autopsy results, the prosecutor accused the victim's cohabitant of unintentional murder (Article 155 of the Penal Code). After several months, the investigation was discontinued due to the death of the suspect.



# GYNECOLOGY AND OBSTETRICS

1. Vaginal delivery or caesarean section?- preferences and concerns of patients according to obstetric history.
2. Krukenberg tumour presenting in post-menopausal patients: clinical case series.
3. Pregnancy of a patient with giant myoma
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13. The influence of endometriosis on the course of pregnancy - preliminary data.



## Vaginal delivery or caesarean section?- preferences and concerns of patients according to obstetric history.

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**Introduction:** Recently, the rate of caesarean section has increased. WHO has considered the ideal rate for caesarean sections to be about 15%, despite in Poland in 2015 it was 34,6%. It will be helpful to find out the ideas and fears of pregnant women to reduce high C-section rate.

**Aim:** The aim of the study was to analyze the opinions and preferences of women after different type of labour.

**Materials and Methods:** The analysis included 102 women hospitalized in Department of Obstetrics, Gynecology and Gynecological Oncology of the II Faculty of Medicine of MUW. Database was collected between November 2015 and March 2016 thanks to questionnaires of own authorship and divided into two groups. Group A consist of 47 primiparous with mean age – 29,2 years, group B- 55 multiparous with average age 32,2 years, including 31 patients after previous vaginal delivery (group B1) and 24 patients after previous caesarean section (B2).

**Results:** Vaginal delivery would be chosen by 51,06% patients of group A and 61,83% of group B (74,19% B1 vs 42,86%B2,  $p=0,023$ ). Caesarean section is preferred by 29,79% women of group A and 29,09% of group B (12,9%B1 vs 52,38%B2,  $p=0,023$ ). Vaginal delivery is seem to be more beneficial for 58,7% women of A and 61,82% of B (77,42%B1 vs 38,10%B2,  $p=0,0042$ ), and opposite, C- section is better for 34,78% women of group A and 32,73% of group B (16,13%B1 vs 57,14%B2,  $p=0,0042$ ). 59,57% patients of A and 61,82% of B (77,42%B1 vs 47,62%B2,  $p=0,027$ ) preferred vaginal delivery as better for the child than C-section, preferred by 19,5% of A and 23,64% B (12,9%B1 vs 38,1%B2,  $p=0,027$ ). The most important advantages of vaginal delivery are: intimate contact with the newborn after labour (76,6% of A, 74,5%B), active participation in delivery (70,21% A, 36,36% B,  $p=0,00065$ ) the possibility of breastfeeding immediately after birth and natural way of childbirth (both 61,7%A, 61,8%B). Patients are afraid of vaginal delivery because of labour pain (A-72,09%, B-64,81%), long time of labour (A-58,14%, B-64,81%), episiotomy (A-53,49%, B-37,04%) and perineal tear (A-54,16%, B-38,89%). The advantages of caesarean section are: painless (A-43,9%, B-22,22%,  $p=0,032$ ), quick delivery (A-39,02%, B-24,1%) and safety of mother and newborn (A-26,83%, B-26,67%). To disadvantages of C-section patients include: a long time to return physical ability (A-57,14%, B-64%), no contact with newborn during operation (A-57,14%, B-46%), and difficulties with breastfeeding (A-57,14%, B-54%). Friends are source of information about labour for 68,09% women of group A and 46,3% of B,  $p=0,028$ , family- 61,7% of A, 22,22% of B ( $p=0,00029$ ), Internet - 61,7% of A, 46,3% of B and gynaecologist - 46,81% of A, 59,26% of B.

### Conclusion:

1. Vaginal delivery is a preferred method of labour



2. Women after caesarean section willingly chose the same type of delivery, which is more comfortable for them
3. Patients are afraid of pain during labour, episiotomy and perineal tear
4. Patients more often ask friends and family than gynaecologists about delivery



## Krukenberg tumour presenting in post-menopausal patients: clinical case series.

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**Introduction:** Krukenberg tumour (KT) is an ovarian adenocarcinoma metastasis from a primary malignancy of the gastrointestinal tract, with 76% originating from the stomach. It is common in middle age women, with an average age of 45 years, presenting symptoms related to ovarian involvement such as abdominal pain, distention, ascites, uneven ovarian surfaces and lymphatic nodes enlargement. Primary tumour is usually too small to detect, so only 25-30 % of patients with KT have already the diagnosis of a primary malignancy when KT is found, which worsens the prognosis.

**Aim:** Metastatic lesions within the ovary constitute a serious diagnostic problem in clinical practice. The aim of our study was to present a case series of patients with ovarian tumour, who underwent panhysterectomy and over time presented with unspecific abdominal symptoms leading to diagnostic and therapeutic difficulties during the course of the disease.

**Materials and Methods:** The study was conducted at the Department of Gastroenterology and the Department of General and Colorectal Surgery, Medical University of Lodz. The data of the presented patients were retrieved retrospectively from the hospital medical records and described the clinical presentation, past medical history, laboratory test results, and imaging examinations.

**Results:** The study comprised the analysis of four patients medical records, in postmenopausal age, suffering from KT. All patients presented to the clinic due to non-specific gastrointestinal complaints such as nausea, vomiting, diarrhoea, subileus and ileus as well as extensive weight loss. All of these patients underwent panhysterectomy and were qualified to surgical procedures of gastric tumour



excision. In all stomach tumours emerged as inoperable, because of widespread metastatic disease due to delayed primary malignancy detection.

**Conclusion:** KT are seen particularly in middle age women and more frequently during the premenopausal period. The prognosis is poor, yet when only the ovaries are affected, metastasectomy prolongs the survival time. Life expectation worsens if the primary tumour is found after metastases to the ovaries and is unlucky if the primary tumour remains undetected. It is essential to take KT diagnosis into consideration also in older patients and to perform detailed, thorough imaging studies of abdomen and pelvis in search for a primary malignancy as soon as KT diagnosis is suggested.



## Pregnancy of a patient with giant myoma

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**Introduction:** Operations during pregnancy are not common and they are burdened with an increased risk of failure. Appropriate qualification, technique of surgery and postoperative procedures improves the prognosis.

**Case report:** 29 years primipara consulted a gynecologist first time during the 5th week of pregnancy. The gynecologist found huge uterine myoma filling the lower pelvis, reaching half of the distance between the navel and the xiphoid process. In the 16th week of pregnancy, after long longitudinal laparotomy, myoma was removed from the bottom and the front wall of the uterus in many parts. On the loge two layers of hemostatic sutures: first continuos, next "Z" stitches were laid. During perioperative period antibiotic prophylaxis was implemented. After the operation, progesterone treatment was continued. Pregnancy course was uncomplicated. In the 38th week of pregnancy, via cesarean section made in the lower part of the uterus, male fetus weighing 3150g in a good general condition was born. No signs of uterine dehiscence or thinning were found.

**Conclusion:** Suitable technique of the myoma's removal during pregnancy, pre- and postoperative procedures enables secure pregnancy leading of a patient with a large uterus myoma. Recommending women visits to a gynecologist before becoming pregnant should be considered.





## Analysis of histological malignancy and a presence of nodal metastases and their influence on the area of lymphadenectomy in cervical cancer

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**Introduction:** There are 3000 new cases of cervical cancer in Polish population yearly. The dynamic development of oncological surgery procedures in the last 20 years made it possible to use more radical treatment in high-grade cancer. However, the validation of such procedures is still underway. The most common surgical procedure in treating cervical cancer (FIGO stages IA2–IIA2) is Wertheim procedure. In cervical cancer, metastases in paraaortic lymph nodes are present in 16% of patients. Basing on this information, it is suggested, that Wertheim procedure should be accompanied by paraaortic lymphadenectomy in cervical cancer treatment. Because of the morbidity, there is a question of patients' selection for lymphadenectomy. Is it really necessary in all of the cervical cancer cases?

**Aim:** The aim of this study, was to validate, if the paraaortic lymphadenectomy is a necessity in every Wertheim procedure, depending on the cervical cancer grading.

**Materials and Methods:** The group of 400 patients with cervical cancer, who underwent Wertheim procedure between 2003 and 2015 in the referential oncological center, has been analyzed. 233 patients have been included in further analysis. Mean age was 51,69 (SD +/- 11,55), youngest patient was 24 years old, the oldest one was 77. Most of the patients - 94,4%, had squamous cell carcinoma, 5,6% had adenocarcinoma. Patients have been divided into two groups: low-grade (G1 and G2) and high-grade (G3) cervical cancer and the frequency of aortal and pelvic lymph nodes metastases have been compared. Statistical analysis was performed with Statistica 12.

**Results:** The low-grade cervical cancer has been found in 83,26% (194) of patients and high-grade in 16,74% (39). The resected paraaortic and pelvic lymph nodes have been histologically analyzed. In patients with low-grade cancer 18% (35) had metastases in all analyzed localizations, 8,76% (17) in paraaortic lymph nodes and 16,49% (32) in pelvic lymph nodes. In patients with high-grade cancer metastatic lymph nodes have been found in 30,8% (12), 15,4% (6) and 30,77% (12) respectively.



The difference in frequency between high and low-grade groups has been statistically significant ( $p=0,04$ ) in pelvic lymph nodal metastases, but not in the paraaortic ones.

**Conclusion:** In the light of above results, it seems paraaortic lymphadenectomy should accompany every Wertheim procedure, because the frequency of aortic metastases was not related to the histological grade of cancer. Diagnosis of low-grade cancer is not enough to exclude the possibility of aortic metastases.



## Congenital diaphragmatic hernia- prenatal diagnosis and postnatal surgery – case report

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**Introduction:** Congenital diaphragmatic hernia (CDH) is a congenital defect of the diaphragm through which intestine and other viscera herniate into the chest. CDH is a severe pathology leading to pulmonary hypoplasia and pulmonary hypertension. To reconstruct the anomaly we perform surgery after birth, we can also use in utero procedure. CDH is possible to diagnose before 24 hbd.

**Aim:** The report of case with congenital diaphragmatic hernia which was prenatally diagnosed, and operated after birth. Analysis of prenatal examination and postnatal treatment.

**Materials and Methods:** Twenty-seven-year-old woman (second pregnant, healthy girl born in 2012) was diagnosed at Prenatal Cardiology Department in Instytut Centrum Zdrowia Matki Polki in Łódź. There were four fetal ECHO (at 29w 1d, 33w 6d, 35w and 38w 2d of gestational age). In one examination fetus received 7/10 points of CVPS scale, in other the fetus was in good cardiological condition. In all examination stomach and bowel were inside chest. Male neonate was born in 41 hbd by caesarean section, Apgar scale 6/6/4/5. The neonate needed intubation and resuscitation.

**Results:** The newborn was operated in the third day of life. Intubation was complicated by subcutaneous emphysema and pneumothorax. Saturation was under 50% in the second day of life. The patient needed ECMO procedure implementation for 8 days. Operation was done under ECMO oxygenation. The patient needed reoperation in eleventh day of life. Normal heart anatomy was described by pediatric cardiologist after birth, but later pulmonary hypotension was described.

**Conclusion:** To achieve therapeutic success we need cooperation between different departments: gynecology, radiology, prenatal cardiology, neonatology, surgery, pediatric cardiology. Early diagnosis will enable planning delivery in reference hospital, which has an appropriate medical staff and medical equipments required to save baby life. Prenatal diagnosis can give us a lot of information about patient condition after delivery. Absence of concomitant pathology is good prognostic parameter for result of treatment. Using ECMO we can cure and operate the patient with not sufficient oxygenation. ECMO is last resort intervention. Urgent surgery can help to avoid complication from pulmonary and cardiovascular systems.



## Comparision of CTG and digital fetal monitoring MONAKO records during pregnancies with Intrauterine growth restriction (IUGR) with neonatal outcome.

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**Introduction:** Over the last few years the computerized fetal surveillance system - CTG, has revolutionized the perinatal care. Digital CTG permits the fetus state evaluation to be more precise and faster. The estimated frequency of hypotrophy in the world's neonate population is 3-10%. Perinatal mortality among hypotrophic neonates is 4-10 times bigger than in eutrophic neonates. The question to consider is: if the usage of digital CTG MONAKO systems in IUGR cases is beneficial to the neonatal outcome?

**Aim:** The aim of the study was to compare the digital fetal monitoring MONAKO method and CTG with visual evaluation and their predictive value, which allows one to recognize the fetuses' life threatening condition among pregnancies with IUGR. The neonatal outcome was assessed by umbilical-cord blood gas analysis, Apgar scores, resuscitation needed and postnatal course.

**Materials and Methods:** 143 pregnancies with IUGR from 2013-2016 were analyzed. The survey was conducted on a group of 90 women with CTG and MONAKO records. 47 of the patients were made the digital CTG MONAKO and CTG with visual evaluation. The control group consisted of 43 patients, who only had the CTG with visual evaluation made. The inclusion criteria were: completed medical documentation, pregnancy between 28-40hbd and biometric maturity below the 10th percentile.

**Results:** Asphyxia occurred with lower frequency in the study group than in the control group (10,64%vs 20,94%). Asphyxia unveiled in the correct records of CTG more often in the control group than in the study group (0%vs 9%) ( $n=41$ ;  $p=0.03$ ). IMV was carried out more often in the control group than in the study group (14%vs8%). Average values of LTV, STV, STV' were as follows (43.01ms, 7.28ms, 3.37ms) whereas the number of STV' records  $< 3.0$ ms was (44.7%). STV'  $< 3.0$ ms correlated positively with IMV ( $r=0.89$ ;  $p=0.02$ ), RDS ( $r=0.84$ ;  $p=0.04$ ) and respiratory failure of neonate ( $r=0.43$ ;  $p=0.005$ ). Average values of gasometric parameters were more deflected from the norm in the control group than in the study group: (BE- 6.31vs1.38 mval/l), (lactates 5.4vs 4.42 mmol/l), ( $pCO_2$  50.5vs 44,5 mmHg), ( $HCO_3^-$  18,2 vs 18,9 mmol/l). BE was statistically significantly higher in the control group than in the study group



( $p=0.04$ ). Time of hospitalization after labour was significantly shorter in the study group for the range of 3437hbd and average was (7.9vs12.7 days,  $p=0.004$ ), whereas in other age groups there were no statistically significant differences.

**Conclusion:** In the light of the results, it seems that the digital analysis of CTG MONAKO recordings eliminates errors occurring during the visual evaluation of CTG. MONAKO record allows faster assessment of the lifethreatening conditions of the fetus and quicker decision to perform a caesarean section.



## Evaluation of appendages' tumors in IOTA system in reference to histopathological results.

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**Introduction:** Ovarian cancer is the fifth in terms of morbidity (incidence of 5%), and fourth in terms of mortality (6% of cancer deaths) cancer among women. Gynecological ultrasonography is the most common examination method of ovarian cancer. In order to evaluate the pathological changes of the ovary it is recommended to use the ultrasound IOTA Simple Rules

**Aim:** The aim of the study was to evaluate how IOTA Simple Rules used in ultrasound examination modifies probability of occurrence malignant and benign tumor in tested population.

**Materials and Methods:** Studies were performed on the group of 241 patients with ovarian tumors operated in the years 2014-2015 in The Clinic of Operative and Oncologic Gynaecology at Medical University of Lodz. We retrospectively analyzed 176 patient selected from the availability of preoperative ultrasound test result and excluded patients with simple cysts (unilocular, smooth, hypoechogenic). Changes of appendages were rated according to IOTA Simple Rules qualifying them to the group of changes: probably malignant, probably benign or unclassified changes. Results of this study were compared with the final histopathology results and 78 patients were subjected to some further statistical analysis.

**Results:** We analyzed data on and N=35 patients with malignant (45%) and N=43 patients with benign tumour (55%). Malignant tumour patients were statistically significantly older (mean age  $60.8 \pm 11.6$  vs  $42.4 \pm 17.8$ ,  $p < 0.001$ ), had higher BMI (mean  $27.5 \pm 5.6$  vs  $24.8 \pm 3.9$ ,  $p < 0.05$ ), more pregnancies (median 2 vs 1,  $p = 0.02$ ) and higher Ca125 level (median 382.8 vs 23.7,  $p < 0.001$ ). Also, they more often suffered from diabetes mellitus (17% vs 2%,  $p = 0.02$ ) and arterial hypertension (59% vs 28%,  $p < 0.01$ ) than benign tumour patients. There was no statistically significant difference in age of the first menorrhea, age of menopause and proportion of smokers between groups. For determining malignant tumour IOTA Rule 1 reached sensitivity of 91%, specificity 72%, positive predictive value (PV) of 73% and negative PV 92%. After adding Rule 3



to Rule 1 as malignant tumour criterion, it reached sensitivity of 97%, specificity 56%, positive predictive value (PV) of 64% and negative PV 96%. Using ROC curve we took a Ca125 cutoff of 138.5 as yielding best predictive value. For determining malignant tumour it reached sensitivity of 78%, specificity 97%, positive predictive value (PV) of 96% and negative PV 83%.

**Conclusion:** In our study, IOTA performed better in predicting benign ovarian tumour (i.e. excluding malignant one). Ca125 held higher predictive value for malignant form. Thus, both methods may be complementary and used to assess risk of malignant vs benign ovarian neoplasm, yet context of other clinical variables may also be important.



## Echocardiographic monitoring of sacrococcygeal teratomas in a tertiary centre in Lodz.

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**Introduction:** A teratoma is a type of neoplasm, containing elements derived from all 3 germ cell layers: endoderm, mesoderm, and ectoderm. Neonatal teratomas are primarily sacrococcygeal in location. They occur in 1:30,000– 1:170,000 live births with a male to female ratio of 1:3. It is relatively easy to detect prenatally by ultrasound, however perinatal management is still difficult due to high neonatal mortality

**Aim:** Our aim was to evaluate the performance of echocardiography in the prenatal monitoring of fetuses with teratomas and to present interesting demographic data.

**Materials and Methods:** From the Filemaker database of the Department for Diagnosis and Prevention of Congenital Malformations, Polish Mother's Memorial Hospital & Medical University of Lodz, all cases with prenatal diagnoses of sacrococcygeal teratoma (SCT) in singleton and multiple pregnancies were compiled over a 18-year period (1998–2015). 46 cases of fetuses with SCT were found, which had in total 128 fetal echocardiographic examinations. The average number of examinations per fetus was 2,78 (range 1 – 7). The average number of cases per year was 2,55 (range 0 - 8). The statistical analysis was performed using the Statistica software package. The analysis included Cardiovascular Profile Score (CVPS), tricuspid and mitral insufficiency, pericardial effusion, Amniotic Fluid Index; maternal age and past obstetric history, as well as neonatal followup.

**Results:** The average maternal age at birth was 28,5 years (min 16, max 39). The primigravidae constituted 50% (n= 22) of studied population. The history of past miscarriages was observed in 16% (n=7) of women. The majority of tumors were detected and diagnosed in the second trimester (80%), at mean GA 21,3 hbd. The average duration of pregnancy was 32,1 hbd (range 26 - 38 hbd). In 96% of pregnancies the delivery was by CS, male to female ratio almost 1:3 (79 % of female fetuses n= 27). The presence of following parameters: pericardial effusion (p=0,035), tricuspid regurgitation (p=0,001), lower CVPS (p=0,054) during the first echo examination or the appearance of mitral insufficiency at any point of the pregnancy (p=0,021) were related to higher mortality among newborns. Overall newborn mortality in the investigated group was 43 %.





**Conclusion:** Sacrococcygeal teratoma occurs in fetuses of healthy, young mothers, without bad obstetric history nor risk factors. Prenatal echocardiographic monitoring seems to be helpful for the prediction of neonatal outcome.



## Analysis of the birth condition of neonates born by nulliparous women after 35 years of age.

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**Introduction:** In chase of career and material stability more and more women delay a decision to have children. Unfortunately, along with the age, the number of concomitant diseases and complications in pregnancy rises, but does late motherhood have impact on birth condition of new borns?

**Aim:** The aim of the study was to analyse the birth condition of neonates born by nulliparous women after 35 years of age.

**Materials and Methods:** A matched retrospective cohort study was conducted among patients who delivered at Pirogow's Hospital, previously Madurowicz's Hospital in Łódź in 2007-2011. A group of 242 new borns was enrolled, which was divided into group of 214 new borns from single pregnancies and 28 new borns from twin pregnancies. Moreover, neonates from both groups were divided with regard to mother's age. In first group: women aged 35-37 (group A, 160 new borns), 38-40 (group B, 38 new borns) and aged 41 or above (group C, 16 new borns), whereas in second group such division presents as follows: women aged 35-37 (group 1, 22 new borns) and 38-40 (group 2, 6 new borns). Mode of delivery, birth mass centile and Apgar score were evaluated. The results of the study were analysed by Statistica 12 and Excel programmes.

**Results:** In group of neonates born from single pregnancies results presents as follows: in group A 62,5% of patients underwent Caesarean section, forceps deliveries counted 0,6% and 36,9% gave birth in normal vaginal delivery, in group B: CS – 76,3%, forceps delivery – 5,3%, normal vaginal delivery – 18,4%, in group C: CS – 100% (Chi<sup>2</sup> test, p=0,00036). All twins were born via CS. In every group most of neonates were eutrophic: group A – 85,0%, group B – 78,9%, group C – 87,0% (Chi<sup>2</sup> test, p=0,96139). Also among twins, new borns with proper mass constituted majority: group 1 – 63,6%, group 2 – 50% (Chi<sup>2</sup> test, p=0,17664). Furthermore, 54,5% (group 1) and 100% (group



2) of twins were delivered pretermly ( $\chi^2$  test,  $p=0,11431$ ). The final Apgar scores breaks down as follows: newborns from single pregnancies, group A – in good condition 96,88%, in medium condition 3,13%, group B – 92,11% and 7,67%, group C – 100% were born in good condition ( $\chi^2$  test,  $p=0,24762$ ). In group 1 90,91% were born in good condition and 9,09% in medium condition, twins born in group 2 – 100% were born in good condition ( $\chi^2$  test,  $p=0,89836$ ).

**Conclusion:** The age over 35 does not have influence on birth mass and condition of newborns. The older women are, the more often they deliver via Caesarean section.



## Pregnancy of a patient with cervical insufficiency after surgical conization due to CIN-3

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**Introduction:** Progress in the neonatal care improved the survival rate of infants with very low birth weight. There is no good screening test identifying early the risk of preterm birth. A medical history and ultrasound assessment of pregnant cervix are used. In the prevention progestins, cervical cerclage and pessary are used.

**Case report:** The 31-year-old patient after surgical conization due to CIN-3, after which several times among three weeks hemostatic sutures were applied, reported for a first visit during 6th week of pregnancy. In the medical history she had 6th week withered pregnancy. From the 14th week, a regular ultrasound inspection of the cervix was implemented: first showed 50mm long, without signs of uterus internal opening dilation. After 3 weeks, shortened to 25 mm cervix was revealed, without the features of dilation. During the hospitalization, after treatment with progestins, improvement was achieved: the cervix length was 30 mm. After next 5 days the cervix dilation in the "U" shape of 11 mm length and internal opening 14 mm width were shown. After applying the cerclage on the cervix, 32 mm long cervix with a closed internal opening was revealed. 10 days later Arabin's cervical pessary was applied after the visualization of the cervix opening. Patient was hospitalized twice (27th and 32nd week of pregnancy) - diastolic drips and steroids were used. She gave birth to an alive daughter at 35th week of pregnancy weighing 2840g, Apgar 10/10.

**Conclusion:** Detection of the cervical insufficiency at the beginning of pregnancy gives a chance for an effective prevention of miscarriage and premature birth by the use of progestins, cerclage on the cervix and pessary



## Fetal cardiac tumors – what has changed since 1993?

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**Introduction:** Cardiac tumors (CT) have been diagnosed since the eighties of the last century. The three most commonly diagnosed types of CT are rhabdomyomas, teratomas and fibromas. Severe fetal disturbances, such as arrhythmias, fetal hydrops, ventricular obstructions, may be associated with the heart tumor.

**Aim:** To present the key role of the echocardiographic examination in the perinatal care and to present some demographic changes in this population of the youngest patients.

**Materials and Methods:** From the Filemaker database of the Department for Diagnosis and Prevention of Congenital Malformations, Polish Mother's Memorial Hospital & Medical University of Lodz, all cases with prenatal diagnoses of cardiac tumor in singleton pregnancy were compiled over a 22-year period (1993–2015). 33 cases of heart tumors in fetuses had 72 fetal echo examinations. The average number of cases per year was 1,5 (range 1 – 5). The retrospective analysis of the material was performed using the Statistica package. The analysis included the assessment of the cardiovascular condition defined by Cardiovascular Profile Score, location and number of tumors; age, past obstetric history, place of residence of the mother, type of delivery and neonatal follow-up.

**Results:** The number of fetuses with cardiac tumor cases did not increase during this period. The maternal age was 28,1 years ( $\pm 5,2$  years) and was decreasing over time. The primigravidae constituted 60% of examined population. The history of past miscarriages was observed in 26% of women. The majority of tumors were detected and diagnosed in the third trimester – at mean 29,6 hbd, but the diagnosis was made earlier in the past decades (regression analysis,  $p=0,042$ ). The average duration of pregnancy was 36,6 hbd (range: 27–42 hbd). There was no statistical difference between decades in term on pregnancy duration. The cardiac tumors were more frequent in the female fetuses (71,4% to 28,6%;  $\chi^2$  test;  $p=0,006$ ). The proportions between the groups of single and multiple tumors changed in last five years – currently the multiple tumors are more frequent (87,5%). The mortality in the group of single tumors was twice as high as in the group of multiple tumors. The percentage of cesarean sections between 1993 and 2005 was 67% and between 2006 and 2015



was 75% ( $p=0,63$ ). The mortality of neonates with cardiac tumors declined over the period taken into account.

**Conclusion:** The perinatal care of the fetuses with cardiac tumors improved over last 2 years. The characteristics of analyzed population had shown that fetal CTs affected healthy, young mothers, more often primigravidae, more often female fetuses. The prevalence of CTs did not increase over time. The gestational age at the time of the diagnosis decreased, thus the period of fetal echo monitoring increased. However, the rate of cesarean sections also increased, which requires further studies and explanations.



## Do women know enough about umbilical cord blood banking? An evaluation of knowledge among patients of Gynecology and Obstetrics Clinic in Katowice

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**Introduction:** Banking of cord blood is a popular topic with many controversy. Despite information about the possibilities of storing stem cells, only few expectant mothers decide to bank cord blood.

**Aim:** Analysis of the opinion and knowledge among pregnant and postpartum women about umbilical cord blood banking.

**Materials and Methods:** The study was based on the author survey obtained at Gynecology Clinic of the SUM in Katowice-research among 136 pregnant and postpartum patients aged from 19-44. The results were developed using the programming language R. The level of significance alpha is 0.05. Chi-square test was used for testing the hypotheses about the relationship between the lack of answers to each question.

**Results:** 82.3% of surveyed women had heard about the possibility of banking cord blood. 11.8% of them decided to store stem cells. 100% do not know that one of the sources is fat tissue. Women are not informed about the possibilities of using stem cells - none of them know that it can be used in the treatment of neurodegenerative diseases. 6% have correct information about who can be a recipient of stem cells. 100% of non-decided women is not absolutely against to this procedure and indicates that the change in some areas (eg. financial issues) might convince them.

**Conclusion:** Most of the respondents have heard about the idea of banking cord blood, their knowledge is not satisfactory. The percentage of patients that decided to store stem cells is small. Lack of information is the result of not enough diffusion of the topic in the media and gynecologist's offices.



## The influence of endometriosis on the course of pregnancy - preliminary data.

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**Introduction:** Endometriosis is a disease found in 7-15% of women at reproductive age, but in the group of infertile women and patients with menstruation associated pain, statistics were even to 50 %. It is defined as a pathology caused by the presence of foci of endometrial tissue outside the uterine cavity. Laparoscopy is usually the only method which enables to diagnose endometriosis.

**Aim:** This study was undertaken to elucidate the influence of endometriosis on conception, pregnancy and labour course as well as outcomes for the fetus growth.

**Materials and Methods:** Out of the total number of 120 patients hospitalised in 2010-2011, 30 patients fulfilled the criteria to be included in the study. The surveyed women were divided into two groups. The study group consisted of 30 patients who underwent laparoscopy, were diagnosed with endometriosis during the period of 2010-2011 and got pregnant since that surgery. In the control group, 30 patients delivered children and were not diagnosed with endometriosis. Both groups were compared by age, gravidity, smoking habits and education. Moreover, the following factors were evaluated: the way of conception, incidence of preterm labour, fetal growth restriction (FGR), small for gestational age (SGA) and pregnancy-induced hypertension (PIH). The analysis of the data was carried out using STATISTICA version 10. The categorical variables were assessed using the Chi-square test with the Yates correction. The contingency tables were used to evaluate the association between endometriosis and the adverse obstetric outcomes. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using MedCalc. P

**Results:** A significant difference was observed in maternal age - women with endometriosis were older than those without endometriosis ( $34,7 \pm 4,7$  vs.  $29,8 \pm 4,9$  years;  $p=0,001$ ). In the endometriosis group, an increased incidence of cesarean section was noted in comparison to women without endometriosis. The OR was 4,9 (95% CI 1,61-15,07). No significant differences were observed in the incidence of preterm labour, FGR, SGA and PIH between the two groups. In the study group 7 out





of 30 patients tried assisted reproductive technology, whereas in the control group all 30 patients embraced natural methods. Two outcomes: placenta previa and placental abruption could not be compared due to lack of cases in the control group.

**Conclusion:** Most of the adverse obstetric outcomes are similar in prevalence in both groups with the exception of increased risk of cesarean section in the group of women with endometriosis. This group also tends to deliver children at older age than patients without that disease, what suggests that endometriosis extends the time of getting pregnant.



# HEAD AND NECK WITH NEUROLOGY

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## Invasive treatment influence on the final clinical outcome and the possibility of complications occurrence in the patients with ruptured intracranial aneurysms

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**Introduction:** Intracranial aneurysms most often are located within the blood vessels forming the anterior cerebral circulation. In the majority of cases they give no symptoms, however, they may eventually rupture and create life-threatening condition - subarachnoid hemorrhage (SAH). Currently, there are two different types of invasive treatment being conducted - endovascular (coiling) and surgical (clipping). The choice of the appropriate method depends on the location, size and morphology of an aneurysm, and the condition of a patient.

**Aim:** The aim of our work was to determine the performed treatment influence on the final clinical outcome and to define the possibility of complications occurrence.

**Materials and Methods:** From the 471 patients with aneurysms who underwent Digital Subtraction Angiography (DSA) and were admitted to our Clinic between years 2008-2014 either for endovascular or neurosurgical treatment, we have selected the group of 138 patients diagnosed with ruptured intracranial aneurysms. In the retrospective study conducted by us 64.5% of the test group were women and 35.5% men. The average age was 51. Each patient's medical record was analyzed and observed aneurysms were measured on the basis of radiological images obtained in the DSA. The Glasgow Outcome Scale (GOS) was used while comparing the test



groups and Montreal scale in the radiological evaluation of the treatment. The average GOS score in both groups was 3.9.

**Results:** More than a half of the cases (55.4%) were treated using interventional radiology techniques. Roughly half of them (45.5%) returned for a follow-up and in 81% of the cases this particular treatment method was confirmed as effective using Montreal scale. The follow-up done after surgical treatment was performed in 33.9% of the cases and in 81.3% of these cases radiological efficacy was reported.

**Conclusion:** On the basis of analysis we have done, both of these methods are recognized as equally effective and efficient. The choice of the procedure should depend on morphology of an aneurysm and the patient's clinical state.



## Doose syndrome - case report

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**Background:** Epilepsy is a disease accompanying human civilization from the dawn of history. For more than 2,500 years humanity is looking for ways to fight the St. Valentine disease. One of the many mysteries that we are not able to find solutions so far is myoclonic-astatic epilepsy (MAE) - Doose syndrome. This syndrome, described by Herman Doose and Rolf Kruse in the 60s is an example of idiopathic epilepsy, with occurrence boys:girls 3:1, and starts in early childhood. Unpredictable is the course of MAE- spontaneous remission in untreated cases, control of seizures with available methods of treatment, and one of the biggest challenges of modern children neurology - mastery of drug-resistant seizures to stop the progression of neurological deficits.

**Case Report:** We would like to present a case of 4-year-old boy (1st pregnancy, 1st delivery, born via vaginal delivery, Apgar 10) properly developing, who was repeatedly hospitalized in the Department of Children Neurology Children University Hospital in Lublin due to occurrence for several weeks, astatic, mioclonic-astatic few seconds seizures, with short loss of consciousness or without, occurring in a series of over a dozen and several dozen a day, intensifying during bedtime, with subsequent sleepiness, as well as numerous myoclonus during sleep. Family history: grandfather - epilepsy from early childhood, father - febrile convulsions as a child, grandmother - Sjogren's syndrome. Neurological examination: without any signs of focal damage to the CNS. The EEG result: basic activity correct; occurrence of bilateral, synchronous, irregular and regular spikes and multispikes, amplitude up to 900 uV. In laboratory, imaging, metabolic studies no abnormalities. Patient treated with valproic acid, levetiracetam, lamotrigine, synacten, with short-term improvement after the introduction of each treatment. Despite repeated seizures development of the boy is normal. The parents didn't agree to the introduction of a ketogenic diet. Because of the drug resistance, patient is qualified to the Epidiolex therapy.

**Conclusions:** Doose syndrome occurs in 1-2% of cases of children epilepsy up to age of 9. Due to the frequent co-occurrence of tonic-clonic seizures (75-95%), absence (62-89%) and tonic (30-95%) with classic mioclonic-astatic seizures and drug-resistance demonstrated in more than half of the cases, we would like to present this case report and suggested treatment.



## Prediction of cerebral vasospasm occurrence - analysis of risk factors after aneurysmal subarachnoid hemorrhage.

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**Abstract:** Cerebral vasospasm (VA) after subarachnoid hemorrhage (SAH) is a major cause of death and disability. About 30% of patients with SAH will present VA. The major role in pathogenesis of VA act degradation products of blood, and that's why higher CT Fisher Grade increase risk of VA. We aimed to examine incidence of the diagnosis of VA as well as the relationship of different factors like: gender, age, blood tests, SAH grade, method and timing of treatment to the incidence of VA. Data included demographics, risk factors, treatments, and outcomes from 173 aSAH patients between 2008 - 2014 were retrospectively reviewed. We evaluated clinical presentation, blood tests, management and outcome, and compared it to previously published data. Clinical presentation was evaluated with Hunt and Hess scale, GCS and amount of blood with Fisher's Grade. To evaluate clinical outcomes we used Glasgow Outcome Scale. Statistical analysis was performed with Statistica 8.0. A total of 36 patients (26 males) with average age 50,3 yo developed cerebral VA. 23% patients presented with a Fisher's Grade of I to II, 31% - III, IV - 46%. 15% patients had grades IV-V in H&H scale. 34 aneurysms were in the anterior circulation (2 in posterior); the most common were ACo and MCA aneurysms (n=15). 10 patients were treated endovascularly, 26 with clip ligation. 52% had good or excellent outcome (GOS 5 or 4); 8 died. We found statistically correlation between higher Fisher's grade, H&H score, gender and location of aneurysm and risk of VA. Factors dependent of cerebral VA may help better predict patient outcome following SAH. Individualized approach to patient with aSAH help to provide proper protection against VA. SAH - subarachnoid hemorrhage, cerebral vasospasm, Glasgow Outcome Scale



## Use of complementary and alternative medicine by patients with multiple sclerosis - a survey study

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**Introduction:** Multiple sclerosis (MS) is a demyelinating disease of the CNS. It is the main cause of severe disability in young adults. Although there are a few disease-modifying agents available the illness is incurable. This fact may shift patient's attention from conventional therapy to complementary and alternative medicine (CAM).

**Aim:** To assess the prevalence of CAM usage and to characterize the population of CAM users among the patients with MS.

**Materials and Methods:** Materials & Methods The study included 40 patients (25 females and 15 males; aged 21- 61) diagnosed with MS who were attending routine follow-up visits at the outpatient clinic of the Department of Neurology of the Medical University of Silesia. All patients filled out the questionnaire which consisted of 26 questions. The demographic data, the phenotype of MS and EDSS score were obtained from the patients' medical records.

**Results:** 34 (85%) patients declared that they actively look for information about MS. The Internet was the most common source of information (50% responses). 27 (68%) patients have used at least one form of CAM therapy. Among them only 33% consulted implementing CAM with their physician. The percentage of CAM usage was higher among patients with higher and incomplete higher education (79% vs 55%). The most widely used CAM therapies were: vitamin D supplementation (78% of CAM users), various forms of physical activity (48%) and diet changes (48%). 11 patients (41%) reported subjective improvement of symptoms after at least one form of CAM therapy.

**Conclusion:** Most patients with MS actively look for information about management of MS. Great number of them has never consulted physician beforehand. The doctors should discuss different possibilities of treatment with MS patients.



## Endovascular treatment of unruptured intracranial aneurysms

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**Introduction:** An aneurysm is a bulging, weakened area in the wall of an artery resulting in an abnormal widening or ballooning, which carries a risk for rupture, what in turn results in subarachnoid haemorrhage (SAH). This condition can lead to death or severe injury. Thus it is recommended to treat aneurysms before they burst. An unruptured aneurysm, therefore, is an aneurysm that has not ruptured yet. Based on aneurysm's location, morphology, diameter and clinical features of the patient, an unruptured aneurysm may be qualified for endovascular embolization.

**Aim:** We carried out this retrospective study to assess the impact of choosing endovascular procedure on treatment's effects of the unruptured aneurysms.

**Materials and Methods:** Between years 2008 and 2014, about 200 patients in our Clinic were diagnosed with unruptured aneurysms and initially qualified for endovascular embolization. Medical records and radiological images were reviewed for all the patients. Patients' cases were further analyzed on the outcome of the treatment (total occlusion or not), assessment of the patients' recovery (Glasgow Outcome Scale [GOS]), days spent in the hospital after the procedure with distinction between Intensive Care Unit [ICU] and Neurosurgery Department, and differences between cases where stents were used and where they were not. Aneurysms' morphologies were also assessed with measurements done by students supervised by experienced radiologists.

**Results:** On average, after the procedure patients spent in the hospital 6 days including one day at ICU. Mean GOS was 4.87 with only 6 patients (2.6%) scoring





below 4. Complications occurred in 30.4% cases with 100% of them being early and 25.4% followed by late complications. In follow-up examinations, 78.4% patients presented with total occlusion of treated aneurysm. Stents were used in 63.8% patients.

**Conclusion:** Based on our material we have found radiological and clinical effects of embolization positive, with little complications, good recovery and fair success rate.



## Application of Spetzler-Martin and Spetzler-Ponce scales in choosing the best treatment method of cerebral arteriovenous malformations

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**Introduction:** Arteriovenous malformations (AVM) are connected with cerebral hemorrhage, seizures, increased ICP, headaches, mass effect and ischemia symptoms. Selection of the best treatment method or even deciding if intervention is required can be difficult.

**Aim:** The aim of our study was to assess the impact of choosing endovascular or neurosurgical procedure on treatment effects of cerebral AVMs. We also investigated influence of Spetzler-Martin (SM) and Spetzler-Ponce (SP) scale on first choice treatment, its effects and clinical presentation.

**Materials and Methods:** The study included 50 patients who were diagnosed with cerebral AVM and treated in our Centre between 2008-2014. 111 procedures were performed, including 94 endovascular embolizations and 17 neurosurgical procedures. Medical records and imaging data were reviewed for all patients. All AVMs were measured and assessed by students, allowing classification in SM and SP scales.

**Results:** Complete or partial treatment was observed in 88,24% of neurosurgical procedures and in 84,0% of embolizations. Early complications rate was 26,6% for embolization and 17,7% for neurosurgical procedures, while Glasgow Outcome Scale was 4,89 ( $\sigma=0,38$ ) and 5,0 ( $\sigma=0,00$ ), respectively. According to SM scale cerebral hemorrhages occurred more frequently in grade 1, but no statistical significance was observed. In SP class B lower grades in GCS were noticed ( $p=0,02$ ). Lower GCS scores



were also correlated with deep location of AVM and with eloquence of adjacent brain. Patients with SM grade 1 were more frequently qualified for neurosurgical procedures than patients.

**Conclusion:** Treating AVMs requires coordination of multidisciplinary team. Embolization and neurosurgical procedure should be considered as a part of multimodal, frequently multistage treatment. SM scale has influence and should be taken into consideration in selecting treatment method.



## Primary laryngeal lymphoma: a rare localization of lymphomas of the head and neck region - a case report with review of literature.

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**Introduction:** Primary hemopoietic neoplasms involving the larynx are exceedingly rare, accounting for less than 1% of all primary laryngeal neoplasms. Lymphoma is the second most common among them, after plasmacytoma. Fewer than 100 cases of primary laryngeal lymphomas have been reported in the literature. The great majority of them were non-Hodgkin lymphomas (NHL) with the most common localization in supraglottic region. The purpose of this report is to present a case of a 59-year-old man who presented with a history of progressive dyspnea, dysphagia and a foreign-body sensation for three weeks.

**Materials and Methods:** A semi-elective tracheostomy was performed under local anesthesia. Direct laryngoscopy with biopsy was performed with general anesthesia.

**Results:** A fiberoptic endoscopic examination identified a tumor located on laryngeal surface of epiglottis and right vestibular fold with complete glottic occlusion. The tumor did not reveal any features of malignancy in Narrow Band Imaging (NBI). Histopathology of the specimen showed atypical proliferation of lymphoid cells. Immunohistochemically, these cells were positive for LCA (leukocyte common antigen) and Ki67 index was 80%. The patient was referred to hematology department for further diagnostics and treatment.

**Conclusion:** Laryngeal lymphoma is a rare clinical entity and still remains a diagnostic challenge. This report highlights the need for lymphoma to be taken into consideration in the process of differential diagnosis of laryngeal neoplasms, especially in the supraglottic area.



## Cerebral venous thrombosis – stroke in the young

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**Introduction:** The cerebral venous thrombosis (CVT) is a rare cause of stroke. Clinical course may be asymptomatic or symptoms may increase gradually with intracranial hypertension. Diagnosis and management of CVT is difficult, due to a variety of underlying risk factors and absence of treatment approach standards.

**Aim:** This study was designed to assess clinical symptoms, diagnostics methods and frequency of congenital thrombophilia among 24 patients with CVT treated between 2008-2016.

**Materials and Methods:** Study group consisted of 22 women aged from 26 to 68 years with confirmed CVT. All demographic data, presenting features, neurologic examination findings, imaging findings and lab tests findings, including, D-dimers, antiphospholipid antibodies (APLA), and genetic tests assessing the presence of A1691G mutation of V factor gene or G20210A mutation of prothrombin gene were recorded. Patients were divided into 3 subgroups depending on the presence of coagulation disorders: 1-with coagulation disorders, 2-with inherited thrombophilia and 3-without coagulation disorders.

**Results:** The most frequent symptoms were headache (83%) and amblyopia (50%). The most frequent location was superior sagittal and transversal sinus. A1691G V factor gene mutation and G20210A prothrombin gene mutation occurred in 6 patients, and 3 patients, respectively. In 3 patients increased level of APLA was diagnosed. 7 women had hyperhomocysteinemia (median:  $23.7 \pm 5.4 \mu\text{mol/l}$ ). The median age of patients with inherited thrombophilia was significantly lower than patients without coagulation disorders ( $p = 0.018$ ).

**Conclusion:** Symptoms of increased intracranial pressure, even with a small focal neurological deficit should be suspected of CVT. Inherited thrombophilia is more frequent in patients with CVT as compared with general population. In patients with congenital thrombophilia CVT occurs earlier.



## Intraoperative neurophysiological monitoring of facial nerve - is it really a valuable tool for parotidectomy?

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**Introduction:** According to increasing number of patients in the recent years, benign neoplasms of salivary glands require high medical concern, focusing on improvement of diagnostic tools and methods of treatment. A standard evaluation of salivary gland tumour includes imaging, most commonly ultrasonography which allows to assess a position of the tumour in relation to the facial nerve and consider the possibilities of surgical approach. Paresis or palsy of the facial nerve is rare in the course of benign parotid neoplasm, but because of the anatomical relation of these structures, can be a complication of a surgery. Intraoperative neurophysiological monitoring (IONM) is widely used to observe the nerve function during the parotidectomy, however its utility is not clearly established in the literature.

**Aim:** Evaluation of the intraoperative neurophysiological monitoring of facial nerve used during parotidectomy conducted among patients with benign salivary gland neoplasm.

**Materials and Methods:** The study included 161 cases of patients with benign salivary gland lesions who underwent parotidectomy in years 2010-2016. Data was obtained from medical documentation of Otorhinolaryngology Department of Medical University of Lodz.

**Results:** In 100% cases IONM revealed sustained nerve function. During post-operative period facial nerve function was reassessed – 7 patients (4,35%) were observed with paresis of the marginal mandibular branch. It regarded patients with pleomorphic adenoma, operated with extracapsular tumour removal technique (2 patients; 28,57%), superficial lamina partial parotidectomy (2 patients; 28,57%) and lateral parotidectomy (2 patients; 28,57%). Partial paresis appeared also in case of 1 patient with Warthin's tumour (14,28%) subjected to lateral parotidectomy. Dysfunction of the VIIth nerve most often appeared in II degree of House – Brackman scale (5 patients; 71,43%), less often in III degree (2 patients; 28,57%). Usually paresis



subsided several days after the surgery (5 patients; 71,43%), 2 patients (28,57%) required physical therapy after hospitalisation.

**Conclusion:** IONM is a valuable tool which helps to identify the nerve, locate it in the gland and evaluate its function. However, proving its activity in the final steps of the surgery is not equivalent to observing correct function after the procedure. IONM allows to determine the reason of clinically diagnosed palsy. It can be a result of a permanent damage caused during the surgery or a transient state triggered by healing process of the tissue surrounding the nerve. Ability to differentiate between these states may influence the scope of legal responsibility.



## Long-term outcome of DBS-STN surgery in Parkinson's disease.

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**Introduction:** DBS-STN- Deep Brain Stimulation of subthalamic nucleus is standard neurosurgical procedure intended for PD patients whose advanced disabling neurological symptoms can't be appropriately controlled with medications. Refractory symptoms include tremor, stiffness, rigidity and slow movement which lead to walking problems.

**Aim:** The analysis of DBS surgery-related surgical and clinical complications based on long-term observation.

**Materials and Methods:** We enrolled 52 patients with PD (age 57,5±8,3 yrs.) who had undergone a DBS-STN surgery between 2004 and 2015. Average observation time was 68 months (5-120 mth). Surgical complications were classified into two categories: perioperative and long-term. Evaluation of the complication include clinical outcome based on assessment of mobility level (UPDRS part III), cognitive status (MMSE), L-dopa daily dose and patients weight before and after DBS surgery.

**Results:** Surgery complications included: intracranial hemorrhage in 7,7% of patients, stroke and seizures in 1,09%. Hardware-related complications: wound infections and dermal fistula occurred in 8,79% and 2,29% respectively. Stimulation complications, primarily mood disorders were reported in 4,39%, and far-off clinical adverse effects, weight gain and memory impairment were present in 7,69% and 2,19% respectively. Pharmacological therapy in conjunction with DBS-STN stimulation resulted in significant improvement of patients mobility ( $p=0,007$ ).

**Conclusion:** As long term observation emerge, DBS-STN surgery is an effective treatment which improves mobility of PD patients. On the other hand, it is fraught with some risk of complications.





# HUMANITIES IN MEDICINE

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## Health and social status of the patients of gynecological and obstetric ward of the Poznański Hospital in years 1897-1902.

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**Introduction:** The gynecological and obstetric ward of the Poznański Hospital was transformed from the obstetric shelter and it played an important role in taking health care of women from the city of Lodz at the turn of the 19<sup>th</sup> and 20<sup>th</sup> centuries. The ward reports give the insight of the health and social status of the patients and in this way enrich our knowledge of the health condition of female citizens of Lodz of this time.

**Objective:** The objective of this paper is to describe the health and social status of patients treated in the ward.

**Material and methods:** Research material included activity reports of the ward from the years 1897-1902 that were published in *Czasopismo Lekarskie* and presented in the Lodz Medical Association meetings in the years 1900-1903. The method of analysing documentations and statistical method of descriptive statistics were used.

**Results:** 558 patients were treated in the ward in the years 1897-1902. As a denominational shelter it admitted patients of mainly Jewish origin – 506 women, the Christians were minority – 61 persons. As far as 80% of patients were inhabitants of the city of Lodz. A cook was the most commonly practised profession, other occupations included street traders (27), factory workers (28) and servants (22). Women in childbirth were aged from 15 (33 cases) to 43 years, with the considerable percentage of pregnancies in women below the 18 (92). In the analysed period 456 children were born, most of them from the first pregnancy (256); boys comprised the majority (252). Live births constituted the vast majority of labours, stillbirths amounted to the number of 107. In the researched period 11 patients died, most of the patients were discharged in good physical health. Few cases of tuberculosis of lungs and larynx as well as syphilis were observed. Fever, haemorrhage and oedema run as the most common complications. Only 3 caesarean sections were performed during this period of 5 years.

**Conclusions:** The tradition of giving birth at home was the reason for most of the married women to chose domestic labour. The gynaecological and obstetric ward was the domain of the poor and unmarried women, who usually conceived at the early age. The mortality rate of this ward was comparable to other wards.



## Kain's stigma- that is an ethical reflections on the physiognomy and its influence of the world.

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**Introduction:** Physiognomy is the assessment of a person's character or personality from his or her outer appearance. Aristotle created this field of science and after him another thinkers and scientist expanded it. Theories of physiognomy contributed to much of historical events. Today it is consider as pseudoscience. But does it mean that physiognomy is not used?

**Purpose:** The purpose of this study is to get to know the answer for the following questions: which scientific bases for physiognomy had its founders? Did the founders attribute a negative characteristics to the concrete appearance? How often? Does the physiognomy lead to stigmatization a part of society? The viewpoint of the present-day medicine on this problem and the research about today's using of physiognomy were also made.

**Material and methods:** In work methods typical for historical and medical research were applied. Under analysis were taken works of founders and followers of physiognomy such as: Aristotle, Teophrastus, Quintilian, Pliny the Elder, Seneca The Younger, Canterbury Tales, Girolamo Cardano, Joannis ab Indagine, G.B, della Porty, sir Thomas Brown and much more of less known followers.

**Results:** Followers of the physiognomy explained their theories by careful observations of human behaviour and similarities in appearance between animals and humans. Creators of this branch made really precise descriptions of people's appearance, which should be characteristic for negative features – it was a common practice. Because of this physiognomy often brought to stigmatization of some kind of people. Although from one hand physiognomy contributed to development of many branches of knowledge, from the other hand it had her own part in creation terrible theories such as eugenics. Despite the fact that physiognomy is considered as a pseudoscience nowadays, it is still used in some groups.

**Conclusions:** Physiognomy brought to stigmatization some kind of people, who had some special appearance features and to eugenics theory and now adays is believed as a pseudoscience. Today from the one hand physiognomy is very useful for some branch of science, e.g. in resocialization, but on the other hand it begin again to stigmatize some groups of people e.g in big corporations. Does it mean that the history is becoming to describe a circle again?



## Snake venom as medicine - literature review

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**Introduction:** Substances produced by living organisms such as penicillin, insulin or pancreatic enzymes and many others are being used as the piece treatment of many various diseases. Snake venom consists in 90% of protein and enzymes which have powerful, toxic effect on tissues. Lately, it started to be considered as the potential weapon in the fight against cancer or different microorganisms attacking human body.

**Aim of the study:** The aim of the study is the analysis of available scientific information of potential medical usage of Snake venom.

**Material and methods:** Several papers were analyzed to assess the possibilities of treatment and effectiveness of snake's venom usage.

**Results:** Analysis of composition of Snake's venom led to isolation of many substances of antibacterial, antiviral, anti-fungal or antineoplastic abilities. First information about usage of snake venom to treat animal's neoplasms come from 1993. Since that time, many more substances were isolated – some of them can be potentially used during therapy of cervical, stomach, ovarian or breast cancer. Studies show that beside the use in cancer therapy, venom can be efficiently use during the treatment of viral infections like Yellow Fever, Herpes Simplex, Dengue fever among others. The other medical field which benefits from the existence of isolated substances is cardiology. In 1999 one of the components present in snake venom had become the base of producing captopril – an ACE inhibitor. Possibilities of usage of selected derivative natriuretic peptides as medications to treat high blood pressure are being the subject of various experiments.

**Conclusions:** Review of available scientific papers discussing the matter, allows to assume that snake venom is still an undiscovered complex and in the future several of its components may prove as essential during treatment problems like cancer, infections or cardiology diseases. It is possible that in the nearest future, humans start to see snakes as the source of precious medications instead of deathly creatures.



## Undergraduate students' perceptions of medical education in Poland

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**Introduction:** Medical education is a field of science aimed at teaching and learning methodology, curriculum design, assessment and evaluation standards and educational environment. While universally well recognised, with high impact journals and international societies, medical education is a totally new research domain in Poland. This the first students' study in this particular area.

**Aim of the study/purpose:** It is crucial to gather information how students evaluate their curricula. Our study is a first attempt to analyse students' opinions about the quality of medical education in Poland.

**Material and methods:** The AAMC Medical School Graduation Questionnaire (GQ) was translated and adjusted to Polish educational context. This survey comprises 64 close- and open-ended items concerning the quality of courses, self-assessment of clinical skills, sociocultural aspects of studying and choices of residency programmes, and workplaces. The survey was distributed via social media and 796 responses were received from undergraduate students of all Polish medical schools.

**Results:** 62.2% students claimed that they are satisfied or very satisfied with the quality of medical education. There are significant positive correlations between students' satisfaction and the amount of practical procedures they performed during particular courses. 7.5% of respondents participated in interprofessional courses and they rated them as beneficial or very beneficial. 75% of students do not plan to work in rural areas with impeded access to high quality healthcare. Moreover, only 6% of participant consider family medicine as future speciality. 22.6% of respondents indicated that their school helped them with residency programme choices.

**Conclusions and discussion:** While generally satisfied with their training, Polish students indicate numerous areas for improvement of curricula. Increasing the community orientation of local programmes would be needed to prepare and encourage graduates to apply for residency programmes in rural and underprivileged areas.

The GQ is a well validated tool previously used for curriculum evaluation not only in the USA but also in Taiwan, Japan and Iran with results indicating context-specific needs for improvement. Our data will form a foundation for discussions with medical schools' boards and Ministry of Health in Poland.



Take-home message: Evaluation of students' opinions on their education is a crucial activity informing effective curricular decisions



## Ideologisation of psychiatry in Polish People's Republic 1950-1956

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**Introduction:** 1950s is the time, when soviet influence in Poland became stronger. Pavlovism and dialectical materialism were promoted in sciences. Psychiatry were exposed to the most intensive ideological actions.

**Aim of work:** The aim of work is to present psychiatry's ideologisation issue in Poland in first half of 1950s as example of political pressure to scientific world, including medical, during that period. The work shows, why pressure to psychiatry was especially strong, what kinds of actions took place and how did psychiatrists react.

**Sources and methods:** Written sources and archival documents were used as work's material. Primary method was analysis of available sources.

**Results:** Centralized planning of researches, censorship, imposing of methodology and subverted theories (pavlovism) as only acceptable ones clearly indicates to psychiatry's subordination to Marxist ideology propaganda at the time. It is apparent due to former scientific works and special pavlovism-promoting meetings (e.g. so-called *Pavlov Wednesdays*). Especially strong ideological actions took part in 1950-1954 and afflicted also physicians in Łódź.

**Conclusions:** Ideologisation of science results in no scientific advances. Despite communists authority's trying, polish psychiatry faced unfavorable impact of politics on factual scientific achievements.



## Educational card game - assessing the impact on short- and long-term knowledge.

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**Introduction:** Educational games are designed to encourage students to cooperate in analysing given problems and motivate them to deepen their understanding of a subject. These activities diversify this learning technique from traditional and theoretical lectures. Active learning methods stimulate analytical thinking, synthesis and evaluation of presented information. Educational games enable students to improve social skills through the interaction and discussion with other participants. These features help students to prepare for professional work but also to develop a positive attitude towards education and diminish the tension pertaining to the study process.

**Aim of the study:** Verifying the influence of nonstandard educational method on both short- and long-term knowledge status of second year medicine students.

**Material and methods:** A unique card game was created and conducted among 220 second-year medicine students during pathophysiology class concerning acid-base balance. The study group consisted of 70 students, the control group – of 150. The classes were led by experienced lecturers. Within the study group, a satisfaction survey was conducted (on a scale of 1-not interested to 6-very interested). The control and the study groups were compared with each other on the basis of (1) a test introduced at the end of each class, (2) the results of the final pathophysiology exam (max 60 points) and (3) the results of acid-base balance questions part of the final exam (max 3 points). The study was approved by Ethics Committee of Medical University of Lodz.

**Results:** The game was found appealing and assessed as helpful in terms of exam preparation by 90,00% of participants. 91,43% of respondents declared to be generally satisfied with it (4-6 points on a scale of 6). The subjective assessment of the knowledge was also increased ( $p < 0.001$ ) – from 2,49 before the class (min=1; max=5; SD=1,04) to 3,96 after the class (min=2; max=6; SD=0,91) on a 6-point scale. For the class-ending tests, the exam and the acid-base balance part of the exam, there was a trend towards higher results in the study group (72,29%; 72,60%; 84,29%) than the corresponding results in the control group (69,13%; 70,20%; 82,22%).

**Conclusions:** Students were satisfied and presented a general preference for more classes of this type. Moreover, the knowledge gained during the class was considered comprehensible and useful for exam preparation. We did not prove that





participation in the game was beneficial for the results of end-class test or the final exam.



## Legal and illegal surrogacy. Poland and Ukraine - comparative analysis.

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**Introduction:** Surrogacy is the practice by which a woman, called a surrogate mother, becomes pregnant and gives birth to a baby in order to give it to someone who cannot have children. Over the years, surrogacy has become a much more popular process than it was just a few decades ago. In Poland the law does not specify whether using surrogacy services is prohibited or not. There are no specific and clear regulations about that issue. Some of them are only connected. Ukrainian law concerning surrogacy is far more progressive than Polish law and many of European countries.

**Aim of the study:** The aim of the study is to compare the surrogacy issue in Poland and in Ukraine and to show how much underdeveloped and not clarified is the law in this area in Poland.

**Material and methods:** The study is based on the analysis of legal acts of Polish and Ukrainian country considering surrogacy issue.

**Results:** The total lack of legal regulation causes that in fact every woman who comes up with such an idea and publishes an advertisement on websites may become surrogate. What is alarming, the only person protected in this system is a surrogate. Biological parents are completely dependent on her. According to the *Family and Guardianship Code* in Poland, the child's mother is precisely the woman who gave birth to a child. It is hard to contradict motherhood basing on genetic tests. It makes a lot of controversies when surrogate mother changes mind after obligation and decides to become a mother of child which genetically belongs to the pair. Consequently, a lot of pairs from Poland choose to go abroad, especially to the Ukraine, to find surrogate. Many of legal aspects of surrogacy in Ukraine are regulated in the *Ukrainian Family Code*. In general, surrogacy programs are absolutely legal on the territory of Ukraine and they are regulated by the law. There are many principles protecting the pairs. For instance, regulation stating that gestational mother has no legal right to be deemed as a legal mother or declaration that no further adoption procedure of pair's child is required.

**Conclusions:** Although in most countries, including Poland, surrogacy becomes more and more popular, it does not contribute in simultaneous changes in the easiness



and legality of such practices. Contrary to our country, Ukrainian law regulates precisely the procedure of surrogacy and also rights concerning people who decide to undertake it. That prevents from abuses in this difficult issue.



## „Lenin live forever "- that is the impact of policies on the development of technology preserving body"

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**Introduction:** People for ages were interested in the techniques preservation of body after death. This had religious, spiritual and cultural meaning. Over the centuries they tried to improve previously developed of technique. Example of the Lenin's shows that an implementation of political ideology like a cult of personality can be the reasons for the embalming of the body.

**Aim of the study / purpose:** Analysis of factors and circumstances that determined securing of the Lenin's body. The analysis of technique that was used and comparing it with known previously techniques. The analysis of errors made when storing of the Lenin's body which resulted in the improvement of technique.

**Material and methods:** The study was based on written, iconographic sources and eyewitness reports - creators of technology (including the development and archival materials), which were analyzed in the critical characteristic (analysis of reliability and credibility of sources). In studies of the nature of historical-medical research method used descriptive, analytical and synthetic results.

**Results:** An never before it politics was a decisive factor in any decision to retain of the Lenin's body, and then others communist leaders. Researchers at the risk of their lives worked on a method that allowed the preservation of the Lenin's body. This method was innovative, non used earlier. If the initial phase is not committed errors, the body could behave in much better condition.

**Conclusions:** People for ages have expressed the need to preserve the body after death. However, various motivations were for doing so. History shows , that it can also be a political motivations. The experience of the Soviet scholars are still used in communist countries for political reasons and for commercially reasons - in Russia



## Students' evaluation of the ASPIRE Student Engagement in the Curriculum Criteria – a mixed methodology study

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**Introduction:** ASPIRE is an AMEE's initiative for international recognition of excellence in medical education. Student Engagement has been defined as one of four main areas of excellence and applies to students' roles as partners in curriculum development. It has been well documented that students playing an active role in academic community are of great value for medical education.

**Aim of the study/purpose:** It is important to understand how students perceive the ASPIRE criteria of student engagement, their applicability and feasibility and how they define directions of development as well as identify possible obstacles in this area.

**Material and methods:** 14 MD and 10 DMD students from all Polish medical universities actively involved in development of curricula at their schools were identified and invited to participate in this project including an online-survey aimed at evaluating their perception of the ASPIRE Student Engagement criteria with an option to comment on each of them. They were also asked to identify obstacles and suggest possible actions for improving student engagement in their schools. Quantitative data were analyzed with *Statistica* and qualitative data - with *Atlas.ti* software.

**Results:** Students recognised engagement in research activities and service delivery in local community as the best implemented criteria. They considered students' management role in curriculum, faculty development activities and assessing their own competence as these fields, which especially ought to be enhanced. Students emphasized the importance of raising their awareness of medical education for further development of their engagement. They paid special attention to the faculty underestimating their activities and the fact, that their representation on school committees is often of a figurehead type with little to none real influence on curricular decisions. No significant differences in criteria perception have been revealed between medical and dentistry students.

**Conclusions:** While student engagement in scientific and local community projects is adequately implemented, their representation on school committees is satisfactory only with regard to numbers, while their role in decision-making processes is significantly limited. Effective developing students' awareness and knowledge of medical education, and a change of faculty attitudes towards student engagement



are essential for increasing students' motivation to act as change agents in curricula development. This project will be followed by the DELPHI-based procedure aimed at working out the joint programme of increasing the students' engagement in medical education.



## Vesti la giubba- that is put on costume and get to know the world of the death caused by love madness in italian verismo opera.

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**Introduction:** In Italy, by the end of 19th century the new field in opera was born. That was verismo opera, in which characters and plot should be drawn from everyday life. Because of this by analyzing the libretti it is allowed to get to know the problems of those people. In this type of opera very often suicides and murders caused by love madness were taken place.

**Material and methods:** The work methods typical for historical and medical research were applied. Under the analysis were taken 47 libretti of the opera composed by the greatest verismo opera composers: Pietro Mascagni, Ruggero Leoncavallo, Umberto Giordano and Giacomo Puccini. In the libretti the cases of death were sought and the reasons of them were analyzed.

**Purpose:** The purpose of this work is to get the answer to the following questions: How often in verismo opera the motif of the death was appeared? How often this death was connected with love- as suicide or murder caused by madness because of betrayal, unrequited love or loss of beloved person? Was this reason for suicide or murder consistent with the views of medicine of those or previous time? The attempt to clarify the viewpoint of the present-day medicine on this problem was also made.

**Results:** Of all 47 analyzed operas in 35 of them the motif of the death was appeared, 62 characters died and 42 of them directly as the result of the love- this were suicides or murders because of unrequited love, betrayal or loss of beloved person. Between this 42 characters were 11 suicides.

**Conclusions:** In the verismo opera often the cases of lovesickness were shown. In 19th century lovesickness wasn't anymore on the list of all illnesses, however since ancient times till 17th century it was recognized by the doctors and it survived much longer in the awareness of the people. Today such type of sickness isn't recognized however unfaithfully love is connected with a considering number of diseases and some researches connect falling in love with some kind of mental disorder. So can it be, that observations of verismo opera composers were correct?



## Eugenics issues in physicians' texts of the time of Second Republic of Poland belonging to freemasonry

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**Introduction:** During Second Republic of Poland times numerous Polish doctors belonged to freemasonry. In that period of time, Polish medical environment attempt a discussion among area of eugenics, being a highlight for physicians of variable specializations, for instance pediatrics, psychiatrics, neurologists.

**Aim of work:** The aim of work was researching, which eugenics issues were focused by doctors acting in Second Republic of Poland in freemasonry.

**Methods:** The inquired material were Polish doctors' (masonry classified) scientific texts referring eugenics issues and elaborations concerning the topic. Descriptive, analytic and synthetic methods have been implemented.

**Results:** Eugenics issues were point of interests a few doctors among vary specializations (psychiatrics, pediatrics, internists, forensic medicine) belonging to freemasonry, too.

Particular role was dedicated to psychiatrics: Jan Mazurkiewicz, Witold Chodźko, Rafał Radziwiłłowicz and Witold Łuniewski. The significant topics were: congenital diseases, reproducing people burdened with illnesses, social pathologies, alcoholism and its effect on society degradation, demographic politics. However the problematic side of eugenics was also a domain of Polish non-masonry doctors belonging to German eugenics.





## Human head transplantation – when it will be done ?

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**Introduction:** A head transplantation is a surgical operation which involves the grafting of one organism's head onto the body of another. Attempts of the head transplantation started on animals in the early twentieth century. In 1908 Charles Guthrie grafted one dog's head onto another's neck, attaching arteries so that blood flowed firstly to the decapitated head, then to the other head. In 1950s Vladimir Demikhov, a pioneer in human heart and lung transplantations, grafted the upper bodies of young dogs onto the shoulders of other dogs, creating dogs with two heads, both able to move, see and even lap up water. Without drugs preventing the rejection by the immune system, most lived only a few days, but one reportedly survived for 29 days. In 1970 Robert White transplanted the entire head of a rhesus monkey onto another monkey's body. The monkey could see, hear and taste but, unfortunately, White did not attempt to fuse the spinal cord. In 2013/2015 Doctor Canavero proposed and then detailed human head-transplantation procedure. He is going to conduct the first in the history human head transplantation within the next 2 years. Doctor Canavero wants the first patient to be 31-year-old Russian, Valery Spiridonov, who has spinal muscular atrophy - Werdnig-Hoffmann disease.

**Aim of the study:** The aim of the study is to present the course of the world's first transplantation of human head, which will take place within next few years by dr Sergio Canavero in China.

**Material and methods:** The study is based on the analysis of medical reports and articles presented by Italian neurosurgeon doctor Sergio Canavero who is going to perform the first in the history transplantation of human head.

**Results:** The innovative procedure is called HEAVEN-GEMINI protocol. Spinal surgery will be performed in a different way than previous experiments. Fundamental principle - it will be done by extremely sharp cut with nanoknife between C5 and C6 segment which will help in reconnecting parts of the spines. Then the spines will be held together and stabilised, and subsequently a specialised compound known as polyethylene glycol (PEG) will be used to connect the bundles running through the spinal cords. After transplantation the patient will be put into a coma for a month



and when he wakes up, powerful immuno-suppressants will have to be used to prevent the body and brain from rejecting each other.

**Conclusions:** Although this controversial and innovative method is going to be performed in next few years, there are still ethical problems. It is discussed whether HEAVEN-GEMINI procedure is indispensable therapeutic procedure for prolonging life or needless threatening trial of survival for all costs. There is still a problem connecting donor's gonads and the transmission of genetic inheritance to the offsprings. Somebody would ask if transplanting the head with a brain would automatically transplant the whole person with its mind, personality and consciousness ?



## The develop of treating breathtaking diseases " – past and presents

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**Introduction:** Description of the diseases that deprive human freedom to breathe, we can find in ancient papyri and in the works of Hippocrates. We evaluated the most common of them - chronic obstructive pulmonary disease (COPD) and asthma, which manifest themselves with dyspnea. Because these diseases affect the quality of life of the patient, searching for effective drugs which would help in normal functioning is very important. Since discovered of some risk factors for these diseases, people started to see an important role of prevention and early detection. Prevention programs are running since many years also in Lodz.

**Aim of the study:** The aim of the study is to analyze the development of treating respiratory diseases manifested with dyspnea, evaluation of the drugs and devices. The aim of the study is also to evaluate the incidence of dyspnea as a symptom of respiratory diseases in people with risk factors (smoking, exposure to harmful substances) and without risk factors in the population of Lodz participating in the prevention of lung disease in 2011.

**Material and methods:** The study was based on written and iconographic sources (including the development and archival materials), which were analyzed in the critical characteristic (analysis of reliability and credibility of sources). In studies of the nature of historical-medical research method used descriptive, analytical and synthetic. The preventive cards of patients taking part in Lodz early detection of lung diseases were analyzed for prevalence of dyspnea in patients with risk factors and without.

**Results:** Currently there are many opportunities to help patients in the interruption of an attack of breathlessness, starting from bronchodilators up to lung transplantation. Their effectiveness is much better than the method appropriate in previous centuries, but still can not cure the underlying disease but only improve the quality and length of life. Among the 1905 patients participating in prevention program in Lodz were 845 smokers, of whom 347 suffered from dyspnea, 240 patients had occupational exposure to harmful factors, of whom 130 suffered from dyspnea. Dyspnea was the most common symptom from inducing the patients to participate in the program.

**Conclusions:** Depression, social exclusion, stigmatization are often accompanied diseases with dyspnea. Current research must be continued so that we could help patients return to full fitness and social life, should focus on the development of prevention, awareness and protection of people from risk groups, to reduce the future costs associated with the treatment of these diseases.



# INTERNAL MEDICINE

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11. Anti-tumor necrosis factor alpha biosimilars – a new treatment option in inflammatory bowel diseases
12. Hodgkin lymphoma in Crohn's disease patient treated with immunosuppressive and anti-TNF $\alpha$  biological agents
13. Effect of exercise on albuminuria in patients with glomerulonephritis



## Physical activity in kidney transplant recipients.

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**Introduction:** Physical activity (PA) has an important role in prevention of cardiovascular disease - one of the most common death cause in post-renal transplantation patients. It is also believed to benefit graft functioning and is considered to be a quality of life indicator.

**Aim:** Assessment of physical activity in post-renal transplantation patients.

**Materials and Methods:** Cross-sectional study among kidney transplant recipients visiting outpatient clinic between July-August 2015. Patients were evaluated using questionnaires regarding daily activity and limitations impeding PA. The group was divided into patients with PA limitations/ dependent upon another person and patients without PA limitations. The study was conducted in summer, when patients could cultivate gardens.

**Results:** 132 kidney transplant recipients returned the survey. They were from 1 month to 21 years since renal transplantation (mean  $6,83 \pm 5,1$  years).

Analysis of responses indicated that 44,7% of patients were professionally active, of which 19,7% worked intellectually and 25% physically. Almost a half (44,7%) admitted to daily activity limitations or was dependent upon another person. From those patients 27,11% didn't practise any sport, while only 5,48% of those without PA limitations didn't practise any sport ( $p < 0,001$ ). Patients with PA limitations devoted daily less time to sport activity than those without limitations (respectively: mean  $0,95 \pm 0,98$  h vs.  $1,7 \pm 1,2$  h,  $p < 0,001$ ). There were no other significant differences concerning daily activities between two groups. In patients without PA limitations, there was no relation between years from transplantation and time devoted to sport practise. There was also no correlation between creatinine level and sport practise. Other daily activities were as follows 43,18% (gardening), 12,88% (shopping), 20,45% (cleaning), 18,18% (mental activities e.g. reading, crossovers, riddles).

**Conclusion:** Almost half of kidney transplant recipients are professionally active. The main reasons of reduced physical activity in this cohort are coexisting chronic diseases/ dysfunction of the motor organ and other factors impeding daily physical activity.



## Orofacial granulomatosis as a cause of rare extraintestinal findings in Crohn's disease.

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**Introduction:** Orofacial granulomatosis (OFG) is an uncommon, but increasingly recognized inflammatory disorder characterized mainly by soft tissue enlargement and oral ulceration. The exact aetiology of the ailment remains elusive, but is often associated with Crohn's disease (CD)- a chronic inflammatory condition of gastrointestinal (GI) tract. Although most prominently affecting the intestine, CD may present along the entire GI tract, including the mouth. Despite ambiguous relationship, 10-37% of patients with OFG have been found to later develop CD, with oral lesions as the only initial symptom.

**Case report:** The patient is a 47-year old male, with a history of surgical interventions including epulis granulomatosa and mandibular osteomas excision. In 2010 he reported to outpatient clinic complaining of persistent gingivae and palate pain. He also presented recurrent oral aphthous ulcers, tongue and lip swelling, sub febrile state, diarrhea and weight loss. The ailments exacerbated for more than 3 years preceding the visit.

Due to the suspicion of CD, patient was referred to the Department of Gastroenterology, Medical University of Lodz for a comprehensive diagnostics. Performed colonoscopy showed non-specific chronic colitis and no treatment was substantiated. Imaging studies repeated during succeeding hospitalization revealed aphthous erosions of duodenal mucosa, aphthous ulcers and linear scars on sigmoid and rectum. Following the results, patient received essential medication according to contemporary guidelines. On the grounds of enduring oral lesions treatment was converted to biological therapy with the use of Infliximab.

**Conclusion:** All of the performed actions led to associate patient's OFG with CD. OFG may emerge as a manifestation of multiple systemic conditions and often predate other symptoms. Therefore, it is crucial to confront the diagnosis with possible concomitant disorders. A vital role in the process, plays cooperation between physicians of various specialties, who often detect distinct abnormalities before systemic disease develops.



Thorough investigation of disease's origin and interspecialty assistance can be beneficial to all CD patients in early management and preventing further development of the disease.



## Expression of AQP1, E-cadherin, and Vimentin in renal biopsy from patients with glomerulopathy and in patients after kidney transplant.

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**Introduction:** In human kidneys, aquaporin-1 (AQP1) is responsible for water reabsorption along the proximal tubule and is also thought to be involved in the concentration of urine that occurs in the medulla. It is usually found in the proximal tubules and descending part of the thin loop of Henle. E-cadherin is a transmembrane glycoprotein encoded by the E-cadherin gene (CDH1) and is one of the major constituents of cell adhesion complexes in epithelial cells. Vimentin has been recognized as a marker for epithelial-mesenchymal transition (EMT).

**Aim:** The aim of the study was to assess gene expression and protein expression of AQP1 and genes coding for vimentin and E-cadherin in renal biopsies of patients with chronic glomerulopathies and renal transplant patients.

**Materials and Methods:** The expression of genes coding for AQP1, E-cadherin (CDH1) and vimentin (VIM) were determined by Real-Time PCR method. Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) and 18S rRNA were used as a normalization control. We used renal biopsies from 32 patients; 10 with non-nephrotic proteinuria (NNP); 12 nephrotic syndrome (NS); and 9 after kidney transplantation (Tx). Using immunohistochemistry techniques we evaluated AQP1 protein expression. For immunohistochemistry rabbit anti-human anti-AQP1 was used. Clinical parameters including urine protein levels, and the rate of GFR protein / creatinine in urine were also taken into account.

**Results:** AQP1 gene expression was higher in biopsies from NNP patients compared to Tx patients and NS patients. Significant statistical differences (\*  $p < 0.05$ ) was observed between the AQP1 gene expression in patients with nephrotic syndrome (NS) compared to NP patients. In NS patients gene expression was the lowest. Furthermore, expression of AQP1 mRNA in patients with NS had negative and statistically significant correlation with daily proteinuria. Preliminary results indicate that the expression of AQP1 gene is significantly higher among patients (NIS + NS + Tx) compared to the control. Immunohistochemistry showed variable expression of AQP1 depending on the type of nephropathy. VIM gene expression was lowest in patients with the NNP, and the highest in Tx patients. CDH1 gene expression was found in patients from three groups, the highest expression in relation to the studied patients NNP and NS were observed in patients after renal transplant.





**Conclusion:** The results are consistent with previous reports indicating the increase of AQP1 in different types of nephropathy. Increased expression of vimentin may suggest the presence of acute or chronic kidney damage. Recent studies suggest that changes in E-cadherin expression and function of the kidney may be associated with various nephropathies.



## A case report of sevoflurane hepatitis in a 25-year-old patient and review of the literature.

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**Introduction:** Sevoflurane (S) is a widely used volatile anesthetic, discovered in 1975 and present in clinical practice since '90. S is thought to be one of the fastest acting halogenated agents, suitable for induction and maintenance of general anaesthesia (GA) in both children and adults. Its action mechanism is still not clear – hypotheses describe its activity as a positive modulation of GABA A receptors (r), antagonism of NMDA r, inhibition of nACh and 5-HT<sub>3</sub> r and potentiation of glycine r. S is regarded to be a relatively safe drug. Apart from typical adverse effects (e.g. bradycardia, nausea), there are few reports of previously unknown or rare complications. Knowing that S is a very popular drug, careful monitoring of those effects seems to be a necessity.

**Aim:** Description of post-sevoflurane acute hepatitis. To the author's best knowledge, presented patient is the youngest person ever depicted in the literature to develop such a complication.

**Materials and Methods:** A 25 y/o male patient was admitted to the hospital and qualified to the inguinal hernia repair. The GA was introduced using propofol, fentanyl and S. The course of a surgery and early postoperative period (pop) were both uneventful.

**Results:** From the second day of the pop, significant abnormalities in FBC, inflammatory markers and the liver function test (LFT), with maximum intensity on the 7th day of the pop, started to be visible (AST=137 U/l, ALT=190 U/l, GGTP=519 U/l, d-dimers=2380 ng/ml, fibrinogen=570 mg/dl, WBC count =  $17,15 \cdot 10^3$ /ul). There was also a noticeable decrease in both RBC count and HGB (from  $4,98 \cdot 10^6$ /ul before the surgery, to  $3,32 \cdot 10^6$ /ul and from 15,4 g/dl to 10,3 g/dl, respectively).

There were 3 abdominal USS, an abdominal CT and a chest x-ray performed. No abnormalities were noticed.

**Discussion:** There are few case reports describing hepatotoxicity after sevoflurane usage, mostly in children, majority of them published in Japanese literature:

- 69 y/o man with preexisting mild renal dysfunction underwent two S GA in 2 days, developed jaundice afterwards and died on the 6th day from the 1st surgery. Histopathological exam of his liver showed extensive and confluent hepatic necrosis sites, with large amount of calcium deposits in cytoplasm of hepatocytes;
- 76 y/o woman, with a history of previous 4 surgeries, developed acute liver failure after S used in GA for aortic valve replacement; died on the 3rd day of the pop, due to MOF;



- S hepatic necrosis in a patient with underlying EBV infection and probable history of exposure to halogenated anaesthetics;
- 47 y/o female, with a HT, DM and renal failure, received a kidney from her 70 y/o mother. USG revealed an extensive toxic hepatic lesion.

**Conclusion:** S use can lead to hepatitis. This side effect is more likely to occur among patients with a history of hepatic complications, chronic diseases or in a poor medical condition. Nevertheless, hepatitis can also develop in a young, generally healthy patient.



## Evaluation of IL-6 / STAT-3 gene expression and miRNA regulating this path - research for new diagnostic markers COPD

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**Introduction:** Chronic Obstructive Pulmonary Disease (COPD) is important epidemiological issue both in Poland and in the world. Chronic inflammation sustained in the lung parenchyma results in systemic effect among patients with COPD during progression of disease. Etiopathogenesis of COPD has not been properly recognized, although it is known that there is a connection with environmental, genetic and epigenetic factors. The current research works look for molecular biomarkers helpful in accurate diagnosis of COPD and monitoring disease process. We made an assumption that expression pattern of IL-6 / STAT3 in COPD process may be regulated by miR-1, miR-155, which may have diagnostic value.

**Aim:** The aim of the research was to specify the profile of mRNA expression of IL-6, STAT3 and miRNAs: miR-155 and miR-1 among COPD patients and healthy controls and comparative analysis of examined genes and miRNA obtained from spontaneous sputum and peripheral blood lymphocytes.

**Materials and Methods:** Samples were collected from patients with COPD clinically verified (GOLD 2011 A-D) after spirometric examination. Spontaneous sputum and peripheral blood lymphocytes (n=30) were collected as biological material used in research. Control group was constituted by healthy people in similar age range. Relative genes expression was analyzed using qPCR method.

**Results:** Higher expression levels (RQ values) of IL-6 and miR-1 were observed among patients with COPD in comparison to control group: (IL-6, patients – 0,67 vs 0,3 controls; miR-1, patients – 0,54 vs 0,03 controls). STAT3 and miR-155 expression levels were relatively lower in comparison to control group (STAT3, patients – 0,53 vs 1,07 - controls; miR-155, patients – 6,36 vs 12,38 – controls). Statistically significant differences in RQ values (patients vs controls) were observed for IL-6 ( $p=0,004$ ), STAT3 ( $p=0,001386$ ) and miR-155 ( $p=0,007$ ) (U-Mann-Whitney test). Negative correlation was observed between expression levels of IL-6 and miR-155 ( $p=0,04$ ) among COPD patients. Moreover, expression level of IL-6 was the



highest among patients qualified to B category in GOLD, STAT3 expression level maintained on the same level in all categories. The highest expression level was observed for miR-155 in C category and for miR-1 in A category.

**Conclusion:** Differences in expression levels of IL-6, STAT3, miR-155 and miR-1 between patients with COPD and healthy controls indicate their impact on COPD disease process. Negative feedback was observed between IL-6 and miR-155.



## Effects of the hydration status and the changes of blood pressure and heart rate induced by hemodialysis on intradialytic changes of high sensitivity troponin T.

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**Introduction:** High sensitivity cardiac troponin T (TnT-hs) is a specific marker of myocardial damage in the general population. It is known that the levels of cardiac troponin T in patients with chronic kidney disease (CKD) are higher than in general population that corresponds with much higher risk of cardiovascular events and death. The variations of the hydration status between and during hemodialysis sessions (HD) may affect the cardiovascular system and blood pressure that may lead to myocardial ischemia and myocardiocyte damage.

**Aim:** The aim of the study was to assess the effect of hydration status and the variability of heart rate and blood pressure during HD on the changes of serum concentration of TnT-hs and pro-BNP induced by dialysis.

**Materials and Methods:** The study group included 34 patients (24M,10F, mean age  $64 \pm 11.8$  years) with end-stage kidney disease treated by hemodialysis for at least 2 months. Blood pressure and heart rate were monitored noninvasively, by BR-102 plus ABPM system, during HD. The hydration status was assessed by bioimpedance spectroscopy. Blood samples for the measurements of TnT-hs and NT-pro BNP were collected before and after HD.

**Results:** Serum TnT-hs levels above normal range were found in 97% of the patients before and 100% after hemodialysis in all study group. Mean TnT-hs was  $86.6 \pm 53.8$  before and  $91 \pm 54.8$  ng/l after HD, which comprised about 618% and 650% of the upper limit of normal range adequately. Pre- and post-dialysis TnT-hs concentration correlated with heart rate ( $r=0.5$ ,  $p=0.04$ ) and systolic ( $r=0.36$ ,  $p=0.049$ ) and diastolic values ( $r=0.37$ ,  $p=0.044$ ) of the patients during HD session. Mean concentration of TnT-hs was higher in the patients with the episodes of intradialytic hypotension defined as a decrease in systolic blood pressure by  $\geq 20$  mmHg or a decrease in MAP by 10 mmHg ( $p=0.016$ ) and in diabetic patients. TnT-hs



increased by 7% from the baseline value in whole study group ( $p=0.01$ ), but NT-proBNP levels did not change significantly during HD. The absolute change of TnT-hs during hemodialysis correlated with the change of NT-proBNP ( $r=0.52$   $p=0.03$ ) as well as with a severity of overhydration ( $r=0.32$   $p=0.08$ ) and was higher in patients with the episodes of intradialytic hypotension 7.6 vs 0.5 ng/l. Blood pressure and heart rate variability did not correlate with the changes of TnT-hs.

**Conclusion:** Almost all chronic hemodialysis patients have increased high sensitivity troponin T levels. Hemodialysis session may induce further injury to the heart in particular in overhydrated patients and in those experiencing intradialytic hypotension episodes.



## Relationship between the severity of Obstructive Sleep Apnea Syndrome (OSA) and parameters of carbohydrates and lipids metabolism – preliminary results from sleep clinics in Lodz and Budapest.

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**Introduction:** Obstructive sleep apnea (OSA) is characterized by repeated interruption of ventilation during sleep due to pharyngeal airway closure. OSA escalates risks of hypertension, coronary vascular disease, and stroke. Obesity is an acknowledged risk factor for OSA.

**Aim:** The purpose of this study is to examine the association between severity of OSA and severity of obesity and selected metabolic parameters.

**Materials and Methods:** 98 patients were enrolled in the study (71 men and 27 women). All the patients underwent overnight polysomnography. Parameters of interest included: AHI (apnea-hypopnea index), average and minimal oxygen blood saturation at night (SatO<sub>2</sub>), BMI, total cholesterol, HDL, LDL, triglycerides and fasting glucose. Based on AHI, we elucidated two groups: “Severe OSA” (AHI ≥ 30; n=58) and “Control” (AHI < 30; n=36, including patients with either mild or moderate OSA or no disease). We verified the distribution of the variables with W Shapiro-Wilk test. Further statistical analysis included U Mann-Whitney test, Spearman correlation quotients. Due to multiple hypotheses testing we used Benjamini-Hochberg correction.

**Results:** Median (with 1st and 3rd quartile) BMI for “Severe OSA” patients was higher than for “Control”: 33.3 (25.7-33.9) vs 29.4 (29.9-36.7),  $p < 0.001$ . In the laboratory findings investigated, no statistically significant differences between those two groups were found.

BMI correlated with AHI ( $r = 0.41$ ,  $p < 0.001$ ), average SatO<sub>2</sub> ( $r = -0.43$ ,  $p < 0.001$ ), minimal SatO<sub>2</sub> ( $r = -0.29$ ,  $p < 0.05$ ), glucose ( $r = 0.36$ ,  $p < 0.01$ ) and HDL ( $r = -0.27$ ,  $p < 0.01$ ).

Also, mean SatO<sub>2</sub> correlated negatively with glucose ( $-0.38$ ,  $p < 0.01$ ) and positively with HDL ( $0.35$ ,  $p < 0.01$ ). AHI and minimal SatO<sub>2</sub> didn't correlate with any of investigated laboratory variables on a statistically significant level.





**Conclusion:** Severe obstructive sleep apnea is linked with the obesity level and, probably, with lipid imbalance and impaired glucose metabolism.

Severe OSA is connected with more advanced stage of obesity and, most likely HDL and fasting glucose are associated with severity of breathing disturbances during sleep. However it is not clear if the relationship is strictly with OSA or with obesity itself as it correlates with the severity of breathing disturbances during sleep as well.



## Parameters of iron status in patients after kidney transplantation

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**Introduction:** Functional iron deficiency, which is characterized by the presence of insufficient iron stores is common among patients with chronic kidney disease. Iron status monitoring should be a part of a long term follow-up of organ transplant recipients because the disturbances in iron metabolism are a possible risk factor of infections and increased mortality.

**Aim:** The aim of this study was to assess the prevalence of functional iron deficiency in kidney transplant (KTx) recipients and their relations with graft function and red blood cells parameters.

**Materials and Methods:** Retrospective evaluation of iron status by determining the level of iron in serum (Fe), total iron-binding capacity (TIBC), ferritin and total saturation of transferrin (TSAT), as well as complete blood count (RBC) and blood hemoglobin level (HGB) in KTx patients was performed. Iron deficiency was defined as Fe <60 ug/dl in F and Fe <70 ug/dl in M.

**Results:** We analysed the parameters in 55 consecutive KTx patients (26F; 29M); mean age 51.6±13.3 years; 5.8±3.6 years after KTx. Fe deficiency was found in 10 patients (18.8%). The patients with normal Fe level have statistically significant higher TSAT 35.5±10.8% than with Fe deficiency (18.8±7.0%, p<0.05) and higher mean corpuscular volume (MCV) 89.0±3.8 vs 85.7±6.7 fL; p<0.05 respectively. The mean eGFR in patients with Fe deficiency and with normal level was similar. Serum ferritin level was 354.0±364.2 ng/ml; 30 KTx patients (54.5%) had normal ferritin level, but 22 patients (40.0%) had high level, their graft function was not significantly different. Patients with normal ferritin level vs patients with high ferritin level had statistically significantly higher transferrin (2.7±1.3 vs 2.1±0.3 g/l, p<0.05), TIBC (316.1±44.7 vs 269.9±41.4 ug/dl, p<0.05), UIBC (230.3±44.4 vs 164.8±42.1 ug/dl, p<0.05), HGB (14.3±1.5 vs 13.2±1.9 g/dL, p<0.05), haematocrit (42.5±4.3 vs 39.9±4.9 %, p<0.05), RBC (4.9±0.48 vs 4.5±0.6 T/L, p<0.05) and mean cell hemoglobin concentration (33.8±0.9 vs 33.0±1.1 g/dL, p<0.05) and lower Fe level 85.1±28.7 vs 103.5±31.0 ug/dl, (p<0.05), TSAT



$27.3 \pm 8.8$  vs  $39.3 \pm 12.1\%$ , ( $p < 0.05$ ) and MCV  $87.0 \pm 4.5$  vs  $90.1 \pm 4.3$  fL, ( $p < 0.05$ ). There was a positive correlation between HGB and eGFR ( $R = 0.72$ ,  $p < 0.001$ ) and between eGFR and RBC count ( $R = 0.60$ ,  $p < 0.001$ ). Mean CRP level was  $2.7 \pm 3.4$  mg/L. There was no statistically significant correlation between serum ferritin and CRP levels.

Patients with anemia (25,5%) had worse graft function  $37.1 \pm 14.5$  ml/min/1,73 m<sup>2</sup> than patients with polycythaemia  $54.8 \pm 17.0$  ml/min/1,73 m<sup>2</sup> 10.9 %:  $n=6$ ,  $p < 0,05$ ) or normal RBC  $59.7 \pm 19.1$  ml/min/1,73 m<sup>2</sup> (63,6%:  $n=35$ ,  $p < 0,05$ ).

**Conclusion:** Iron deficiency occurs rarely in KTx patients. Almost half of KTx patients have increased serum ferritin despite absence of iron deficiency, inflammation and good graft function. It seems that graft function is a factor that determines iron status of KTx patients.



## A case report of a patient with sulfasalazine-induced bone marrow suppression in the course of inflammatory bowel disease (IBD) treatment.

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**Introduction:** 5-aminosalicylates are first-choice drugs used in exacerbations of non-specific inflammatory bowel disease (IBD). This group of drugs includes sulfasalazine, widely considered as effective and safe element of therapy. Majority of adverse effects caused by this drug are limited to headache, fever and anorexia. Occasionally it can also cause bone marrow suppression with leukopenia and granulocytopenia being the most common. More severe complications like agranulocytosis that occurred in this case usually are uncommon and have considerably negative impact on the course of disease.

**Aim:** The aim of the study was to report the case of patient with severe adverse effects induced by treatment of non-specific inflammatory bowel disease with orally administered sulfasalazine.

**Materials and Methods:** The case report was based on the patient's medical documentation including imaging and endoscopic examination results, laboratory test results and surgical protocols.

**Results:** The 33-year old patient, diagnosed with ulcerative colitis eight years ago which has been recently changed to Crohn's disease (CD) due to characteristic endoscopic appearance of the mucosal lesions, was presented at the local hospital with the symptoms of exacerbation manifested by abdominal pain, chronic fever, diarrheas, weight loss and general fatigue. In his past medical history, the use of pharmacy prepared suppositories containing sulfasalazine lead to hepatopathy manifested by transaminases and bilirubin elevation. Current CD exacerbation was treated with oral sulfasalazine for about two weeks that partially alleviated symptoms of disease but the patient became febrile. During hospitalization low leukocytes and granulocytes levels were observed. Wide-spectrum antibiotics and steroids were administered. Due to further worsening of his clinical state the decision was made to transfer him to the Department of Gastroenterology. There the initial diagnosis of sulfasalazine-induced bone marrow suppression was made. Sulfasalazine



discontinuation proved ineffective and chronic fever up to 41 degrees was still present. Blood culture test revealed presence of *E. coli*. The severe leukopenia with extremely low granulocytes level and anemia was observed. The patient state was aggravated when Herpes simplex infection occurred. He was then transferred to the Department of Hematology where targeted antibiotic therapy and administration of high doses intravenous steroids were continued with the satisfactory effect leading to leukocytes and granulocytes level increase. The diagnosis of drug-induced bone marrow suppression was confirmed. The patient became afebrile and the repeated blood cultures test was being negative. The patient continued the treatment at the Department of Gastroenterology where maintaining symptoms of CD exacerbation were observed and fever recurred. The patient's condition required urgent surgery and the colectomy with end ileostomy was performed. After the operation his state was quickly improved and he was soon discharged home in good condition.

**Conclusion:** The case report shows that sulfasalazine-induced bone marrow suppression can develop gradually and its symptoms at the beginning may not be characteristic. Taking into consideration rareness of this adverse event, the diagnosis can be unobvious due to the symptoms of underlying disease. The treatment of this severe and potentially lethal complication is difficult especially in a patient with the severe IBD flare.



## An uncommon phenotype of Crohn's disease in 30-year-old woman, after a liver transplantation due to primary sclerosing cholangitis.

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**Introduction:** Primary sclerosing cholangitis (PSC) is a progressive cholestatic liver disease of unknown cause, but strongly associated with inflammatory bowel disease (IBD). It seems that PSC is hepatobiliary complications of IBD, particularly in patients with ulcerative colitis (UC). Approximately 5% of patients with UC develop PSC and that UC is present in up to 90% of patients with PSC and 20% of PSC patients with concomitant IBD have Crohn's disease (CD). IBD in PSC represents a distinct phenotype that differs from UC and CD. Liver transplantation (LT) is the only potential curative therapy for PSC, although there is a risk for PSC recurrence, worsening of IBD activity, and de-novo IBD occurrence after LT.

**Case report:** A 30-year-old Caucasian woman after liver transplantation due to PSC in October 2015, with diagnosis of concomitant UC in her medical history, admitted in February 2016 to the Department of Hepatology with fever, abdominal discomfort, joints and muscles pain and ulcerations in oral cavity, poorly responded to local treatment. There are no clear data regarding the diagnosis of UC except of history of chronic diarrhea. Lab test at admission showed lymphocytosis and increased parameter of inflammation. The immunosuppressive therapy was within eligible ranges. Microbiological cultures of ulcerations were negative for bacteria and fungi, MRI enterography and colonoscopy revealed stenosis in duodenum, cicatrices and ulcerations in cecum and ascending colon. Systemic treatment against CD was effective, with withdrawal of general complaints and healing ulceration in mouth.

**Conclusion:** The prevalence of PSC with concomitant Crohn's disease is relatively rare. However, it should be taken into consideration with clinical symptoms from every part of digestive tract including oral cavity, despite the relevant predominance of UC in PSC. IBD in PSC represents a distinct phenotype and undetermined colitis with more features of UC may ultimately convert into Crohn's disease.



## Anti-tumor necrosis factor alpha biosimilars – a new treatment option in inflammatory bowel diseases

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**Introduction:** Infliximab (IFX), an anti-tumor necrosis factor (TNF) antibody is an effective but costly drug for Crohn's disease (CD). Reimbursement of anti-TNF treatment in Poland is restricted to severe inflammatory or fistulizing disease when conventional treatment fails. Biosimilars have decreased costs. However, there are limited data on their efficacy in CD.

**Aim:** The aim of the study was to investigate the association between the type of treatment and its effectiveness. A thorough analysis of both groups was performed including: age, duration of the disease, previous use of biologics, indications to this type of therapy and C-reactive protein (CRP) levels at 0, 2, 6 and 14 week.

**Materials and Methods:** To evaluate the effectiveness of the originator and the biosimilars, consecutive adult CD patients starting anti-TNFs in 14 centers were included. Demographic characteristics, indications to treatment, concomitant medication and 0, 2, 6 and 14 weeks CDAI and CRP levels were compared.

**Results:** A total of 74 CD patients were analyzed. 58(78%) received the originator and 16(22%) the biosimilars. Luminal CD was indication to treatment in 55(74%) patients and fistulizing disease in 19(26%). The patients receiving the originator were older ( $34.98 \pm 11.26$  vs.  $28.87 \pm 9.53$ ;  $p=0.037$ ). The percentage of responders at week 14 (CDAI decrease  $>100$ ) was 62.1% (36/58) in the originator group vs. 81.3% (13/16) in the biosimilars group ( $p=0.151$ ) and the percentage of patients in clinical remission (CDAI  $<150$ ) was 43.1% (25/58) and 43.8% (7/16), respectively ( $p=0.963$ ). Mean CDAIs at weeks 0, 2, 6 and 14 were  $341.9 \pm 96.4$ ,  $212.9 \pm 87.7$ ,  $178.8 \pm 93.8$ , and  $142.8 \pm 107.7$ , respectively in the originator group and  $334.2 \pm 65.3$ ,  $186.1 \pm 65.2$ ,  $73.3 \pm 14.8$ , and  $151.8 \pm 96.4$  in the biosimilars group. The only significant difference between the two, in favor of the biosimilars, was observed at week 2 ( $p=0.011$ ).



**Conclusion:** In a Polish cohort of adult CD patients receiving originator or the biosimilars, the response and remission rates in the two groups were similar during the first 14 weeks of treatment. However, patients receiving biosimilars presented sooner response to the therapy. This fact might be associated with different molecular structure of the medication and their distinct immunogenicity. The results suggest that the use of biosimilars can be more favourable, but it should be considered that the groups differ in number and age.





## Hodgkin lymphoma in Crohn's disease patient treated with immunosuppressive and anti-TNF $\alpha$ biological agents

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**Introduction:** Crohn's disease (CD) is classified as inflammatory bowel disease (IBD), however the exact pathogenesis remains unknown. Development of molecular biology, genetic engineering and immunology may improve IBD management. Nowadays, there are widely used new generation drugs, including biological agents. New therapies are can be related with development of non-specific side effects, among them also potentially lethal lymphoproliferative diseases. Rarely, malignant lymphoma can develop.

**Aim:** Present case was reported on the basis of the patient's medical documentation including physical examination, laboratory tests, imaging examination and surgical protocols.

**Case report:** 38-years old patient with 3-year history of IBD was admitted to the Department of Gastroenterology due to severe exacerbation of disease. During hospitalization diagnosis of CD was confirmed. Patient was qualified for biological therapy with infliximab (IFX) – a monoclonal antibody against tumor necrosis factor alfa (anti-TNF $\alpha$ ). No improvement after the first infusion of IFX was observed so abdominal CT was performed and the patient was qualified for surgical treatment at the Department of General and Colorectal Surgery. He still presented the symptoms of severe exacerbation of CD such as abdominal pain, fever and general worsening of his clinical condition. During an operation a large, inoperative tumour of lower pelvis has been detected involving sigmoid colon and rectum. An ileostomy 50 cm from ileocaecal valve has been emerged. Post-operative histopathological examination of tumor biopsy showed inflammatory infiltration without lymphatic cells proliferation. Postoperative period underwent with no complications. A month later, the patient presented to hospital due to the swelling of the lower extremities and oliguria so he was admitted to the Department of Urology, where right side nephrostomy was performed. The CT scan of the abdomen revealed the progression of inflammatory infiltrates including left middle and lower quadrants of the abdominal cavity. The patient was re-admitted to the Department of



General and Colorectal Surgery where diagnostic biopsy of lymph nodes in the right groin was performed due to suspicion of malignant disease. General condition gradually deteriorated, there were signs of cardio-respiratory and renal failure. After two weeks, the patient in a very bad state was transferred to the intensive care unit, where he shortly died. Post-mortem examination showed the presence of tumour infiltrating the structure of abdominal cavity and lymph nodes, which was Hodgkin lymphoma.

**Conclusion:** Biological therapy is one of the most important step in pharmacological management of IBD patients. However, it may lead to serious side effect, including lymphoproliferative diseases. This treatment needs to be conducted carefully especially in a case of young men and patients infected with EBV due to the increased risk of such complications.



## Effect of exercise on albuminuria in patients with glomerulonephritis

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**Introduction:** Albuminuria is a well-established marker of disease activity and prognosis in various glomerulopathies. Many studies have shown that the exercise increases the excretion of protein to the urine.

**Aim:** The assessment of albuminuria response to moderate-intensity exercise in patients with biopsy proven glomerulonephritis during clinical remission and in healthy subjects.

**Materials and Methods:** 10 adult patients with glomerulonephritis were recruited from the outpatient clinic (GN group). Urine sample for albumin/creatinine ratio (ACR) was collected before and after a single 30-min moderate-intensity exercise session (max 6 MET). Additionally the measurements of blood pressure (SBP-systolic blood pressure, DBP-diastolic blood pressure) and blood glucose level were performed. 10 healthy volunteers served as controls (CG).

**Results:** The mean age of GN patients (4F; 6M) was  $32.6 \pm 9.0$  years compared to  $25.8 \pm 3.1$  years in CG (7F, 3M). Mean BMI of GN patients was similar to CG ( $24.7 \pm 2.6$  vs  $23.4 \pm 3.0$  kg/m<sup>2</sup>, respectively;  $p > 0.05$ ). Mean eGFR of GN patients was  $68.5 \pm 3.6$  compared to  $94.8 \pm 2.3$  ml/min/1.73m<sup>2</sup> in controls;  $p < 0.05$ . ACR before the exercise was in normal range and significantly lower in healthy patients ( $3.9 \pm 3.4$  mg/g) than in GN group ( $435.5 \pm 288.3$  mg/g;  $p < 0.05$ ). ACR increased significantly in GN during exercise ( $1238.2 \pm 1218.4$  vs  $435.5 \pm 298.3$  mg/g, respectively;  $p < 0.05$ ) in contrast to healthy subjects ( $3.9 \pm 3.4$  vs  $5.3 \pm 6.6$  mg/g, respectively;  $p > 0.05$ ). BP before physical activity in GN was: SBP  $126.1 \pm 20.7$  mmHg, DBP  $86.6 \pm 8.0$  mmHg and in CG: SBP  $124.5 \pm 7.9$  mmHg, DBP  $80.6 \pm 9.1$  ( $p > 0.05$ ). After the exercise SBP was  $132.3 \pm 16.8$  mmHg, DBP  $84.8 \pm 16.8$  mmHg in GN group and SBP  $119.5 \pm 10.4$  mmHg, DBP  $74.9 \pm 11.7$  mmHg and HR  $86.5 \pm 11.7$  in CG. These changes were similar in both group ( $p > 0.05$ ). Mean blood glucose level was  $91.6 \pm 1.1$  mg/dL before and  $100.3 \pm 6.0$  mg/dL after the exercise in the first group ( $p < 0.05$ ) and  $96.6 \pm 17.1$  mg/dL and  $98.25 \pm 35.8$  mg/dL,



respectively in CG ( $p < 0.05$ ). There was no significant difference in blood glucose between GN and CG.

**Conclusion:** Physical activity significantly increases urinary protein excretion in patients with primary glomerulonephritis even in the remission of the disease.



# ONCOLOGY AND HEMATOLOGY

1. Utility of VEGF, MMP-9, and TIMP-2 in the diagnosis of patients with early stages of breast cancer.
2. The impact of harvested lymph nodes and lymph node ratio on correct staging of patients with stage II and stage III colorectal cancer.
3. Role of ultraviolet radiation in dysregulation sonic hedgehog signalling pathway in basal cell carcinomas.
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13. Epidemiology of cervical cancer in Lower Silesia in the years 2005-2013.
- 14.** Long-term cardiotoxic effect of anticancer therapy in patient treated for solid tumors in childhood.



## Utility of VEGF, MMP-9, and TIMP-2 in the diagnosis of patients with early stages of breast cancer.

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**Introduction:** Breast cancer is the most common malignancy in women and the second leading cause of their death in the world. It is associated with the fact that the available tumor markers show low sensitivity, and thus, the cancer is undetected in early stages. Considering the increasing number of cases, early diagnosis is vital, especially in the initial stages of the tumor. The substantial progress in this field has been made by screening methods that include ultrasound, computed tomography, or magnetic resonance imaging. However, in the case of small lesions, these methods are not very effective. That is why the search for new diagnostic methods that could be helpful in early cancer detection is needed.

**Aim:** The aim of this study was to evaluate the diagnostic usefulness of VEGF, MMP-9 and TIMP-2 in early stages of breast cancer.

**Materials and Methods:** The study group consisted of 60 women diagnosed breast cancer (I or II stage). The control group consisted of 30 healthy women and 30 women with benign breast tumor. The tested parameters were determined in plasma by enzyme-linked immunosorbent assay (ELISA) and the comparative marker (CA 15-3) by chemiluminescence (CMIA). Diagnostic utility has been determined based on parameters such as diagnostic sensitivity, specificity, and predictive value of positive and negative result.

**Results:** On the basis of obtained results, it was found that TIMP-2 showed a higher sensitivity (59%), specificity (96%) and predictive value of a positive (85%) and negative (84%) test result compared with VEGF (51%, 95%, 82%, 80%, respectively), MMP-9 (27%, 95%, 73%, 72%, respectively) and CA 15-3 (31%, 95%, 76%, 74%, respectively) in I stage of breast cancer. In II stage TIMP-2 has also received the highest results (66%, 95%, 86%, 85%, respectively) as compared to VEGF and CA 15-3 (56%, 94%, 84%, 82%, respectively - equal for both parameters) and MMP-9 (37%, 95%, 78%, 77%, respectively). The combined analysis of all tested parameters resulted in increase in diagnostic sensitivity and predictive value of a negative test result in both degrees.



**Conclusion:** These results suggest the usefulness of all tested parameters in the diagnosis of breast cancer, which may be a valuable clinical trial in the form of a diagnostic panel used in the early diagnosis of breast cancer.



## The impact of harvested lymph nodes and lymph node ratio on correct staging of patients with stage II and stage III colorectal cancer.

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**Introduction:** In diagnostics of colorectal cancer the most important issue is to determine the ratio of number of lymph nodes with metastases to number of examined lymph nodes during histopathological examination. The smaller the number of lymph nodes with metastases, the lower the likelihood of new metastases of colorectal cancer among patients, which is crucial to estimate the level of advance of colorectal cancer in TNM staging system. Parameter N estimates the degree of spread to regional lymph nodes. In terms of our work, parameter N is the most vital. The degree of N indicates the appropriate and recommended method of treatment - the surgical treatment or chemotherapy.

**Aim:** The purpose of this study was to compare the amount of examined lymph nodes and lymph node ratio in patients with colorectal cancer stage II and III now and decade earlier. Lymph nodes ratio is the proportion of number of lymph nodes with metastases to number of examined lymph nodes. All lymph nodes were examined during histopathological examination.

**Materials and Methods:** 914 patients were enrolled into the study. The first group of patients was operated between March 2004 and November 2006. The second group of patients was operated between February 2012 and December 2013. All patients were operated in Department of General and Colorectal Surgery. Medical history (age, sex, localization of tumor), pathological report (TNM staging system, lymph nodes ratio, stage of colorectal cancer) and oncological treatment were retrospectively analysed and compared between the groups.

**Results:** The majority of patients suffered from rectal cancer (51,2%). The minority was affected by the cancer of the left half (29%) and the right half (19,8%) of colon. The number of harvested lymph nodes differed statistically between groups significantly





( $p < 0.05$ ). The average for the first group was 7 lymph nodes and for the second group – 10. The difference was specifically seen in each part of colon such as right half (9 to 13) and left half (7 to 11) of colon and in rectum (6 to 9). Ratios of lymph nodes did not differ statistically between groups and stages. However, ratio of stage III/II was higher in group of the patients operated more recently (2,06). Overall number of recurrences in stage II do not differ statistically, but reach statistical significance in cases of rectal cancer ( $p = 0,032$ ).

**Conclusion:** Based on our studies, the results show unequivocally that in years 2012-2013 the accuracy of qualification the patients to each stage improved. It was caused by the raise of examined lymph nodes by the doctors in comparison to years 2004-2006. The higher numbers of harvested lymph nodes enables more correct staging of colorectal cancer. This is especially observed in cases of rectal cancer, where accurate group of patients may receive adjuvant treatment.



## Role of ultraviolet radiation in dysregulation sonic hedgehog signalling pathway in basal cell carcinomas.

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**Introduction:** Ultraviolet radiation (UVR) is the most important risk factor in basal cell carcinomas (BCC) development, due to its immunosuppressive and DNA-damaging properties. According to recent research, also genes can be affected by UVR including genes of sonic hedgehog (SHH) pathway.

**Aim:** To evaluate differences in expression of SHH pathway proteins (Shh, Ptch1, Ptch2 and Smo) in healthy controls, patients with BCC and patients exposed to different doses of UV radiation.

**Materials and Methods:** To evaluate skin expression of Shh, Ptch1, Ptch2 and Smo protein 39 healthy individuals and 42 patients with nodular BCC were recruited into the study. Patients were divided into 6 groups (A- F), depending on received UVB dosis and BCC status. Group A consisted of patients with developed BCC. Group B served as controls. Group C and D received local UVB dosis of consecutively 3MED and 4MED on the buttock skin fragment. Group E and F were irradiated on the whole body with suberythemal 0.7 MED for 10 consecutive days, in addition group E also received 3MED on the 10 x 10 cm buttock skin fragment. Skin biopsies were taken 24 hours after UVB exposure. Expression of SHH pathway proteins was evaluated using western blot method. Additionally, the investigation was expanded using cDNA microarrays in patients with BCC.

**Results:** In all skin specimens an expression of SHH pathway proteins was detected. Comparing patients with BCC to controls there was significantly higher expression of Shh ( $3,4 \times 10^5$  IDV vs.  $3,2 \times 10^5$  IDV), Ptch1 ( $2,5 \times 10^5$  IDV vs  $2,0 \times 10^5$  IDV), Ptch2 ( $4,2 \times 10^5$  IDV vs  $1,5 \times 10^5$  IDV) and Smo ( $2,9 \times 10^5$  IDV vs  $1,5 \times 10^5$  IDV) proteins. In UV- exposed groups (C- F) highest expression of Shh protein was observed in group E (median  $3,6 \times 10^5$  IDV) and lowest expression was noted in group B and F (medians  $3,2 \times 10^5$  IDV and  $3,1 \times 10^5$  IDV respectively; highest expression of Ptch1 protein was observed in group F and lowest expression was noted in group C.



**Conclusion:** Higher expression of SHH pathway proteins in patients with BCC in comparison to the control group suggests their significant role in carcinogenesis. Lowered Smo expression after 3MED radiation dosis with chronic exposition to suberythemal UVB doses shows development of photoadaptation.



## Perifollicular rectangular structures in trichoscopy – characteristic image for multiple myeloma – paraneoplastic syndrome case report.

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**Introduction:** Abnormal monoclonal paraprotein can be excreted by follicles in the course of multiple myeloma. In the case of excessive concentrations, it can be clinically noted as hyperkeratotic perifollicular spicules, especially on the skin of nose, neck and extremities.

Trichoscopy is non-invasive examination of hair and scalp, which is currently a gold standard in diagnosing alopecia and inflammatory changes on scalp.

**Case report:** 62-years-old patient with multiple myeloma (from IgG kappa chains) presented to Dermatology Clinic with scalp pruritus. She was diagnosed with multiple myeloma 6 months earlier and was treated haematologically according to therapeutic regimen with melphalan, dexamethasone and thalidomide. Trichoscopy showed perifollicular casts in form of rectangular, transparent white structures. In differential diagnosis follicular lichen planus was considered which typically presents with strong pruritus and burning of the scalp along with cicatricial alopecia. Trichoscopic characteristics of follicular lichen planus are perifollicular scales entangling hair shafts localized around areas of cicatricial alopecia. Finally, our patient's pruritus and perifollicular casts seen during trichoscopy were the effect of excreted paraproteins from hair follicles and it was associated with disease progression (which was confirmed by haematologist).

**Conclusion:** Pseudohyperkeratotic perifollicular changes are rare, but highly specific presentation of multiple myeloma. Clinically they are seen on scalp when high amounts of paraproteins are excreted by hair follicles. Trichoscopy enables to observe this abnormality before clinical symptoms. More studies need to be done in order to establish whether there is a correlation of trichoscopy images with type of monoclonal protein chain and its concentration.



## The results of hematopoietic cell transplantation in children.

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**Introduction:** In 2015 in Poland about 600 patients underwent allogenic hematopoietic cell transplantation, 870 – autogenic. There are 3 types of such procedures: bone marrow transplantation, peripheral blood stem cell transplantation and cord blood units. The most common indications for the transplantation among children are different types of leukemia or neuroblastoma.

**Aim:** Analysis of blood count, mortalities after hematopoietic cell transplantation. Identify prevalence of blood type changes. Analysis of the indications for the intervention.

**Materials and Methods:** Retrospective analysis of patients of University Hospital nr 4 in Łódź, who underwent hematopoietic cell transplantation in 1993-2016. We were used a complete blood count before the transplantation, hospital discharge papers, medical history. We check the child's sex, age at the moment of transplantation and deaths.

**Results:** During period covered by this study - 1993 to 2016, 118 patients of University Hospital nr 4 in Łódź underwent 125 hematopoietic stem cell transplantation procedures (5 patients required two transplants, 1 three). Among them: allogenic - 63,7%, autologous 33,9%, syngenic - 2,4%. Main indications were acute lymphoblastic leukemia (ALL) - 31,2%, acute myeloid leukemia (AML) - 19,2%, neuroblastoma (NBL) - 11,2%, chronic myeloid leukemia (CML) - 6,4%, severe aplastic anemia (SAA) - 5,6%, with ALL being the most common indication for allogenic and NBL for autologous transplants - 36,1% and 26,2% respectively. Significant decrease in mortality during following years of performed transplantations has been observed.

**Conclusion:** Allogenic transplantation as the most common hematopoietic cell transplantation in our study group. ALL is the most common indication to the transplantation. Declining mortality after the intervention has been observed.



## Proctitis as a side effect of prostate cancer radiation therapy: a case report.

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**Introduction:** External beam radiation therapy plays an important role in radical treatment of prostate cancer. The evolution of radiation therapy techniques allows for more accurate and safer dose delivery. Despite that, genitourinary and gastrointestinal side effects of this treatment modality can be a clinical challenge.

**Aim:** The aim of this study was to present a patient with an unusual case of proctitis after radiotherapy.

**Materials and Methods:** A case of 69-year old patient with prolonged proctitis after external beam radiation therapy for prostate cancer is described.

**Results:** Even though the symptoms presented by the patient were mild and not life-threatening they were prolonged and affected his quality of life. The symptoms started on the second week of the treatment and consisted of abdominal pains, blood and mucus in stool and lasted for about two years after treatment. Colonoscopy performed after completion of the treatment confirmed changes characteristic for post-radiation proctitis. Retrospective analysis of dose-volume histograms showed that the doses of radiation received by colon and rectum were not higher than allowed limits. Patient underwent treatments such as steroid enemas, mesalazine suppositories and hyperbaric oxygen therapy.

**Conclusion:** Normal tissue tolerances in radiation therapy were established empirically and do not account for individual patient tolerance. Patients after radiation therapy should be observed for late side effects of the treatment and when it occurs, they should receive multidisciplinary treatment.



## The relationship between the amount of blood transfusions and serum ferritin concentration in patients with oncological and hematological disorders.

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**Introduction:** Adjuvant therapy, including blood products and blood components, is an important part of treatment in oncology. It supports the treatment of underlying disease and often saves patient's life. However, it also has a wide range of side effects, such as iron overload, which can be implicitly measured by serum ferritin concentration.

**Aim:** The aim of the study was to evaluate the number of blood transfusions and iron overload in pediatric patients with oncological and hematological disorders.

**Materials and Methods:** The study group consisted of 315 children who received blood transfusions during their hospitalisation in the Department of Paediatric Oncology and Hematology, Medical University of Białystok. The data were obtained from patients' transfusion books and medical documentation, starting in January 2010. After excluding patients who were given only one transfusion, results from 190 participants (male: 106 female: 84) between 8 months - 25 years of age (mean age 10.57) treated from leukaemias (n= 88), lymphomas (n= 16), solid tumors (n= 43) and hematopoiesis dysfunctions: anemia, MDS (n= 43) were analysed. The population was divided into 3 groups according to the age: 0-5 years old (y.o.), 5-10 y.o., >10 y.o. Serum ferritin concentration (ng/ml) were measured by immunometric method in every patient at the beginning, in course of treatment and, in some participants, after termination of therapy.

**Results:** The study showed significantly increased serum ferritin concentration in patients after multiple blood transfusions. The mean quantity of transfusions and total volume of received blood was comparable, irrespective of diagnosis, however the highest in the group of age >10 y.o. The highest number of blood transfusions (n=78)



and the highest total amount of blood (23400 ml) was given to the patient treated from acute myeloid leukemia. The highest level of transfused blood (ml/kg) was given to the patient treated for rhabdomyosarcoma (466,7ml/kg).

**Conclusion:** The research allows to identify the group of patients with the highest number of blood transfusions and serum ferritin concentration, who require chelation therapy. The study revealed that the amount of blood transfusions correlates with the increased serum ferritin concentration. According to the results, appropriate attention should be paid to protect young patients from side effects of adjuvant therapy from the beginning of their antineoplastic treatment.





## Common profiles of Notch signalling differentiate DFS in luminal type A and triple negative breast cancer.

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**Introduction:** Breast cancer (BC) is the most common tumor causing mortality among women worldwide. BC is characterised by high heterogeneity regarding its biology and clinical characteristics. Molecular classification of BC based on microarray studies distinguishes few subtypes with, among others, luminal type A (lumA) and triple negative (TN) breast tumors. While lumA is the least invasive breast tumor, TN BC is the most aggressive with low survival and high recurrence rates.

Notch signalling pathway regulates many important cellular processes such as stem cell function and organ modelling, including epithelial-to-mesenchymal transition (EMT). Therefore, aberrant Notch signalling may be associated with BC development and progression.

**Aim:** We aimed to assess whether differential expression of different Notch members has a contrary effect on disease-free survival (DFS) in lumA and TN BC.

**Materials and Methods:** We examined TCGA data (RNAseqV2 RSEM normalized) for 481 patients of lumA and TN BC regarding differential expression of 19 Notch members and their effect on tumor recurrence. DFS analysis was performed using Cutoff Finder (log-rank test,  $p < 0.05$ ). Biological significance was provided with Gene Set Enrichment Analysis (GSEA) in terms of canonical pathways, transcription factor binding motifs and GO terms (tTest,  $FDR < 0.25$ ). Analysis of common expression profiles according to Notch member signalling was performed using ExpressCluster (K-means, Euclidean distance metric, mean centered).

**Results:** Analysis of Notch members showed that their expression have contrary effects on DFS in lumA and TN subtypes. Specifically, overexpression of HES1, LFNG and PSEN1 correlated with good prognosis in lumA whereas their lowered expression was associated with DFS in TN.

GSEA analysis resulted in distinct associations of differential Notch signalling with cell cycle, tissue architecture and modelling. In particular, targets of important cell cycle progression regulator-E2F were upregulated in lumA HES1 and PSEN1 bad prognosis



group and favourable prognosis in TN. Furthermore enrichment of E2F targets was found in NOTCH1 and NOTCH3 bad prognosis in both lumA and TN breast tumors. Analysis of common expression profiles showed clusters of unique and common, transcriptionally activated by Notch genes which are favourable and unfavourable for HES1, PSEN1 and LFNG phenotype in lumA and TN BC.

**Conclusion:** Our results suggest that differential expression associated with aberrant Notch signalling affects tissue architecture and remodelling enabling EMT in breast tumor progression. Moreover, distinct Notch signatures can be used to differentiate lumA from TN BC and split patients into groups of favourable/unfavourable prognosis of tumor recurrence.



## Cardiac infarction during chemotherapy for ovarian cancer in a patient with breast cancer in past medical history – a case study.

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**Introduction:** Although breast and ovarian cancer are the most common cancers among women, they rarely occur in the same person. The risk of this occurrence is increased in population with mutation of BRCA1/2 genes. Both cancer itself and chemotherapy may contribute to myocardial infarction.

We present a 51-year-old woman diagnosed with ovarian cancer who was admitted 1.02.2016 to the Chemotherapy Department due to the next scheduled course of a third-line topotecan chemotherapy. The patient had a history of radical right mastectomy because of breast cancer (January 2009) with pre- and postoperative systemic therapy. Ovarian cancer was diagnosed in September 2013 and as a primary treatment she had panhisterectomy, appendectomy, omentectomy with optimal cytoreduction. Previous systemic treatments included carboplatin and paclitaxel combination, and as a second-line - cisplatin and gemcitabine. During second-line treatment with cisplatin and gemcitabine, after the third course, the patient had a myocardial infarction (24.03.2015) of the inferior wall with ST segment elevation.

**Aim:** Myocardial infarction in a patient with ovarian cancer – a case study.

**Materials and Methods:** Analysis of patient's medical history and examination's results.

**Results:** No cardiac diseases before chemotherapy were reported by patient. Past medical history revealed that neoadjuvant therapy included anthracycline drug – doxorubicin. The ECG examination showed STEMI and immediate coronary angiography and aspiration thrombectomy was taken, resulting with thrombus removal. None significant arterial stenosis was found. Anticoagulant drugs (ASA, clopidogrelum) were prescribed. The patient was discharged from hospital and later continued systemic treatment of ovarian cancer.



**Conclusion:** Cardiac complications after chemotherapy are an important issue of modern oncology. An effective management of acute cardiac complications allows to continue anti-cancer treatment. Moreover, observation of late adverse effects of chemotherapy is needed. When cardiac toxicity is diagnosed patients should be treated accordingly.



## Metalloproteinases activity of serum of patients with chronic lymphocytic leukemia.

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**Introduction:** Metalloproteinases are a widely distributed group of enzymes in animals including human. The main, but not the only function of such proteases is to digest the extracellular matrix as well as regulating cell proliferation or apoptosis. Therefore, these enzymes are widely studied group of enzymes in the course of various diseases with an emphasis on cancer.

**Aim:** The main aim of study was estimate the difference in the amount of metalloproteinases digesting gelatin in the sera of individuals not suffering from cancer compared to those who were diagnosed with chronic lymphocytic leukemia. The second aim was to confirm that the specific activity derived from metalloproteinases.

**Materials and Methods:** The method used for determination of the activity of specific proteases was zymography. This is a simple semi-quantitative method to assess the activity of the lytic enzyme, depending on the substrate used. It involves the polymerization of polyacrylamide gel with gelatin. Then, applying the test samples and electrophoresis. In a next step takes place 24 hours incubation and staining of the gel. The activity is expressed as clear bands in the blue gel.

**Results:** A zymographic analysis revealed presence of additional gelatinolytic activity in patients group. The first of them are located in the region corresponding to a molecular weight of approximately 240kDa it can be proMMP-9 dimer. Another two active fractions of serum leukemic correspond to a molecular weight of about 110 and 130kDa may be proMMP-9 complex with lipokain. In the healthy population was only observed activity of a molecular weight of approximately 110kDa, which was more strongly expressed than in the serum of patients. The biggest difference between the two sera was clear at a height corresponding to a molecular weight of



about 92kDa, which is the source of proMMP-9. Despite significant proMMP 9 activity in the sera of patients with CLL were not found biologically active equivalent (MMP-9) having a molecular weight of 84kDa. The fractions which corresponded to different forms of MMP-2 (72, 64kDa) were present in the sera of tumor and control. The activity of all these fractions was inhibited by specific metalloproteinase inhibitors such as EDTA or phenanthroline.

**Conclusion:** In the serum of patients with chronic lymphocytic leukemia are significantly higher amounts of the various forms of metalloproteinase 9 than in patients in whom the tumor is not found. Metalloproteinase 9 could be a marker of severity of chronic lymphocytic leukemia as well as an indicator of prognosis for patients.



## Thyroid function and lipids profile after anticancer treatment in patients treated for solid tumors.

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**Introduction:** Epidemiological data revealed, that about 62% of childhood cancer survivors demonstrate at least one late-effect of anticancer treatment. Hypothyroidism and lipids disorders are common complications in survivors.

**Aim:** The aim of our study is to evaluate thyroid function and lipids profile in children after anticancer treatment.

**Materials and Methods:** Study group consisted of 44 patients (aged 3,25-16 years) with solid tumors, at least one year after anticancer treatment. The group was compared with a control group, which consisted of 31 healthy children. Following parameters were evaluated: TSH, FT4, FT3, cholesterol SDS, triglycerides SDS, LDL-C SDS, HDL-C SDS, weight SDS, height SDS, BMI SDS. Because of differences in age of the group, lipid parameters and anthropometric parameters were expressed in SDS values. Statistical distances ( $\tau$ -risk factors of dyslipidemia) for lipids parameters between study group and the control group were calculated.

**Results:** Following disturbances in anthropometric parameters in study group were found: overweight/obesity in 15(34.1%), underweight in 2(4.65%), short stature 4(9.09%). Hypothyroidism was observed in 5 (11.36%). Hyperthyroidism was diagnosed in 1 (2.27%) patient. Following abnormal lipid parameters were found: hypercholesterolemia in 20 (45.46%), elevated TG SDS in 11 (25%), elevated LDL-C SDS in 9 (20.45%), low HDL-C in 3 (6.82%) of cases. Children with cancer showed a higher risk of lipid disorders, sum of  $\tau=150.98$ . The risk was higher for cholesterol SDS, LDL-C SDS and TG SDS than children in the control group. Children with cancer had lower risk of reduced HDL-C SDS, compared to healthy children.

**Conclusion:** Children after anticancer treatment are exposed especially to disorders of lipid metabolism. They are at higher risk (positive statistical distances) of lipids disorders compared to healthy (without cancer) children. The role of these disorders



and their impact on health in adult life requires further study and long-term follow-up. Patients after anticancer treatments requires regular evaluation of lipids profile.





## Acquired haemophilia A in elderly patient: a case report.

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**Introduction:** Acquired haemophilia A is a severe autoimmune haemorrhagic diathesis. There are produced antibodies against the anti-hemophilic factor. This disorder occurs mainly in older people with similar frequency of men and women, unlike congenital hemophilia A. In 50% of cases, the disease is idiopathic, but there seems to be relationship between the acquired hemophilia A and the occurrence of autoimmune diseases, haematologic malignancies, solid tumors, pregnancy and puerperium, drugs.

**Case report:** We present a case of 86-year-old patient with a prolonged activated partial thromboplastin time, tendency to bruising occurring after intravenous's injection and generalized stiffness of the joints, with a negative family history of hemostasis disorders.

**Conclusion:** Beginning of diagnostics in the direction of acquired hemophilia A in older individuals with isolated, prolonged activated partial thromboplastin time and symptoms of hemorrhagic diathesis is necessary for early detection, rapid implementation of treatment and prevention of sudden, severe complications such as bleeding from the digestive tract's lining, intracranial haemorrhage or hematoma in abdominal cavity, which is often mistakenly diagnosed as tumor.



## Epidemiology of cervical cancer in Lower Silesia in the years 2005-2013.

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**Introduction:** Both in Poland and in the world, cervical cancer is a serious epidemiological and social problem. In terms of the incidence of cancer in 2012, cervical cancer was classified in Poland on 6th place, while in most European Union countries it was out of the top ten.

**Aim:** The aim of the study was to assess the situation in scope of screening, morbidity and mortality caused by cervical cancer in Lower Silesia in the years 2005-2013.

**Materials and Methods:** Data - 3003 cases of cervical cancer, were obtained from the Cancer Registry of Lower Silesia in Wrocław reported in the years 2005-2013. Incidence ratios were standardized to "standard population of the world" and calculate in Microsoft Office Excel 2007. The statistical analysis was performed using Minitab 16, based on ANOVA test.

**Results:** In years 2005-2013 2,328 cases of invasive cervical cancer and 675 preinvasive cancer were reported. In the analyzed period detected was a decline in the number of invasive cervical cancers at a rate of -7 cases per year and an increase in the incidence of preinvasive cancers with the trend of +6 per year. In that time, reported was about 250 new cases of invasive cancer and from 71 to 108 cases of noninvasive cancer per year. In the covered by screening group (25-59y.) recorded was a systematic increase in the percentage of preinvasive cancers from 8% in 2005 to 20% in the 2006-2007, and almost 40% in 2008-2011. In the years 2012 - 2013 it was 30% and 35%. In 2005-2009 the percentage of in situ cancers showed no upward trend of cases in women at "over screening" age (over 60 y.), they accounted for only 3- 4% of all cases. In 2010, it has increased to 5%, in 2011 to 11%, but in 2012, fell to 8% and in 2013 to 5%, which may be associated with exceeding 59 years of age and the transition from "screening" age group to "over screening" women, who in previous years participated in the screening. After the introduction of Population Programme for Prevention and Early Detection of Cervical Cancer (2006-2013) in patients at age "over screening" invasive cervical cancer was more frequent than in the group covered by screening test ( $P < 0.0001$ ). Regardless of the measures taken so far the best statistical prognosis of a patient within general population,



expressed 5-year survival is significantly below the European standard - 62% (EUROCARE-5). Chances of statistical patients in Lower Silesia in the years 2005-2006 amounted to 55.8%, but in 2007-2009 fell to 50,1-52,4%. Taking into account the European data for the observed 5-year survival in different stages of the disease, given in the 25 Annual Report FIGO - 82% survival for local stages, 42% for regional and 17% generalized, the expected 5-year survival for the Lower Silesia patients should be 67.5%, so it is more than 10% in comparison to our study.

**Conclusion:** The number of diagnosed cases of invasive cervical cancer has decreased and the number of in situ cancers has increased in Lower Silesia. In women covered by screening in situ cancers account for approx. 20-43%, in women over 60 years of age 3-11% of all cases ( $P < 0.0001$ ). Indicators of 5-year survival in the collected material are significantly different from those listed in the European Union and the expected indicators - resulting from the distribution of stage of the disease in the general population.



## Long-term cardiotoxic effect of anticancer therapy in patient treated for solid tumors in childhood.

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**Introduction:** Developing cardiovascular system of children and adolescents is particularly vulnerable to cardiotoxic effects of anticancer treatment. The following chemotherapeutic agents are associated with cardiotoxicity: anthracyclines, antimetabolites, cisplatin, alkylating agents (for ex. ifosamide). Mediastinal radiation (RTX) is also associated with long-term cardiovascular damage. Mediastinal RTX can cause coronary artery disease (CAD).

**Aim:** The aim of the study was the assessment of long-term effects of cardiotoxic therapy of solid tumors in childhood.

**Materials and Methods:** Study group consisted of 43 patients (31 boys), aged 4-25 years (mean  $13.13 \pm 6.28$  years), at least one year after anticancer therapy of solid tumors. All of the patients underwent cardiotoxic chemotherapy and/or mediastinal RTX. The patients were consulted by cardiologist. The consultation included following tests: heart echo scan, ECG monitoring, blood pressure measurements. The following laboratory parameters were assessed: cholesterol (mg/dl), LDL (mg/dl), TG (mg/dl), HDL (mg/dl). Based on the lipid parameters, following indicators of susceptibility to atherosclerosis were calculated: total cholesterol / HDL ratio, Castelli's Risk Index (total cholesterol - HDL / HDL), LDL / HDL ratio.

**Results:** Seven (16.28%) patients had cardiac abnormalities. The following abnormalities were found: heart arrhythmia (4 patients), left ventricular hypertrophy (2 patients), hypertension (1 patient), tricuspid insufficiency (1 patient). One patient had both hypertension and heart arrhythmia. Disturbances in lipids profile were observed in 22 (50%) patients. The following abnormalities in lipids profile were found: hypercholesterolemia in 16 (36.36%) patients, elevated LDL in 6 (14.29%), elevated TG in 4 (9.3%), decreased HDL in 6 (14.29%) patients. LDL/HDL ratios were elevated in 15 (35.71%) patients. Other indicators of susceptibility to atherosclerosis were abnormal: total cholesterol/HDL ratio in 5 (11.9%) patients, Castelli's Risk Index in 5 (11.9%) patients.



**Conclusion:** Patients after treatment require a complete evaluation of late effects of anticancer therapy. The health assessment and appropriate treatment significantly improves the quality of life of these patients. Especially those patients require regular assessment of lipids profile.



# ORTHOPEDICS

1. Sport Related Injuries among Members of AZS UMED.
2. The link between young age of career onset of professional athletes and pain in the medial tibial stress syndrome.
3. Shoulder physical examination: specific tests value in orthopaedic assessment of the shoulder.
4. Orthopaedic management of neurogenic paraosteoarthropathy in patient after head injury - case report.
5. Case report of patient with osteopetrosis - difficulties in orthopaedic management.
6. The evaluation of surgical treatment of supracondylar fracture of the humerus in children.
7. Awareness of osteoporosis among orthopedic patients.
8. The influence of ACE gene polymorphism on the response to extreme exercise.
9. The incidence of hypersensitivity to NSAIDs in the group of patients with musculoskeletal disorders.



## Sport Related Injuries among Members of AZS UMED.

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**Introduction:** SRIs are big problem of every sport discipline. They render players incapable of training which lowers their performance. Better knowledge about kinds of injuries in specific disciplines helps to develop better prevention and treatment for affected people.

**Aim:** Our study focuses on injuries among members of AZS UMED sport clubs. SRI is there as big problem as everywhere else. People affected by them often have to take break from trainings and taking part in competition. This is also a very specific group, because many of those people are above amateur level in their disciplines, but we cannot recognise them as professional sportsman and sportswoman. Being semi-professionals means they train harder than most of amateurs, but also do not give them access to facilities available to professionals. We also want to evaluate how being a medical subject student affects the way those people prevent and treat their injuries.

**Materials and Methods:** We gathered our data using fourteen questions survey, which we gave to members of the sports club. Questions included those about their sex, age, trained discipline(s) and whether they had or had not any injuries connected to their sport activity. If someone have happened to have suffered from SRIs they answered questions about details of it and its treatment.

**Results:** Study group consisted of comparable number of woman and man from age 21 to 28 and one men aged 38. About 75% do warm-up before the training. 33% of examined people have had a SRI at least once in their life. Probability of SRI was almost the same among woman and man. 82% of people who have suffered from SRI were training at least 7 times per month. Half of affected people did not contact doctor with their injuries and treated themselves basing on their own knowledge and experience.

**Conclusion:** SRIs are among members of AZS UMED are not a marginal problem. They affect mostly those who train the most, who are probably backbones of academic sport teams. It seems that that most importantly warm up should be optimised to prevent most common SRIs in specific disciplines.



## The link between young age of career onset of professional athletes and pain in the medial tibial stress syndrome.

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**Introduction:** Medial tibial stress syndrome (MTSS), commonly known as “shin splints,” is a frequent injury of the lower extremity and one of the most common causes of exertional leg pain in athletes. It is localized on inner 2/3 distal border of the tibia and it is developed by training overload and affects high rate of professional athletes.

**Aim:** The purpose of the study was to find the relationship between the age of the career onset and the severity of pain due to MTSS.

**Materials and Methods:** We have conducted a survey during Halowe Mistrzostwa Polski Seniorów Toruń 2016, 5-6.03.2016. One pollster has examined 100 professional athletes by use of a survey and additional questions about their previous sport career.

**Results:** In the survey participated 100 professional athletes, 41% female and 59% male. The youngest person is 17 and the oldest is 38 years of age. The average age of the population is about 23 years (23,12). The medial value is 22. This group was divided by sport discipline: sprint 50%, middle and long-distance 25%, and others 25%. 78% of women and 73 % of men reported episodes of MTSS. Most of the respondents have started their careers under the age of 16 (64%). There was no correlation between the occurrence of the pain and the age of career onset. There was no correlation between the pain severity and the type of sport discipline.

**Conclusion:** There is no statistically significant correlation between the age or the early onset of sport career and the presence or severity of MTSS.





## Shoulder physical examination: specific tests value in orthopaedic assessment of the shoulder.

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**Introduction:** There is about one hundred and thirty physical examination tests that can be used to assess shoulder pathology. However not all of them are equally valuable as far as clinical data is concerned. This paper confronts the clinicians preferences with the current clinical data.

**Materials and Methods:** A self-made questionnaire distributed among orthopaedic surgeons with a special interest in shoulder surgery asked, what types of physical test are being used by them to examine shoulder joint. In the questionnaire 65 most popular tests were chosen for analysis. The collected results were compared with meta-analysis that evaluated the diagnostic accuracy of each and every one of them. Zero stated that, the clinician do not recognize the test. 1-10 points scale represented how often does the clinician uses the test, if he knows it (1 states for not using it at all, 10 states for using it frequently).

**Results:** 65 tests from tests chosen for analysis 4 were not used or recognised by doctors. Many of them were excluded from the analysis because of the lack of proper clinical data supporting their value, or are rarely used by the clinicians. All of the questioned clinicians answered to use Neer Sign (10, 10, 10, 10, 9, 9 on the scale) or Hawking's Kennedy Test (5 clinicians marked 10 points and two of them 9 points) to evaluate subacromial impingement. 4 clinicians stated to frequently use anterior apprehension test (for stated 10, 6, 7 points) in order to diagnose anterior instability, 5 clinicians marked to use Jobe's relocation sign (10, 10, 10, 9, 9, 2) with the same purpose. In order to assess SLAP tears only one clinician marked to use compression-rotation test, and one clinician stated to perform this test from time to time (6 on the scale). Only 2 of the clinicians stated to use Biceps load test 2. Crank test is being used by 1 clinician (10 points). Anterior slide test is used by 2 clinicians (both of them marked 10). Painful arc sign is being used to evaluate problems with acromioclavicular joint by 5 clinicians (4 clinicians marked 10, one marked 9) and to assess rotator cuff (4 clinicians marked 10, two of them marked 9 and one claimed to not use it at all). 6 of 7 questioned use empty can test to evaluate subacromial impingement, however the frequency is different (each of 5,6,8,9 were marked by one clinician. 2 clinicians states to perform the test frequently – 10). Infraspinatus test



is being used by 6 clinicians (6,8 marked by one of the clinicians, for marked 10) to assess infraspinatus muscle tears. Belly press test is being used to diagnose subscapularis muscle tendon injuries by 5 clinicians on daily basics (for of clinicians marked 10, one marked 9). Two of clinicians use it rarely (2 and 4 on the scale). Bear hug test is being used by 4 clinicians (10, 10, 8 and 9 on the scale). Hornblower's sign is being used to asses massive rotator cuff injuries by 5 clinicians ( 10, 9, 9, 8, 3 on the scale).

When compared to results of meta-analysis it can be observed, that the clinicians are using tests, that are confirmed to have good clinical background. However, new test like biceps load test 2, which have positive background too, are being marginalized.

**Conclusion:** The data indicates that surgeons used well known tests and show restraint towards new, uncertain tests. It should be emphasised that insufficient data hinder to unequivocally state, what the best physical examinations for particular pathologies should be. It leads to conclusion that clinicians should put more emphasis on trying new tests, and more studies should be conducted, to help to increase the knowledge in this area.



## Orthopaedic management of neurogenic paraosteoarthropathy in patient after head injury - case report.

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**Introduction:** Paraosteoarthropathy is a rare condition in para and tetraplegic patients. In extreme cases it may result in total joint ankylosis. The disease is very disabling for the patients and moreover significantly reduces the possibility of ambulation. The etiology of the disease is still unknown. The management is complex and difficult. Radiological and pharmacological methods are often insufficient and the patient may require surgery.

**Aim:** Result analysis of orthopaedic surgical treatment of patient with neurogenic paraosteoarthropathy due to tetraplegia after diffused head injury. Presentation of complex pharmacological, radiological and surgical treatment with the results in our case.

**Materials and Methods:** Analysis of hospital medical documentation and radiological history from years 1997–2008.

**Results:** It has been noted that paraosteoarthropathy occurs in tetraplegic patients. Our case seems to confirm that statement. In order to complete ossification removal, the surgery was necessary. At the end good results of treatment have been achieved due to combination of pharmacological, radiological and surgical treatment.

**Conclusion:** Interdisciplinary treatment methods are obligatory in cases of paraosteoarthropathy. In advanced changes surgical treatment is a necessity. As the disease is a rare condition, it's difficult to analyze the level of radiological and pharmacological impact on patient's condition. The proper management allows to achieve satisfactory clinical outcomes.



## Case report of patient with osteopetrosis - difficulties in orthopaedic management.

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**Introduction:** Osteopetrosis is a rare inherited metabolic bone disorder characterized by impaired osteoclasts function. Higher density of bones and higher risk of fracture is observed in osteopetrosis. Patients are vulnerable to multiple fractures during their lifetime. Frequently they require complicated surgeries and complex rehabilitation. The disease is also characterized by visual and hearing impairment, hepatosplenomegaly and anemia.

**Aim:** Introduction of patient with osteopetrosis in terms of complex orthopaedics management problems. Presentation of multiple fracture management, results and complications of treatment in long time follow up.

**Materials and Methods:** Analysis of one patient's medical history (X – ray and other documentation) from years 2007 – 2015 treated in Infant Jesus Clinical Hospital, Warsaw. During these period of time patient was hospitalized 6 times in our clinic due to different pathologies and complications (fractures, arthritic changes in hip joints requiring arthroplasty). Multiple surgeries were performed.

**Results:** Patients with osteopetrosis are fraught with much higher risk of fractures in comparison with healthy population. In addition to that, the complications tend to occur more often, and have stronger impact on one's general condition.

**Conclusion:** Proper and complexed management of fractures in osteopetrotic patients could result in satisfactory treatment outcomes in clinical as well as radiological assessment. As osteopetrosis is very rare disease and no general guidelines exist, it's crucial to share one's experience in this case.



## The evaluation of surgical treatment of supracondylar fracture of the humerus in children.

**Author:** Marek Synder  
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**Introduction:** The elbow joint, next to the forearm is the most vulnerable area to injuries and trauma. Fractures of this area make up to 10% of all fractures in children and most of those are supracondylar fractures of the humerus categorized by the Gartland classification. This type of fracture occurs in age group of 3 to 10 with the peak age of 7. The prevalence in male is 2 times higher than female.

**Aim:** The aim of this study is to evaluate the results of surgical treatment of supracondylar treatment in children and assess the functional results after this type of surgery.

**Materials and Methods:** This retrospective study was performed on 30 children treated in the Orthopedics and Pediatric Orthopedics Medical University of Lodz in the year of 2015. The mean age of patients was 6,93 years (range from 3y2m to 11y 6m). The study group included 13 girls and 17 boys. Medical data was collected and evaluated via CGM Clininet in CKD.

**Results:** All children were operated at the day of injury, the next day or 2 days after the injury. The treatment included closed reposition and percutaneous pinning with 2 Kirschner wires. In 3 cases due to not adequate bone stabilization the use of the third K-wire was necessary. The removal of K-wire was at the 3<sup>rd</sup> or 4<sup>th</sup> week after surgery. The cast immobilization lasted from 3 to 5 weeks depending on the age of the child. All children had similar rehabilitation program after cast removal from 2 to 4 weeks. At the final follow-up at the mean time of 5 months after fracture the vast majority of children had a pain free full range of elbow joint motion. There were a few cases with complications. The x-ray showed bone healing in all fractures with the anatomical position.

**Conclusion:** The treatment of supracondylar fracture in children should be surgical. This type of treatment enables anatomical reduction of the fracture, shorten the treatment time and give excellent functional results.



## Awareness of osteoporosis among orthopedic patients.

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**Department:** Department of Medicine Faculty of Medicine

**Introduction:** The problem of osteoporosis is strongly associated with orthopedic patients. Osteoporosis with pathological fracture is a common cause of treatment on orthopedic wards. Public awareness of this disease is a significant factor in preventing the development of osteoporosis.

**Aim:** To explore osteoporosis knowledge and awareness among orthopedic patients and differences between men and women.

**Materials and Methods:** A questionnaire was used to survey a group of 176 patients admitted to the clinic of orthopedics and traumatology. The questionnaire included questions about prevention, symptoms, tests, risk factors and treatment of osteoporosis.

**Results:** Only 67.0% of patients indicate the relationship between osteoporosis and poor bone density with increased risk of fracture. Most patients indicate the role of calcium for bone building (96.7%), increased risk of subsequent fracture (83.0%) and the fact that osteoporosis affects both female and male (86.9%). The lowest number of patients indicate that RTG is not sufficient to diagnose osteoporosis (20.5%), that the osteoporosis affect patients with lower BMI (21.0%). Only 10.8% of patients can give trade name of drug used in case of osteoporosis. There is a significant difference between women and men awareness about osteoporosis. Women gave more correct answer to 15 of the 17 questions. Men obtained better result in only 2 questions.

**Conclusion:** Osteoporosis is significantly related to orthopedic treatment so it is important to develop knowledge about this disease among patients. Research doesn't confirm sufficient knowledge and it is necessary to support patients in the prevention of osteoporosis.



## The influence of ACE gene polymorphism on the response to extreme exercise.

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**Introduction:** It is known that hemodynamic response to physical effort depends on selected aspects of the exercise, but other factors, not related to exercise aspects may also be associated with the adaptation to physical activity. Genetic factors may also contribute to the substantial interindividual variation in physical activity level. High mountaineering is one of the most extreme sport, in which human performance is strongly affected by cardiorespiratory acclimatization to external stressors.

**Aim:** The study was designed to investigate the association between the insertion (I)/deletion (D) angiotensin converting enzyme (ACE) gene polymorphism and the adaptation to extreme exercise performed at altitude.

**Materials and Methods:** A study group consisted of 39 healthy volunteers aged 22-58 years, who participated in the alpine expedition ( $\geq 3000$  meters above sea level). Patients were divided into subgroups according to age: I -  $\leq 35$  years, II -  $> 35$  years. Among the whole study group, the top ten alpinists were selected as additional subgroup resistant to the effort – professionals, who in the past successfully crossed the height of 7000 meters above sea level. Buccal cell samples were used for genotyping. ACE gene polymorphism was determined by polymerase chain reaction (PCR) amplification followed by agarose gel electrophoresis. The level of adaptation to alpine environmental conditions was assessed on the basis of questionnaires. They included subjective and objective assessment of health status while mountaineering, accompanied by doctor. Another tool for the assessment was the Lake Louise scale for people who are at high altitudes. Statistical analysis was performed using Statistica version 10.

**Results:** The I/I genotype was present in 1 alpinist, I/D genotype was present in 23 alpinists and D/D was present in 15 alpinists. The genotype frequencies of ACE alleles were in Hardy-Weinberg equilibrium. There was no significant difference in the well-being of athletes before mountaineering between subgroups ( $p=0.66$ ). There was not statistically significant difference in the well-being of alpinists after mountaineering



between subgroups ( $p=0.86$ ). Also, the fact that the alpinist was an amateur or a professional had no effect on the differences in well-being of athletes before as well as after mountaineering. There was no significant differences in the well-being of athletes with various ACE genotypes, both before ( $p=0.22$ ) and after mountaineering ( $p=0.99$ ).

**Conclusion:** Our study did not indicate significant correlation between polymorphism I / D ACE gene and the adaptation to extreme exercise level. However, we hypothesized that greater exercise load may induce greater ACE activity regardless of genotype.





## The incidence of hypersensitivity to NSAIDs in the group of patients with musculoskeletal disorders.

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**Introduction:** Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most common cause of drug hypersensitivity reactions (DHR). Recent studies show that the incidence of hypersensitivity reactions to drugs is particularly prevalent in Poland. The question is whether the reason for this is not the fact that in Poland is among the countries with a very high consumption of NSAIDs. The group particularly susceptible to hypersensitivity reaction are patients.

**Aim:** The aim of this study was to assess the risk of developing NSAIDs hypersensitivity in patients with chronic disorders of musculoskeletal system.

**Materials and Methods:** The study group consisted of 37 patients (mean age 56 years, women-28, men-9) hospitalized in the Department of Rheumatology in 2015. All patients filled questionnaire regarding symptoms of DHR after ingestion of non-steroidal anti-inflammatory drugs. The presence of DHR, clinical pattern of the reaction, frequency of NSAIDs administration and comorbidities have been studied.

**Results:** Thirteen patients from study group (35%) reported symptoms that occurred within 24 hours after NSAIDs ingestion. Symptoms characteristic for hypersensitivity reaction were reported by 8 patients (22%). Respiratory symptoms like dyspnea and/or cough were reported by 5 patients (13%), none of this patients reported nasal symptoms. Cutaneous symptoms (urticaria/angioedema/dermal flush) were reported also by 5 patients (13%). Two subjects have concomitant bronchial and cutaneous symptoms. One patient experienced loss of consciousness. Twenty four patients did not report any adverse events after ingestion of NSAIDs. Four patients reported isolated stomach cramps.

The symptoms developed usually between 30-60 minutes after drug intake, in one patient hypersensitivity reaction appeared within 30 minutes and in one symptoms started between 60-120 minutes after drug administration. In 7 patients oral administration caused DHR reaction, moreover in 3 patients also topical application



led to adverse reaction. In 62% of patients reaction appeared due to COX-1 inhibitor and interestingly in 2 patients reaction was evoked by celecoxib which is perceived to be safe alternative for patients with NSAIDs hypersensitivity

**Conclusion:** Drug hypersensitivity reactions are reported very frequently in population of patients with chronic musculoskeletal disorders. Our studies suggest that patients taking protractedly NSAIDs are in group with high risk of drug hypersensitivity development



## PEDIATRICS

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2. From Lorenzo's Oil to stem cell therapy - spectrum of treatment for adrenoleukodystrophy in today's children neurology.
3. Ehlers-Danlos Syndrome, or child abuse - a case report.
4. Utility of the middle cerebral artery peak systolic velocity (MCA PSV) and the anterior cerebral artery peak systolic velocity (ACA PSV) in assessment of neonatal neurological status.
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13. Small or big, which is really beautiful ? - the influence of birth weight and gestational age on the clinical course of type 1 diabetes mellitus in children and adolescents.



## The influence of vitamin D serum levels on basic serum parameters and clinical state in neonates.

**Authors:** Wioletta Dziubak  
Karolina Karcz

**Tutors:** Dorota Paluszyńska PhD

**Institute:** Wrocław Medical University

**Introduction:** The influence of vitamin D serum levels on early stages of life is a still uncharted field and is ever more often attracting the attention of the medical community. The question arises whether the variance of basic serum parameters in neonates stems from vitamin D level fluctuations or whether it is only a statistical variability.

**Aim:** The aim of the study was to assess the influence of vitamin D serum levels on various serum parameters in neonates.

**Materials and Methods:** We have studied a group of 53 patients, 28 females and 25 males with median body mass of 2650 g. The patient's vitamin D levels were compared against their delivery status, basic vital parameters and basic serum parameters: hemoglobin, red blood count, white blood count, hematocrit, CRP, platelets, total bilirubin, glucose.

**Results:** More than 43% of children were born from the first pregnancy and 51% by first delivery. The majority had normal body length (81%), body mass (79%) and head circumference (86%). Over 83% were delivered by a Caesarian section and the most frequent cause for the section was a threat of birth asphyxia. An analysis has shown, in cases of the C-section delivery, a statistically significant correlation between lower levels of vitamin D and higher occurrence of gestational diabetes, treated with a diet, and between higher vitamin D levels and the tendency to birth asphyxia. The average level of vitamin D was 26 ng/ml with a median of 24,61 ng/ml. The minimum level of vitamin D was 7,49 ng/ml and the maximum 56,17 ng/ml. 56,6% of patients had an appropriate level of hemoglobin. 71,7% had normal levels of red blood count, 58,5% normal levels of hematocrit, 66% normal levels of white blood count, 90,6% had normal levels of CRP, and 60,4% had adequate levels of platelets. 75,47% had appropriate levels of glucose in serum, and 81,1% had normal levels of total bilirubin.

**Conclusion:** The vitamin D serum levels could be used in the future as a routine diagnostic tool especially in neonatology. There is a great need for additional studies to establish all useful diagnostic possibilities.



## From Lorenzo's Oil to stem cell therapy - spectrum of treatment for adrenoleukodystrophy in today's children neurology.

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**Introduction:** Stem cell - a cell with unlimited possibilities is one of the most perfect forms of creation. In today's world, where everything seemed to be defined and predestined, in 1981 it was possible to isolate stem cells of mice and less than five years later, Andrew Lassar and Harold Weintraub converted fibroblasts into myoblasts using the gene MyoD. These events have brought hope to reverse the course of history of individual cells that have lost their function and launched the era of regenerative medicine. The biggest challenge is the restoration of the most specialized cells of the human body - neurons, whose capabilities are not complete recovery after lesion. No wonder that stem cell therapy has become one of the treatment options in neurodegenerative diseases, including adrenoleukodystrophy. Adrenoleukodystrophy is a genetic disorder linked to the in the gene ABCD1 locus Xq28. The mutation causes the impairment of peroxisomal beta -oxidation of very long chain fatty acids (VLCFA) and its accumulation. In the central nervous system demyelinating changes are observed, which are probably the result of an autoimmune reaction, in adrenocortical cells results in reduction the production of steroid hormones, due to binding the excess of fatty acids with cholesterol into hydrolase-resistant esters.

**Case report:** We would like to present a case report of 11-year old patient, repeatedly hospitalized in the Departments of Children Neurology, Children Endocrinology, Intensive Care Unit of Children University Hospital in Lublin due to the monitoring of the clinical status and modification of the treatment of adrenoleukodystrophy. First admission on April 2013 (first seizure with transient paresis of left upper limb) showed in diagnostic examinations - CT and MRI - foci of demyelination suggestive of a metabolic disorder. Expanded diagnostics in Endocrinology Department revealed elevated levels of ACTH, VLCFA and hypothyroidism, which confirmed the diagnosis of adrenoleukodystrophy. Patient disqualified from BMT, treated with Lorenzo's oil which provided the temporary stabilization of the clinical condition. In the absence of effective methods of



treatment the patient was selected for stem cell therapy, currently he received 5 cycles of stem cells under the experimental treatment

**Conclusion:** Due to the rare occurrence (1:17000) and the existence of only contemporary and experimental treatment for ALD, we would like to present the case report of the patient with ALD and the spectrum of treatment.



## Ehlers-Danlos Syndrome, or child abuse - a case report.

**Authors:** Przemysław Grabowski

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**Tutors:** Anna Smędra MD, PhD

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**Introduction:** Ehlers-Danlos Syndrome (EDS) is a rare (1: 5000 live births) group of genetic diseases in which the background of the observed disorders are abnormalities in the synthesis and post-translational processing of collagen. Mainly the skin, joints and ligaments are affected by the symptoms as a result of a high content of collagen in these structures. The skin becomes overly flexible and susceptible to injury. One of incorrect diagnoses established in children with undiagnosed EDS is battered child syndrome, erroneously suspected particularly in children with recurrent bloody ecchymoses, subcutaneous hematomas, contusions, or sprains and dislocations of joints.

**Aim:** Presentation of the forensic report on the case of death of a 2-year-old girl suspected of being beaten by her father, or affected by EDS.

**Case report:** The authors present the case of a 2-year-old girl, transported by an ambulance team to the emergency department due to cardiac arrest. Resuscitation was unsuccessful. The attending physician concerned with numerous injuries and not fully explained circumstances of sudden cardiac arrest in the child, decided to inform the police. The girl's family was under the supervision of Municipal Social Welfare Centre and probation due to suspected domestic violence and criminal record of her father. As shown by autopsy, the immediate cause of the girl's death was perforation of the small intestine, leading to peritonitis and consequent septic shock. According to the doctor performing the autopsy, the perforation was of traumatic origin. Due to the fact that the family and the doctors previously dealing with the child described the tendency to develop bruises, hyperactivity and osteoarticular symptoms, the forensic medical expert put forward a hypothesis of Ehlers-Danlos syndrome as a cause of the above disorders and bowel perforation. In this publication, the authors present all the evidence collected in the case and the conclusions that were finally drawn.

**Conclusion:** The presented case shows the difficulty in differentiating between "battered child syndrome" and Ehlers-Danlos syndrome. The key issue is differentiation of traumatic lesions caused by third parties from injuries caused by accidental traumas common in infancy and childhood; the primary responsibility in this regard



lies with the first contact personnel – family doctors and pediatricians. On the one hand, this knowledge can prevent the tragedy, and on the other hand, in the case of children with rare diseases, ensure proper treatment and prevent false accusations of the parents.





## Utility of the middle cerebral artery peak systolic velocity (MCA PSV) and the anterior cerebral artery peak systolic velocity (ACA PSV) in assessment of neonatal neurological status.

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**Introduction:** MCA PSV and ACA PSV with USG and of the brain and clinical examination are commonly used diagnostical tools in assessment of vascular abnormalities in neonates. Delayed diagnosis and treatment could be devastating at neurological disorders especially in rapidly evolving neonatal brain what rises a question if there .

**Aim:** The aim of the study was to evaluate the utility of Doppler USG parameters MCA PSV and ACA PSV in assessment of neurological neonatal disorders.

**Materials and Methods:** We examined 119 patients 54 female and 65 male neonates with median of body mass 2470 g. The study group was examined with basic parameters, cranial ultrasound, post-delivery clinical status, pregnancy complications and neurological status comparing to the middle cerebral artery peak systolic velocity and anterior cerebral artery peak systolic velocity. All vascular ultrasound measures were performed at Philips hd15 Pure Wave ultrasonograph.

**Results:** Average ACA PSV equals 43,71 cm/s (SD+-13,19) with median 42 cm/s and average MCA PSV 49,86 cm/s (SD+- 16,51) with median 47 cm/s. The increasing probability of having lack of changes in cranial usg is at optimal flow range of 50-45 cm/s. ACA PSV referring to Apgar punctation at 1 minute had stable increasing tendency in optimal range till score of 3 and in 5 minute to 5 points, MCA PSV



referring to Apgar punctation at 1 minute also had stable decreasing tendency in optimal range and second increasing till score of 4 and in 5 minute to 6 points when the flow is out of reference range. The analysis indicate negative correlation between ACA PSV and MCA PSV referring to neurological status, body mass, cranial ultrasonography changes and other basic parameters. T-test hypothesis was not rejected.

**Conclusion:** The analysis of results seems to debunk utility of usage of MCA and ACA PSV parameters in diagnostic process in neonatology. There is a great necessity to perform more longitudinal studies to confirm that hypothesis.



## Shaken baby syndrome - a case report.

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**Introduction:** Non-accidental injuries experienced by children are a major diagnostic problem faced by both clinicians and forensic medicine specialists. Child abuse can take the form of the battered child syndrome, sexually abused child syndrome, Munchausen syndrome, or shaken baby syndrome. In the course of the last one, observed usually in children under six months of age, there is a triad of symptoms: intraretinal hemorrhages, subdural hematoma and subarachnoid hematoma. In addition to the typical signs, bone lesions and external injuries to the chest area or the extremities can also occur.

**Aim:** To outline the procedures performed in the cases of suspected "shaken baby syndrome".

**Materials and Methods:** We analyzed a forensic medical opinion issued by the Department of Forensic Medicine in Lodz and reviewed the court files.

**Results:** The authors present a case of a 6-month-old girl who was admitted to the hospital because of "momentary fainting" - the child was limp and reflexes. Due to the fact that physical examination revealed bluish-purple hemorrhages around the buttocks (mostly on the left side), "battered child syndrome" was suspected. Ophthalmological, surgical and hematological consultations were ordered to exclude other pathologies which might have led to their emergence. The consulting ophthalmologist described uncountable, extensive intraretinal, epiretinal and intravitreal hemorrhages. On the basis of such clinical symptoms, "shaken baby syndrome" was diagnosed. In this publication, the authors present the whole diagnostic and therapeutic process and the resultant conclusions.

**Conclusion:** The presented case shows the difficulties and controversies related to the diagnosis of "shaken baby syndrome" and the consequences brought about by a suspicion of child abuse in general. It is noteworthy that, on the one hand, too hasty conclusions should not be drawn, but, on the other hand, vigilance is also necessary because the parents of abused children try to hide their actions – by deliberate delay in seeking qualified medical assistance, reporting inadequate mechanisms of injury, often changing their versions of events, which would lead to



the injury. Repeatability of such injuries over time indicates the fact of physical abuse of children.



## The impact of diabetic ketoacidosis on changes in morphology in children.

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**Introduction:** Studies showed association between diabetic ketoacidosis (DKA) and some morphology changes. However it is uncertain if those relations are due to dehydration or acidosis per se.

**Aim:** Estimation of the impact of DKA on morphology changes, especially hematocrit (Hct), mean corpuscular volume (MCV) and platelets number (PLT).

**Materials and Methods:** We retrospectively analyzed medical records of newly diagnosed children (<18 years old) with type 1 diabetes mellitus (T1DM), treated in our Department between 2009 and 2015 year. We recorded: blood count results, CRP, arterial blood gases, urea, creatinine, C-peptide glycemia and HbA1c during hospitalization and two to three days after admission (if available). We used the ISPAD Guidelines 2014 to define the level of DKA.

**Results:** We included 403 patients, 215 boys (53.5%) and 187 girls (46.5%). The median [Me] age was 9.4 years (interquartile range [IQR]: 5.57 – 13.08). DKA was diagnosed in 126 (31.3%) of patients – 29 (7.2%) of them suffered from severe ketoacidosis. Hematocrit (Hct), platelet count (PLT) and mean corpuscular volume (MCV) decreased significantly during hospitalization (all  $p < 0.0001$ )

Patients with DKA had higher delta Hct (Me -4.3, IQR -6.70 to -1.35; vs Me -1.00, IQR -2.70 to 0.80;  $p = 0.0000$ ) and greater delta PLT (Me -59.00, IQR -107.00 to -2.00; vs Me -29.00, IQR -66.00 to 0.00;  $p = 0.0027$ ). Difference between changes of MCV value in those two groups were not statistically significant ( $p = 0.8161$ ,  $p$ ). Among children with DKA, Hct and PLT changes correlated significantly with pH (for Hct  $R = 0.35$ ;  $p = 0.0005$  and PLT for  $R = 0.22$ ;  $p = 0.03478$ ).

**Conclusion:** In children with DM1, DKA affected Hct and PLT, but not MCV. Those changes are positively correlated with pH values. During the treatment blood count values changed significantly.



## Antioxidant status in children with neurogenic bladder - is antioxidant supplementation worth considering?

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**Introduction:** Neurogenic bladder (NB) is a severe disorder affecting voiding bladder function due to impaired innervation. It is often the consequence of myelomeningocele or other forms of neural tube defects. Condition of NB patients is continuously worsened by urinary tract infections (UTIs), lack of voluntary voiding and urinary retention as well as other effects of myelomeningocele itself, e.g. motor function limitations, slow colonic transit or nutritional disorders. Oxidative stress as a state of imbalance between oxidant and antioxidant processes of the human body may be both the cause and the consequence of many diseases. Nowadays, it is well-known that oxidative stress plays an important role in the pathogenesis of various kidney diseases as kidney is an organ highly vulnerable to damage caused by reactive oxygen species.

**Aim:** We decided to measure total antioxidant status (TAS) in serum and urine of patients with NB and to correlate them with urodynamic findings and compare to nonNB patients (reference).

**Materials and Methods:** 29 patients with urodynamically confirmed diagnosis of NB after myelomeningocele were included in the study and compared to 57 nonNB patients considering serum TAS (sTAS) and urinary TAS to creatinine ratio (uTAS/creat) and renal function parameters (creatinine, urea, uric acid, GFR). Additionally, urodynamic findings of NB patients were analyzed distinguishing patients undergoing daily clean intermittent catheterization (CIC). TAS values were assessed using colorimetric ABTS Cayman's Antioxidant Assay.

**Results:** When compared to the reference group, NB patients showed increased uTAS/creat and decreased sTAS results ( $p < 0,001$ ,  $p < 0,001$  respectively). NB patients undergoing CIC had better cystometric capacity in comparison to nonCIC group with median 182,5 ml and 88 ml respectively ( $p = 0,03$ ). There was also positive correlation in uTAS/creat and detrusor pressure at maximum cystometric capacity (Pdet CC) and negative in uTAS/creat and bladder wall compliance.

### Conclusion:

1. Imbalanced TAS both in serum and urine may be not only the result but also one of the reasons of worsening bladder function in NB patients.



2. More study is needed to assess influence of antioxidants separately.
3. Another urodynamic assessment after antioxidant supplementation therapy should be considered.



## Occurrence of intestinal alert pathogens in children undergoing antineoplastic therapy.

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**Introduction:** Infections caused by multi-drug resistant alert pathogens are especially dangerous in children undergoing antineoplastic treatment. These patients, undergoing chemotherapy, are exposed to infectious complications due to its immunosuppressive character, which include gastrointestinal infections caused by alert pathogens. Therefore, the broad-spectrum antibiotics are usually additionally applied, which plays a tremendous role in the development of bacterial resistance.

**Aim:** Evaluation of the influence of antimicrobial treatment length on occurrence of intestinal alert pathogens in children undergoing anticancer therapy.

**Materials and Methods:** Patients' medical records (January 2013- July 2015) (n=108) from Department of Pediatrics, Oncology, Hematology and Diabetology of Medical University of Lodz were used. All patients were receiving antineoplastic and antimicrobial treatment. Patients (of average age  $6,99 \pm 5,40$ ) were divided into 5 groups, based on cancer diagnosis: leukemias (n=47), lymphomas (n=9), CNS tumors (n=23), solid tumors (n=16) and other tumors (n=13).

**Results:** Multiple episodes of antimicrobial therapy, both empirical and based on microbiological culture data results, correlated positively with the frequency of alert pathogens infections ( $p < 0,05$ ). As the microbial therapy lengthens, the alert to non-alert pathogen ratio increases ( $p < 0,05$ ). The highest correlation ratio between antimicrobial therapy length and alert pathogen emergence was observed in patients with CNS tumors ( $r = 0,73$ ,  $p < 0,05$ ) and lowest in patients with solid tumors ( $r = 0,19$ ,  $p > 0,05$ ). Higher correlation ratio between antimicrobial therapy length and alert pathogen emergence was observed in girls ( $r = 0,68$ ), than in boys ( $r = 0,42$ ). Most frequently isolated alert pathogens were *Escherichia coli* (33,59%), *Klebsiella pneumoniae* (27,34%) and *Enterobacter cloacae* (17,97%).

**Conclusion:** The increase in the number of alert pathogens related to lengthening of antibiotic therapy worsens the prognosis of the patient. Girls and children diagnosed





with CNS tumors are particularly at risk of intestinal infection caused by alert pathogens.. The emergence of the alert pathogen can prolong the treatment process and constitute a threat to the lives of patients.



## Are the childhood cancer survivors at risk of vitamin D deficiency?

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**Introduction:** Recent studies indicate that childhood cancer survivors (CCS) have increased risk for vitamin D deficiency, which is associated with the prevalence of immune dysfunction, diabetes and malignancy. Assessment and adequate replacement of vitamin D status is important in this group of children and will improve the quality of life of oncological patients. However, data on 25-hydroxyvitamin D (25(OH)D) status among CCS are limited.

**Aim:** The aim of the present study was to evaluate the serum level of 25(OH)D in childhood cancer survivors, depending on: age, gender, diagnosis.

**Materials and Methods:** The study group included 124 CCS (male: 71, female: 53), between the age 3-24 (mean age at the study-  $13,37 \pm 4,26$ ). Patients were treated in Pediatric Oncology and Hematology Department, Medical University of Białystok, due to: acute lymphoblastic leukemia ( $n= 66$ ; 53,23%), lymphoma ( $n= 13$ ; 10,48%) and solid tumors ( $n= 45$ ; 36,29%). Mean time from diagnosis-  $7,58 \pm 3,96$  years. Mean age at diagnosis-  $5,75 \pm 4,25$  years. The results compared with control group consisted of 60 healthy children (male: 35, female: 25) in 7-17 years old. The 25(OH)D level was assessed using immunochemical method. Statistical analysis was performed with STATISTICA 10 using non parametric Mann-Whitney U test and t-Student test. The statistical significance was defined as  $p < 0.05$ .

**Results:** We found statistically significant differences in serum level of 25(OH)D between study and control groups (mean:  $16,64 \pm 8,21$  ng/ml vs.  $20,84 \pm 10,23$  ng/ml,  $p= 0,0132$ ). Almost seventy percent of the patients ( $n= 84$ ) had level below the range norm [20-60 ng/ml]. The 25(OH)D status was similar in both sexes (male:  $17,18 \pm 8,62$  vs. female:  $15,91 \pm 7,65$  ng/ml,  $p= 0,398$ ). No statistical differences ( $p= 0,801$ ) between level of 25(OH)D in patients with ALL ( $16,19 \pm 8,79$  ng/ml), lymphoma ( $16,82 \pm 7,34$  ng/ml) and solid tumors ( $17,25 \pm 7,69$  ng/ml) were found. Serum level of 25(OH)D in patients between 10-15 years old (mean:  $15,23 \pm 7,23$  ng/ml) was statistically significant in comparison to patients under 10 years (mean:  $19,44 \pm 8,95$  ng/ml;  $p= 0,026705$ ). Patients between the 15-24 years presented the level of 25(OH)D:  $15,63 \pm 8,44$  ng/ml, with no statistical differences in other groups of age. There was no correlation in the level of vitamin D and TSH ( $r= -0,144$ ) or cholesterol ( $r= -0,117$ ).



**Conclusion:** We found high prevalence of 25(OH)D insufficiency in childhood cancer survivors. Half of the patients in the control group also had level below the range norm. Adequate supplementation of vitamin D seems to be important in CCS to improve the 25(OH)D status in this group of children. Additional studies, especially on larger groups are needed to determine how to most effectively achieve this goal. It is also important to develop recommendations on vitamin D supplementation during cancer therapy and after its completion.



## Quality of Life in Survivors of Childhood Brain Tumor and the impact of children's diseases on quality of their parents life.

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**Introduction:** Complex cancer treatment leads to numerous distant organ damage, affecting the health status and quality of life (QoL) of survivors. Quality of life includes an assessment of psychological, social and physical functioning of the human.

**Aim:** Evaluation of children's QoL after finished brain tumor treatment and the impact of children's diseases on quality of their parents life.

**Materials and Methods:** The study group was consisted of 32 children after brain tumor treatment (age 6-22). The control group was composed of 30 students of primary, secondary and high schools. 62 parents were included in the study. Standardized quality of life questionnaires (PEDsQL-4.0, WHOQOL-BREF) were used. Survivors' QoL was assessed from patients' and their parents' point of view, also the impact of children's diseases on quality of their parents life was estimated.

**Results:** QoL of children after brain tumor treatment was lower than in the control group according to the children ( $p < 0,001$ ) and their parents ( $p < 0,001$ ). The worst rated by survivors was their ability to social functioning ( $p < 0,001$ ) and educational functioning ( $p = 0,02$ ) in comparison with healthy children, while according to their parents the functioning of children in all zones was worse than in the control group, mostly in social ( $p < 0,001$ ) and physical sphere ( $p < 0,001$ ). QoL of children with benign brain tumor was comparable to QoL of children with malignant brain tumor according to the assessment of children ( $p = 0,12$ ) and their parents ( $p = 0,18$ ). QoL of survivors' caregivers in study and control groups was similar ( $p = 0,5$ ). The difference in QoL of parents of children treated due to benign or malignant brain tumor wasn't stated as well ( $p = 0,63$ ).



**Conclusion:** The quality of patients life after brain tumor treatment is lower in comparison with healthy children. The assessment of QoL of children after brain tumor treatment should be an inherent element of health monitoring.



## Evaluation of the clinical course of immunological neutropenia in children.

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**Introduction:** Autoimmunological neutropenia (AIN) is one of the most common types of neutropenia occurring in infants and young children. Diagnosis is given based on the typical clinical presentation and/or presence of antigranulocyte antibodies (ANCA) in blood serum.

**Aim:** The aim of this study was to analyze the clinical manifestation of AIN in patients that have been admitted to the Clinic of Pediatrics, Oncology, Hematology and Diabetology, Medical University of Lodz, Poland for medical evaluation.

**Materials and Methods:** This is a retrospective analysis of the medical documentation of the patients hospitalised in the Clinic in the years 2010-2015. The criterias qualifying to the cohort group were: absolute neutrophil count (ANC) < 1500/mm<sup>3</sup>, and absence of concomitant acute viral infection, EBV, CMV, HBV or HCV. Parameters assessed are: age, sex, clinical manifestation (appearance of the warning signs of primary immunodeficiency by the criteria of *The Jeffrey Modell Foundation*), complete blood count values, presence of ANCA and the results of bone marrow biopsy.

**Results:** 59 children qualified to the analysis (33 girls and 26 boys) median age 11,46 months (5,93-20,53) with median absolute neutrophil count 360 cells/μL. Clinical course of the neutropenia was mild in 56/59 patients (95%), only 3 children (5%) presented warning clinical signs (within 1 year: 6-8 upper respiratory tract infections, ≥2 serious sinus infections, ≥2 pneumonias; failure to gain weight, persistent thrush in mouth). Tests for ANCA, were conducted on 28 patients (14 girls and 14 boys, median age 10,167 month), positive in 13/28 patients (46%)- group with confirmed AIN. Remaining patients (19 girls and 12 boys, median age 11,77) clinically fulfilled the criteria of possible AIN (both with negative results of tests for ANCA and without performing the tests). Among the patients with positive ANCA, 10/13 had the number of WBC in blood within the reference range, 3/13 had not. Out of patients with negative ANCA 10/15 had the number of WBC within the reference range, 5/15 had



not. Lowered number of RBC occurred in 5/13 patients with positive ANCA, and in 5/15 patients with negative ANCA. From 20/59 patients (34%) that had bone marrow biopsy, 16/20 (75%) had suppression of neutrophils maturation on band forms. The biopsy results were similar both in patients with present ANCA (median WBC - 47,2%, median RBC - 17%, median MPS - 4,5% and median lymphatic system - 28,2%) and without confirmed antibodies (median WBC - 48,5%, median RBC - 18,8%, median MPS - 4,5% and median lymphatic system - 28,5%)

**Conclusion:** Autoimmunological neutropenia (both confirmed and possible) do not cause major immunodeficiency in pediatric patients. Bone marrow biopsies do not contribute substantially to the confirmation of the diagnosis. Therefore, indication for that invasive procedure must be furtherly revised. Performing a test for the presence of antigranulocyte antibodies in blood serum provide an accurate diagnosis.



## Celiac disease in children diagnosed with diabetes type 1 – clinical picture.

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**Introduction:** The co-occurrence of celiac disease (CD) and type 1 diabetes (DM1) has been reported as 5-7 times more prevalent than CD alone. Until diagnosed with CD, most diabetic patients does not show any symptoms associated with CD. The coexistence of CD is associated with significantly increased risk of diabetic associated morbidity.

**Aim:** 1) Evaluation of clinical course of celiac disease in children with type 1 diabetes mellitus. 2) Evaluation of the influence of celiac disease on metabolic control and the risk of acute and chronic complications of DM1 in children and adolescents.

**Materials and Methods:** Our study was carried out retrospectively in the Department of Pediatrics, Oncology, Hematology and Diabetology of Medical University in Lodz in 2011-2015. The study group consisted of children and adolescents suffering from DM1 and CD, the control group consisted of patients with DM1 without CD comparable in terms of age and DM1 duration. CD was diagnosed on the base of clinical, immunologic, genetic, histopathologic criteria. Medical documentation has been analyzed. The age of the onset of DM1, mean blood glucose concentration, HbA1c, daily dose of insulin, height and body weight, frequency of post-insulin lipohypotrophy, lipids serum concentration, number of severe hypoglycemic episodes and diabetic ketoacidosis episodes, frequency of diabetic retinopathy and diabetic renal disease have been assessed.

**Results:** Group with DM1 and CD consisted of 44 children (F-25) at the age  $12.3 \pm 4.3$  years, with DM1 duration -  $5.1 \pm 3.7$  years and CD duration -  $4.1 \pm 2.2$  years. The control group consisted of 91 persons (F-41) at the age of  $12.0 \pm 3.4$  years and with DM1 duration -  $5.4 \pm 3.3$  years. Less than half of patients with T1DM and CD show gastrointestinal symptoms. There was no difference in the age at the onset of DM1 between groups (DM1 and CD:  $7.2 \pm 4.0$  years and control:  $6.5 \pm 3.6$  years,  $p=0.357$ ). Both groups had comparable state of metabolic control (HbA1c in DM1 and CD:  $7.34 \pm 1.17\%$  and in control:  $7.5 \pm 1.17$ ,  $p=0.457$ ). BMI value was lower in the group of patients with concomitant DM1 and CD than in control group, but the disparity hasn't reached statistical significance (respectively:  $18.8 \pm 3.6$  vs  $20.0 \pm 3.9$  kg/m<sup>2</sup>,





$p=0,10$ ). No differences were found in the lipids profile, the frequency of severe hypoglycemic episodes and ketoacidosis episodes and chronic complications.

**Conclusion:** Most patients with concomitant type 1 diabetes mellitus and celiac disease do not present gastrointestinal symptoms. Children with DM1 and CD do not differ from children with DM1 without CD in terms of metabolic control and risk of acute and chronic complications of DM1.



## Small or big, which is really beautiful ? - the influence of birth weight and gestational age on the clinical course of type 1 diabetes mellitus in children and adolescents.

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**Introduction:** Type 1 diabetes is a chronic illness of unknown etiology and the triggering factors are still being investigated. Prenatal and neonatal factors such as birth weight and term of delivery are potential risk factors for diabetes type 1. Perinatal factors may influence the onset and progression of diabetes complications in later adult life.

**Aim:** To describe the influence of the birth weight and gestational age on presentation, clinical course and metabolic control of type 1 diabetes in children and adolescents.

**Materials and Methods:** We analyzed medical records of type 1 diabetic patients (at the age < 18 years and with DM 1 duration > 1 year) hospitalized in the Department of Pediatrics, Oncology, Hematology and Diabetology of Medical University of Lodz in 2010 - 2014. We divided patients into subcategories depending on 1. birth weight in relation to gestational age (SGA-Small for Gestational Age: < 10th pc/AGA-Adequate for Gestational Age: 10th to 90th pc/LGA-Large for Gestational Age: > 90th percentile) and 2. gestational age (preterm/full-term/post-term). The age at onset of DM 1, ketoacidosis at onset of DM 1, remission of DM 1, current height and body weight, HbA1c, daily dose of insulin, lipids serum concentration and urinary albumin excretion, number of severe hypoglycemic episodes and diabetic ketoacidosis episodes, frequency of hypertension and diabetic retinopathy have been assessed.

**Results:** The analysis included 190 patients (F-80/M-110) at the age  $11.85 \pm 2.08$  years, with DM 1 duration  $5.28 \pm 2.8$  years: SGA-15, AGA-147, LGA-28 and preterm-5, full-term-167, post-term-19 individuals.

The age at onset of DM 1 was lower in LGA than in AGA and SGA groups (respectively:  $5.79 \pm 2.89$  vs  $6.65 \pm 2.83$  vs  $7.55 \pm 3.49$  years), but this difference did not reach statistical significance. Mean HbA1c level was highest in SGA group ( $p=0.047$ ). Elevated blood pressure occurs significantly more frequently in LGA group compared to AGA and SGA groups ( $p=0.02$ ).

Ketoacidosis at onset of DM 1 was less frequent in children delivered at preterm and



post-term than in full term. Episodes of ketoacidosis in treatment of DM 1 were more common among delivered at post-term.

**Conclusion:** Birth weight and gestational age influence the clinical course and risk of complications of type 1 diabetes mellitus in children and adolescents.



# PSYCHIATRY AND PSYCHOLOGY

1. Psychological complications of ASD.
2. Popularization of healthy lifestyles and awareness of the danger of orthorexia nervosa among the students of medical universities.
3. Attitude of the public in Poland towards mentally ill in comparison to experts' opinions– questionnaire study.
4. Association of sexual dysfunction, depressive symptoms and quality of life among women with urinary incontinence – preliminary results.
5. Estimating the relationship between video games playing, social anxiety disorder according to Liebowitz Scale and impulsivity in Barratt Impulsiveness Scale.
6. Expression of ABCC1 gene in patients with depression.
7. Influence of chronotype on cortisol level and it's links with social fear.
8. The frequency of alexithymia in relation to the lived trauma in childhood and prevalence of mental disorders among students of Polish universities.



## Psychological complications of ASD.

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**Introduction:** Atrial septal defect (ASD) is a frequent type of congenital heart defect. Depending on the size of the defect it can result in various symptoms from not significant cardiac murmur to right-sided volume overload. As previous studies show this type of cardiac defect has meaningful impact on patients' quality of life.

**Aim:** The main target of our study was to estimate psychological aspects of ASD and variations in quality of life in patients with this cardiac anomaly.

**Materials and Methods:** The basis of our study is the 90-symptom checklist (90-SCL) questionnaire. This test contains 90 questions focused on multiple psychological symptoms and their severity. Our experiment population consisted of 48 adult patients with ASD type 2 and a mean age of 46.6 +/- 14.8. They were then compared with 50 people without heart problems.

**Results:** The mean score in study population was considerably higher in 4 out of 9 quality of life indicators such as depression (0,8 vs 0,5), somatizations (1,2 vs 0,5), obsessions (1,0 vs 0,5) and anxiety (0,09 vs 0,6). In the study population females had higher scores than males in 4 quality of life indicators: somatizations (1,3 vs 0,7), obsessions (1,25 vs 0,6), depression (1,1 vs 0,5) and phobic anxiety (0,4 vs 1,0). We found the correlation between age and quality of life for females in the study group in 5 rates: depression ( $r=0,63$ ), obsessions ( $r=0,53$ ), interpersonal hypersensitivity ( $r=0,62$ ), anxiety ( $r=0,51$ ) and psychoticism ( $r=0,64$ ).

**Conclusion:** Our study confirmed the clinical observations of patients with ASD. Patients with diagnosed atrial septal defect have significantly decreased life quality. What is more, female population has much more reduced psychological rates than male one and its rates decrease with age.



## Popularization of healthy lifestyles and awareness of the danger of orthorexia nervosa among the students of medical universities.

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**Introduction** Orthorexia is defined as an excessive preoccupation with healthy food, preparation of meals according to strict rules, and subordination of life to the restrictive diet. Until today no diagnostic criteria of orthorexia were set up. It is thought that popularization of a healthy lifestyle through the media can be the reason why this problem occurs more often.

**Aim:** The aim of this study was to evaluate the level of awareness of healthy lifestyles and a danger of orthorexia nervosa among the group of students from medical universities.

**Materials and Methods:** The study involved 200 students, aged 20 – 35 from different Medical Universities in Poland, and was conducted using 2 questionnaires for diagnosing orthorexia: On-line computer survey based on Bratman Orthorexia Test (BOT) and open question questionnaire, that measures knowledge of eating disorders. All participants were physically active and interested in healthy lifestyle. To examine the popularity of the healthy lifestyle a monthly activity report on facebook.com was used.

**Results:** 168 female and 32 male participated in the study. Half of them were considered to choose a healthy lifestyle. Bratman test showed that 61,8% of the examined group obtained the score 4 or more "YES", which means that they are at high risk of orthorexia. 96% of respondents said that they have heard about eating disorders. 88% believed that excessive attention to the quality of food products can be a symptom of disorder. 72,4% said that they met a person who is suspected to have an eating disorder and only 54% of respondents heard about orthorexia.



**Conclusion:** The results illustrate that almost 90% of respondents were aware of the threat of the orthorexia and almost 60% of them met with the professional term – orthorexia nervosa. More than 60% of medical students in Poland are at risk of mental disorders associated with a healthy lifestyle.



## Attitude of the public in Poland towards mentally ill in comparison to experts' opinions– questionnaire study.

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Attitude of the public in Poland towards mentally ill in comparison to experts' opinions – questionnaire study In modern psychiatry, deinstitutionalisation of mentally ill became an essential part of improving state of being of those affected. Integration in community, despite obvious benefits, led to increase in social distance and rejection towards mentally ill. Social stigma affects different life domains of those afflicted, and therefore it is crucial to work out methods to deal with it. Our objective was to assess and compare psychiatrists' and public attitudes and beliefs about mentally ill people. Comparison of two samples, one including 107 psychiatrists and second including 850 individuals of the general population. From the second group, additional subgroup of medical students was allocated for sake of a further analysis. Obtained outcomes were collated with similar studies available in literature. The psychiatrists' attitude was more positive in comparison to the general population. Both groups agree that programs raising public awareness are important, and should be intensified. Assessment of own attitude towards mentally ill in general population, correlated poorly, although significantly ( $r=0,2$ ;  $p>0,05$ ), with statements granting right to fully participate in social life to afflicted people. Only 13% of respondents from general population thinks of negative or pejorative (f.e. idiot, stupid, moron, shame) associations with mental disease. Over 60% of respondents are afraid of becoming mentally ill. The overall attitude towards mentally ill in the general population seems to improve in collotation. The overall attitude towards mentally ill in the general population seems to improve in collotation with data available in literature. Views of people responsible for taking care of mentally ill people, both psychiatrists and family members, are greatly differing from general population what points towards the need of proper educational programs. Also most of respondents agreed that raising awareness on mentally ill is important and should be intensified.





## Association of sexual dysfunction, depressive symptoms and quality of life among women with urinary incontinence – preliminary results.

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**Introduction:** Urinary incontinence (UI) can be defined as any involuntary loss of urine and may affect physical and emotional health of the patient.

**Aim:** We decided to assess frequency of depressive symptoms and sexual dysfunction and its relation to quality of life and life satisfaction among women with UI.

**Materials and Methods:** We collected data on 49 women who reported to gynecological outpatient clinic due to symptoms linked to UI, e.g. loss of urine during physical activity, loss of urine at rest, sudden urge to urinate, frequent nycturia. After signing an informed consent, patients were asked to complete a set of questionnaires: Beck Depression Index (BDI), Female Sexual Function Index (FSFI), Incontinence Quality of Life (I-QOL) and Life Satisfaction Questionnaire (FLZ). All data underwent statistical analysis. To verify hypotheses we used Spearman correlation quotients with Benjamini-Hochberg correction.

**Results:** Mean age of the investigated population was  $46.4 \pm 9.8$  (range from 29 to 72). Clinically significant depressive symptoms, defined as BDI score of 11 or more, were present in 33% of patients (N=16). FSFI score of 27.5 or less, suggestive of serious sexual dysfunction, was reached by 62% of patients (N=30). There was a negative correlation between BDI and FSFI ( $r=-0.56$ ,  $p$

**Conclusion:** Depressive symptoms and sexual dysfunction are linked to poorer quality of life and life satisfaction of female patients with UI. Our study confirms that UI is an interdisciplinary problem and may require complex, both gynecological and psychological, care.



## Estimating the relationship between video games playing, social anxiety disorder according to Liebowitz Scale and impulsivity in Barratt Impulsiveness Scale.

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**Introduction:** Video games has become an increasingly popular form of spending free time, therefore they are often a research subject. Researchers focus mainly on video games influence over children's psyche and their social interactions, although they can also have an impact on adult's behaviour.

**Aim:** Prevalence of social anxiety and impulsiveness among video game players and nonplayers.

**Materials and Methods:** An anonymous online survey included 263 students of Medical University of Silesia (112M and 151W). In the study group 142 people (54%) declared to be players. Questionnaire contained questions about playing time, Barratt Impulsiveness Scale and Liebowitz Social Anxiety Scale. Statistical analyses were performed using the statistical software package Statistica 10.

**Results:** Liebowitz Scale score in a majority of respondents (64,86%, n=168) indicated no features of social phobia, moderate social phobia in 39 subjects (15,06%), marked social phobia in 26 people (10,03%), severe social phobia in 17 people (6,56%) and very severe social phobia 3,47%). There was no statistical significance between players and non-players (test  $\chi^2$  p=0,6521). Also in Barratt Scale statistical significance was not found in Attentional impulsiveness (test U M-W p=0,3267) and in Motor impulsiveness (test U M-W p=0,3140). Statistical significance was observed in Nonplanning impulsiveness (players: 23,68 V nonplayers: 22,02; test U M-W p=0,0036).

**Conclusion:** The study did not show any considerable relationship between playing video games playing, social phobia and impulsiveness in a population of young adults.



## Expression of ABCC1 gene in patients with depression.

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**Introduction:** According to the World Health Organization, depression is the most common mental disorder. Over 350 million people suffer from this disease, making it the fourth most important health problem in the world. Multidrug resistance protein 1 (MRP1) (encoded by investigated gene ABCC1) can be found in tissues which are important for absorption and metabolism (kidneys, gut, lungs). It's also co-creating the blood-brain barrier and blood-cerebral spinal fluid barrier. Increased expression of ABCC1 can limit the bioavailability of drugs, and thereby determine the efficacy of treatment. The mechanism of developing depression is not fully understood. It is possible that genetic background has a part in it so it can be linked with expression of gene encoding MRP1.

**Aim:** Evaluation of ABCC1 gene expression encoding a MRP1 in patients with depression.

**Materials and Methods:** 32 samples of RNA was isolated from the leukocytes of peripheral blood, derived from Babinski Hospital patients suffered from recurrent depressive episodes. Reverse transcription reaction was used to get cDNA. Then, PCR reaction was carried out for the housekeeping gene GAPDH. The presence of the PCR product, was assessed on the basis of electrophoresis in agarose gel. The same procedure will be carried out for ABCC1 gene encoding MRP1. The last step will be quantitative analysis of ABCC1 gene expression and housekeeping gene GAPDH expression carried out with Real-time PCR reaction.

**Results:** 32 samples were examined and all showed qualitative expression of housekeeping gene GAPDH. ABCC1 gene expression has been shown in 30 samples. All 32 samples were quantitatively analyzed. The level of ABCC1 gene expression relative to GAPDH gene was variable among all 32 cases. It has been shown an average, positive and significant correlation ( $r = 0.3988$ ) between age of the patients and the relative expression level of ABCC1.



**Conclusion:** The relative level of gene expression increases with the age of the patients with depression. The obtained results require confirmation in a larger group of patients.



## Influence of chronotype on cortisol level and it's links with social fear.

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**Introduction** Chronotype is the behavioral representation of circadian rhythms of the human body. It describes the daily activity patterns, as a continuum ranging from “morningness”, described as an advanced sleep period, to “eveningness”, understood as delayed sleep period. The “morning” type is a person who is active in the morning and goes to sleep early, in contradiction to the “evening” type who wakes up with difficulty and usually is inactive during morning hours. One of the hormones with circadian rhythm of excretion is cortisol, characterized by highest morning levels. Aim of the study: Assessment, if the cortisol levels measured at 8 am differs between healthy individuals with the morning chronotype and the evening chronotype. Materials and methods The study included 20 people aged 24 (max 25; min 22) with no history of endocrine disorders. The group was composed of 8 men and 12 women who gave an informed consent to participate. Blood and saliva samples were obtained from each of them between 7.30 and 8 am, and tested for cortisol levels. Examination of the saliva was performed using radioimmunoassay tests (CISBIO France) from samples gathered in the morning, before breakfast and oral hygiene. Thereafter 2 cm<sup>3</sup> of blood were collected. Finally all participants had to fill in authors' own questionnaire concerning basic demographical data, Leibowitz's inventory and Morningness-Eveningness Questionnaire. Acquired data was analyzed using the StatSoft Statistica version 12.0 software. Results: Further literature analysis found very limited data on this issue, however even those rare studies verifying presence of differences between chronotypes in terms of cortisol levels, seem to confirm it and therefore creates a need of further studies on introducing chronotype as a part of examination in both psychiatry and endocrinology. Outcomes and



conclusions: Analysis of a literature suggests that there should be a difference between the levels of cortisol in the morning between “evening” and “morning” chronotypes. Therefore such phenomenon may lower the credibility of routinely performed blood tests for levels of cortisol, and call for taking into account the patient's chronotype during examination. Also possible connections between chronotype and levels of social fear may be conditioned by levels of cortisol.



## The frequency of alexithymia in relation to the lived trauma in childhood and prevalence of mental disorders among students of Polish universities.

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**Introduction:** Alexithymia is the term, which was introduced by Sifneos in 1972. It literally means having no words for emotions. It is defined by the following characteristics: an inability to recognize and identify feelings, use of language to describe the feelings and the inability to distinguish between emotions and bodily symptoms. Moreover, people with alexithymia have a paucity of fantasy life and operatory thinking.

**Aim:** The purpose of this study was to analyze the frequency of occurrence of alexithymia among Polish students and also the dependence on difficulties at home during childhood and coexistence other mental disorders.

**Materials and Methods:** The study group was consisted of students from different faculties: A – medical ( $n=625(55,65\%)$ ), B – polytechnic ( $n=163(14,5\%)$ ), C – economic ( $n=144(12,82\%)$ ), D – humanistic ( $n=141(12,56\%)$ ), E – military ( $n=50(4,45\%)$ ). The study group included 1125 people, 869(77,24%) women and 256( 22,76%) men aged 22,3  $\pm$  2,07; dominant – 22; median – 22; min – 18, max – 40. Toronto Alexithymia Scale (TAS – 26) was used. Statistical analyses were performed using the statistical software package Statistica 10.

**Results:** There were no statistically significant difference between men and women in terms of the level of alexithymia ( $p = 0.4517$ ). Examining the impact of relations in the family home has been demonstrated higher prevalence of alexithymia of clinical severity in those with difficulties in the family home as compared to subjects with carefree childhood ( $66,78\% \vee 52.97$ ;  $p = 0.0001$ ). In subjects using the help of a psychologist or psychiatrist (for reasons such as depression, anxiety disorders, eating



disorders) there was more frequent clinical severity of alexithymia than in subjects not benefit from such aid (65.46% V 54.56%;  $p = 0.0197$  ).

**Conclusion:** Gender of students does not exhibit relationship with the level of alexithymia. Difficulties and abnormal relationships in the family home, such as alcoholism, divorce, overprotection may exacerbate alexithymia. Among students suffering from mental disorders were observed higher intensity of alexithymia than in their healthy colleagues.





## PUBLIC HEALTH 2

1. Lifestyle factors and semen quality in men
2. Medical care in elderly: risk of falling as an element of comprehensive geriatric assessment
3. Love between men- safe or dangerous?
4. The assessment of the knowledge about immunization and attitude towards vaccination among parents.
5. Epidemiology of breast cancer in Lower Silesia in the years 2005-2013
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8. Does the place of residence influence the time between first symptoms of childhood neoplasm and final diagnosis?
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11. There are reserves of good health among us
12. Blood pressure in GrSMU students various gender



## Lifestyle factors and semen quality in men

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**Introduction:** In recent years, an increasing problem of human fertility is observed. It is estimated that male factor of couple infertility is between 25% and 50%.

**Aim:** The aim of this study was to analyze the relationship between life-style factors, BMI (Body Mass Index), depression, and semen quality.

**Materials and Methods:** A total of 108 males (age: 25-52 years) were recruited from The Outpatients' Clinic of Andrology and Reproductive Endocrinology. All participants completed interviews about depressive symptomatology (Beck's Depression Scale) and lifestyle factors including physical and sexual activity, taking diet supplements and vitamins, drinking and smoking habits. Measurement of weight and height was performed and BMI (Body Mass Index) was calculated. Semen parameters (concentration, total count, motility, morphology, and vitality of sperms, and concentration of leukocytes) were assessed according to WHO guidelines from 2010. Spearman's rank correlation and ANOVA Kruskal-Wallis test were performed and analysis was considered statistically significant with  $p < 0.05$ .

**Results:** The results show a positive correlation between sperm concentration and good mental condition ( $r=0.22$ ) and the frequency of having sex intercourse ( $r=0.26$ ) and a negative correlation between sperm concentration and BMI ( $r=-0.25$ ). A positive correlation between smoking cigarettes and the concentration of leukocytes in semen ( $r=0.35$ ), and a negative correlation with sperm progressive motility ( $r=-0.26$ ) and vitality ( $r=-0.23$ ) were observed. Also negative correlation between sexual abstinence and sperm concentration ( $r=-0.22$ ) and motility ( $r=-0.23$ ) were observed.

The ANOVA test shows that patients who take dietary supplements have better sperm morphology ( $p=0,017$ ), motility (progressive  $p=0,023$ , total  $p=0,011$ ) and total sperm count ( $p=0,018$ ). Additionally, lower sperm concentration ( $p=0,01$ ) and total sperm count ( $p=0,002$ ), and higher concentration of leukocytes ( $p=0,01$ ) were noticed in men with  $BMI \geq 28$ .

**Conclusion:**  $BMI \geq 28$ , smoking and depression negatively influenced semen quality. Contrary, taking supplements and vitamins and frequency of ejaculations have positive impact on semen parameters. Other life style factors like drinking alcohol, coffee and energy drinks or physical activity did not influence sperm parameters in the presented study.



## Medical care in elderly: risk of falling as an element of comprehensive geriatric assessment

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**Introduction:** Correct functional status is responsible for good level of activities of daily living and is important to maintain the proper functioning of the various organs and systems, such as cardiovascular and respiratory systems. Falls and related prolonged immobilisation is a direct threat to the life of the elderly.

**Aim:** The aim of this study was to evaluate the risk of falling and the level of self-care task activities in patients from the residential care home (RCH) and the daily living care home (DLCH).

**Materials and Methods:** The study involved 25 patients from the residential care home and 25 from the daily care home. The average age in RCH was 83.8 years and in DLCH was 76.6 years. Each participant was evaluated once. The assessment of falling risk was performed with the use of Barthel Scale, Tinetti Scale and Chair Stand Test. Mann-Whitney test in the analysis was used. The p-value of  $<0.05$  was considered as statistically significant.

**Results:** The results obtained in the Barthel scale showed that in RCH the average result was 90.4 points (range: 80-100) and in DLCH was 99.0 points (range: 80-100). The statistically significant difference between the group was shown ( $p<0.001$ ). The average result of the Tinetti Scale in RCH was 20.12 points (range: 8-26), such as average result of the Tinetti Scale in DLCH was 24.80 points (range: 12-28). The statistically significant difference in this test ( $p<0.01$ ) and in the Chair Stand Test was shown ( $p<0.01$ ).

**Conclusion:** Patients from DLCH had better scores in activities of daily living, quality of gait and balance and power of lower extremities than RCH subjects. They had smaller risk of falling and risk of serious complications after eventual injuries and brokenes.



## Love between men- safe or dangerous?

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**Introduction:** Characteristic sexual habits, promiscuity, unprotected sex cause that homosexual men are more exposed to sexually transmitted diseases (STD`s), penile cancer and rectal cancer than heterosexual men. The health of these people is very popular topic nowadays. Are they aware of risk factors connected with their lifestyle and sexuality?

**Aim:** The main purpose of this work is to evaluate the sexual habits, knowledge of risk and prevention from sexually transmitted diseases, rectal cancer and penile cancer in the group of homosexual men.

**Materials and Methods:** The study included 137 heterosexual and 47 homo- and bisexual 18-44 year-old men. Participants answered the questions contained in the anonymous questionnaire. The results were analyzed in Statistica 10.0.

**Results:** Most respondents from homosexual group of men live in the big city (83%) and a lot of them have a higher education (43%). About 38% of those men had ever sexual intercourse with a woman and 19% had their first interaction with a woman. Only 57% of homosexual respondents declares conservative relationships. Accidental sexual intercourses are declared by 55,3% of homosexual men. Moreover most of them (79%) is convinced to be at the same risk of sexual transmitted diseases as heterosexual men regardless the fact that the knowledge of STD`s is comparable in both groups ( $p=0,406$ ). Only 60% of homosexual men use any protection against STD`s every time they have sexual intercourse. As the answer for the question if they have ever had STD, 8,5% of homosexual men declares "yes" in comparison to 2% of heterosexual men. The knowledge of risk factors of rectal cancer and penile cancer is comparable in both groups ( $p>0,05$ ), but more of those factors are present in homosexual group of men ( $p<0,05$ ).



**Conclusion:** Homosexual men sometimes change sexual orientation and it hinders the evaluation of the risk of sexual transmitted diseases. Regardless the fact that homosexual men declare knowledge about transmitting venereal diseases most of them isn't aware of being in the high-risk group of those infections. Homosexual men present more risk factors of rectal and penile cancer than heterosexual men in spite of declared knowledge about them.



## The assessment of the knowledge about immunization and attitude towards vaccination among parents.

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**Introduction:** Nowadays immunization is a really controversial topic. Frequently, unfavorable opinions and accusations of being the causes of various medical problems are made towards various immunizations. Anti-vaccination movements are getting stronger every day, spreading the beliefs that immunizations are greater danger to the children's health than suffering from diseases like polio, measles or pertussis. Due to the rising number of followers of anti-vaccination movement, the assessment of the knowledge and opinion about immunization among parents of children hospitalized at Prof. Antoni Gębala Children's Hospital of Lublin was made.

**Aim:** The aim of this research was to evaluate the level of knowledge about immunization, to define main sources of information about vaccination used by parents and to find out what is their general opinion concerning this particular matter.

**Materials and Methods:** 94 parents of patients of Prof. Antoni Gębala Children's Hospital of Lublin participated in the study by filling anonymous questionnaire created by the authors. Questionnaire included 20 questions, both single and multiple choice. Analysis of the collected data will be the base for further conclusions.

**Results:** 95,5% of the participants is aware what is the purpose of vaccination. 60% of questioned parents think that child who hadn't been vaccinated can be dangerous to the people from his surrounding, but only 47,3% of them is in favor of sustaining the penalties for not allowing their children to become vaccinated. Most of the respondents (88,0%) describe their knowledge about immunization as good or very good, at the same time, over a half of them (51,1%) state that they would like to know more on the subject. Among the parents incorrect beliefs are really common – over 60% think, that vaccine protecting against hepatitis C exists and 15,0% of them assume that immunizations can cause autism and genetic defects. Only 58,6% of



participants know what is the main element of vaccines. Respondents pointed medical personnel (physician – 68,8%; nurse -17,2%) as the main source of information about immunizations. Significant group state that Internet is their primary source.

**Conclusion:** Most parents present positive attitude towards vaccination and understand the need for immunization.



## Epidemiology of breast cancer in Lower Silesia in the years 2005-2013

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**Introduction:** Due to its frequency and difficulties in therapy breast cancer remains an important social, epidemiological and clinical problem. In the years 2005-2013 it was on 1st place in terms of incidence among women in Poland.

**Aim:** The goal of this work was to assess and present the situation of Lower Silesian women considering breast cancer screening, morbidity and mortality in the years 2005-2013.

**Materials and Methods:** Review of The Lower Silesian Cancer Registry database was performed. In the years 2005-2013 12,389 cases of breast cancer were obtained from The Registry. The changes in morbidity trends, morbidity ratios in three separate age groups (pre-, screening and post-screening) and the share of different stages of the disease in particular time intervals were defined.

**Results:** In the years 2005-2013 11,749 cases of invasive and 640 cases of in situ breast cancers were reported. Considering T parameter, in accordance with TNM classification, there was an increase in observed T1 stage, from 37% in the years 2005-2006 to 50% in 2010-2013. The share of T2 tumors decreased from 43% in 2005 to 35% in 2008 and remained stable ever since. T3 tumors ranged between 7% and 9%. The share of the most advanced T4 tumors decreased from 13% in 2005-2006 to 10% in 2008 and then to 6% in 2013. In the years 2005-2013 the number of detected invasive breast cancers among women up to 49 years old was relatively stable of about 239 cases every year. In the group of women between 50 and 69 years old the numbers increased from 628 cases in 2005 to 823 cases in 2013. The increase of detected invasive breast cancers was also observed among women over 69 years old, from 270 to 337 cases. Considering in situ disease there was an increase in incidence in all three age groups and the trend was the most visible in the screening group. In women covered by screening in situ disease accounts for approximately 3.09-9.23% and it was higher than in pre- and post-screening women (respectively 1.55-7.08 and 0.63-4.26%,  $p=0.026$  and  $p=0.000017$ ). The last analysed five-year survival of statistical breast cancer patients from Lower Silesian population was 77.7% in 2005-2006 and 80.2% in 2009. The analysis shows that 81-86% of all breast cancer





patients were treated surgically in 2010-2012. The Surgical Wards of Lower Silesian Oncology Center treated respectively 48%, 45%, 42% and 50.7% of all breast cancers detected in Lower Silesia in the years 2010, 2011, 2012 and 2013.

**Conclusion:** The number of diagnosed invasive and in situ breast cancers has increased in Lower Silesia. We observed an increase in the share of less advanced T1 tumors and decrease in numbers of more advanced T4 invasive breast cancers. Screening seems to increase detection of in situ breast cancers. The 5-year survival was close to European standards.



## Analysis of premature mortality due to digestive system diseases in Polish population using SEYLL indicator.

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**Introduction:** The health status of a population is usually assessed on the basis of the spread of diseases, using incidence and prevalence rates, as well as relying on the data on deaths caused by these diseases and calculating mortality and fatality rates. Recently, potential measures are becoming more frequently used, i.e. the measures that take into account life-time potential of the individuals in the population. They can particularly be applied to analyse the problem of premature mortality, which is measured by lost life years. SEYLL indicator (Standard Expected Years of Life Lost) is commonly used for calculations. It is a function of number of deaths at a given age and lost life years to the population considered as standard.

**Aim:** The aim of the study was to assess life years lost due to digestive system diseases in Polish population in 2013.

**Materials and Methods:** The study was based on a dataset containing 387312 death certificates of Poles who died in 2013, provided by the Central Statistical Office in Poland. Data on deaths caused by digestive system disorders (K00-K93 by ICD-10) were used in the study- that were 16543 records (4,27% of all the deaths). Lost life years were assessed with the measures: SEYLL (Standard Expected Years of Life Lost), SEYLLp (Standard Expected Years of Life Lost per living person), SEYLLd (Standard Expected Years of Life Lost per death).

**Results:** In the analysed year among men there were 9275 deaths caused by digestive system disorders and in women 7268 deaths. SEYLL in the group of men amounted to 102230,7 years and in the group of women it was 53475,5 years. The number of lost life years calculated per 10000 male inhabitants was 54,9, and for 10000 females it was 26,9. The highest share in lost life years had alcoholic liver disease- K70 (SEYLLp per 10000 was for men- 20,87, for women- 6,1), fibrosis and cirrhosis of the liver- K74 (SEYLLp for men- 9,7, for women- 5,6) and acute pancreatitis- K85 (SEYLLp for men- 5,3, for women- 2,1). The number of lost life years due to digestive system diseases differed in each age group and between men and



women. The highest SEYLLp was noted in men at age 55-59 years (SEYLLp= 8,9) and in women at age 60-64 years (SEYLLp= 3,9). The analysis of SEYLLd indicated that a men who died in 2013 due to digestive system disease lost in average more than 11 years and a woman more than 7 years.

**Conclusion:** The results of the study prove that digestive system disorders have an important contribution to the loss of life-time potential in polish population. The dominant role played alcohol-related diseases, i.e. alcoholic liver disease, fibrosis and cirrhosis of the liver and acute pancreatitis. It reveals the need to implement more effective methods to combat alcohol addiction in Poland.

The study was financed by the National Science Centre based on a decision number DEC-2013/11/B/HS4/00465.



## Are childhood cancer survivors provided with proper medical attention during transition to adult health care?

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**Introduction:** Childhood neoplasm is a very rare condition, representing only 0,5-2% of cancers in the whole population. In recent years, a huge progress has been done in the treatment of those diseases – nowadays the curability of neoplasm in children is about 80%. However, its long-term complications could develop when the patient is no longer under the medical care of pediatric oncologist, but many specialist of adult health care. Therefore, it is very important to provide the interdisciplinary medical attention to every childhood cancer survivor transitioning to adult health care.

**Aim:** To evaluate the methods and quality of the transition to adults performed among patients treated for neoplastic diseases in the childhood in all of the pediatric oncology departments in Poland.

**Materials and Methods:** Data were obtained from the questionnaire, consisted of 20 questions about transition to adults, which was sent to pediatric oncology centres (n=20) in Poland. 45% (n=9) fully filled up questionnaires were received back and analyzed.

**Results:** The study revealed, that 66,7% of pediatric oncology centres finishes special patients care and observation completely, when the neoplasm survivor turns 18 years old (y.o.). 88,9% of clinics informs children and their parents about long-term side effects and the beginning of the treatment and during it, but only 33,3% informs about all possible complications (66,6% focuses consistently on selected, probable side effects). In 77,8% of clinics patients are educated again just before the transition to adults. Only 22% of centres transits the patient to adults fluently, starting 0,5-1 years



before the main transition; in the rest of cases it is an one-time process. 66,7% of clinics sends the patient to the specialist only when the side-effects occur, the rest 33,3% in case of their probable existence (before demonstration). Mean age of children being informed about long-term complications of the neoplastic treatment is 13-14 y.o.

**Conclusion:** Study revealed that transition to adults in Polish pediatric oncology departments is a non-fluent, one-time process. Considering wide range of long-term side effects of neoplastic treatment in childhood, survivors should be informed and educated frequently - at the beginning, during, at the end of the therapy and just before transition to adults. Furthermore, improving the methods and quality of the survivors medical care, such as sending them to specialists before demonstration of side effects and reorganization of the transition as a continuous process, will help the survivors to avoid long-term complications and improve the quality of life.



## Does the place of residence influence the time between first symptoms of childhood neoplasm and final diagnosis?

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**Introduction:** Childhood neoplasms present with vague symptoms, making it difficult to immediately diagnose cancer. Fast diagnosis can improve prognosis and survival rate.

**Aim:** The aims of the study were evaluation of the time between first symptoms of childhood neoplasm and final diagnosis (lag time) and also the assessment of impact on place of residence and late diagnosis of neoplasm.

**Materials and Methods:** Study group consisted of 540 patients (300 boys), aged 0-24 (mean  $8.87 \pm 12.54$  years), with childhood neoplasm. The study group was divided according to type of neoplasm disease: leukemia (ALL, ANLL), lymphomas (NHL, HL), neuroblastoma, Wilms Tumor and bone tumors. From medical documentation we evaluated time between first symptoms of neoplasm and final diagnosis (lag time). The study group was also divided according the place of residence: small town (<20 000 residents) and city (>20 000 residents).

**Results:** Most of the patients (55,93%) lived in city in above 20 000 residents. Leukemia patients from small town were diagnosed faster than patients from city (avg.  $24.44 \pm 29.01$  days vs avg.  $32.32 \pm 39.14$  days  $p=0.033$ ). There were no differences in other neoplasm groups. Median lag time in patients with leukemia was 15 days, 25% of those patients were diagnosed after 30 days. In groups of patients with lymphomas and NBL median was 30 days, 25% of those patients were diagnosed after 90 days in lymphomas and 42 days in NBL. In the group of patients with Wilms Tumor, 25% of the children were diagnosed after 30 days, the median lag time in this group was 10 days. The median lag time in group of patients with bone tumors was 60 days, 25% of them were diagnosed after 120 days. There were significant differences between cancer groups in lag time ( $p<0,001$ ), patients with Wilms tumor (median 10 days) were diagnosed faster than the patients with other types of cancer. The longest lag time was observed in bone tumors (median 60 days). There



were no significant differences between girls and boys. There were no significant correlations between age of the patients and time between first symptoms and diagnosis.

**Conclusion:** The place of residence does not influence the lag time. The patients from small town are not exposed to late diagnosis. The time between symptoms of childhood cancer depends mainly on the type of cancer. The lag time is the longest in patients with bone tumors.



## Causes of death in Pediatric Oncology Unit

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**Abstract:** Causes of death in Pediatric Oncology Unit in the Clinic of Pediatrics, Oncology, Hematology and Diabetology Medical University of Lodz were analyzed retrospectively on the basis of clinical reports of 136 patients who died between 2005-2015. The aim of the study was to find the leading causes of death among oncological patients in correlation with the type of cancer, stage of disease, occurrence of relapse, bone marrow transplantation (BMT) and additional factors.

The leading cause of death counting 95 patients was the progression of cancer (70%). Eighty-eight patients have died after relapse. The other deaths (41/136 patients) were treatment-related: eighteen patients died of sepsis (13%), seven after BMT (5%), four of ARDS (3%) two patients (1%) died after surgery and the same number due to typhilitis. There were also single cases of swine influenza, cerebral hemorrhage, aspergillosis, infection while in remission, circulatory insufficiency, sudden cardiac death.

The most common diagnosis in the study group were: CNS tumors counting for 58 cases (43%) and acute leukemias accounted for 39 cases (29%). Eleven patients presented with soft tissue sarcomas (8%), eight with neuroblastoma (6%), seven with lymphomas (5%), six with osteosarcomas (4%). Hepatic or gastric cancer was the case in three patients (2%), Wilms' tumor in two patients (1%) and one patients presented germinal tumor (1%). One case also was left unspecified (1%).

The progression of the disease leading to death was related to the advanced stage at the moment of their diagnosis or to the high WHO grade of brain tumors.

**Conclusion:** Our data suggests that the majority of deaths were a result of cancer progression and its damaging impact on the organism of a pediatric patient. Nevertheless, the treatment-related deaths connected with immunodeficiency and





other coexisting pathological states are also crucial. We believe that improving the methods of diagnosing and treatment of cancer is a task of imperative importance, but preventing the complications related to chemotherapy should also be of high-priority.



## Preferences of patients with inflammatory bowel disease for Receiving Specialized Health Services. The role of Internet and other sources of medical information.

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**Introduction:** Nowadays Internet has become one of the primary sources of medical information. It is notable that patients more often use them when they are searching for a doctor or medical center which is specialized in treating their disease. There are created numerous forums, websites for patients, in which they can express their opinions or seek the medical information they need. However, some of the opinion directly from their doctor or their friends may be for them more reliable. The Health Services specialized in inflammatory bowel disease (IBD), as rare and difficult to treat disease, are hard to reach. Therefore patients suffering from this disorder are looking for the place with the best possible help in different sources.

**Aim:** To characterize the extent of Internet use for health information among a representative sample of the IBD patients and to examine the effects that Internet and other resources of informations about specialized health services has on patients' pick of a doctor and hospital department.

**Materials and methods:** All IBD patients admitted to the Department of General and Colorectal Surgery and Department of Gastroenterology at Medical University of Lodz between November 2015 and March 2016 were asked to complete a questionnaire regarding their sex, age, socioeconomic status, type of disease and preference for a source of information about specialized health services. Questionnaires were also gathered from online survey, which was completed by patients with IBD recruited via polish association „J-elita”. The questionnaire comprised 22 closed-endend questions. Only fully completed questionnaires were included for analysis.



**Results:** The study involved 57 patients, who agreed to complete the questionnaires – 34 (59,6%) women and 23 (40,4%) men. 36 (63,2%) participants suffered from Crohn disease and 21 (36,8%) from ulcerative colitis. Most patients (n=49, 86%) were searching for informations about their disease and possible treatment in the Internet. All patients expressed preference for specialization of their attending physician. 43 (75,4%) of them prefer gastroenterologist and 14 (25,6%) prefer surgeon. However nearly half of the patients (n=27, 47,4%) has changed their attending physician. Informations gained from a doctor were most value while choosing specialized physician for 29 (50,9%) patients. For 15 (26,3%) patients Internet was the source of most value information and for 13 (22,8%) patients friends were the source of most value information.

21 (36,8%) patients has shared their opinion about their physician and health service in hospital in the Internet.

**Conclusion:** Internet is one of the most influencial factors affecting patients' preference of hospital department. It also has a strong impact on attitude towards physicians treating IBD. Still, however, opinion obtained from the doctor is the most valuable.



## There are reserves of good health among us

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**Introduction:** According to calculations of biologists the period of human life should be in the range of 180-200 years. However, now the average woman's life lasts 74 years, and a man - 68.

**Aim:** So people live about 1/3 of their life expending the rest of the time. That is why the role of science is important in finding ways to strengthen the health and prolong life.

**Material and methods:** We used 3 methods of studies. 1.Survey of 3rd year students (360 persons); 2.Nesterovs test (326 people); 3.The method of twins (2 pairs of monozygotic Sister - Twins). The questionnaire included: 1. Name; 2.Height; 3.Body weight; 4.Character (HNA); 5.Family anamnesis; 6.Smoking; 7.Alcohol consumption; 8.Living conditions; 9.The character of diet and other.

**Results:** Nesterovs test performed to evaluate the state of histohaematic barrier (HHB). In the analysis of questionnaires we give a special attention to identification the role of genotype and environmental factors (parotype) in the formation of the human phenotype. Twins method was also used. Nesterovs test by simple way of its execution gives very important information. This information allows to assess the condition of such important parameter as a HHB.

**Conclusions:** In our observation sisters - twins are practically identical - "phenotypic droplets." So, in the formation of phenotype crucial importance belongs to genotype. According with our data, the students in 20% of cases are burdened by hereditary predisposition for diabetes, in 33% for hypertensive disease and 8% for tumors. However, the majority of students at the age of 18-19 are in good health (BMI and HHB). So, then human health quickly dissipated. With some optimism, we perceived the data of the number of smoking students (only 13%). In discussions, young people told that "we not smoking, because want to become doctors." At the same time, the percentage of students who do not using alcohol (34%) is not



sufficient. And the 65% who drink alcohol at least "occasionally" can't reassure us. This group of persons needs a more detailed analysis. The higher (about 3.5 times) tendency to stress of choleric compared with phlegmatic corresponds with of psychology. However, the university management and professors should pay more attention to this phenomenon. The groups of so-called mixed type of HNA should be studied more deeply. Question about students nutrition requires a separate analysis. Although students in the majority of cases assessed their conditions of life as good, at the same time almost all of them eating not rationally. According to the survey the phenomenon of "feminization" of students was clearly manifested. On the one man accounts at average 4 girls. There is no doubt that the further aggravation of this phenomenon will not be beneficial to learning, moral - psychological climate, and even the health of students. Of course, this complex and multifactorial problem needs to resolve not only by the authorities, but also by society as a whole.



## Blood pressure in GrSMU students various gender

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**Introduction:** Recent studies indicate that arterial hypertension (AH) begins to form in childhood and adolescence, when the blood pressure level (BP) doesn't differ from the usual numbers. However, there are many risk factors which can be revealed in this period [Rov da U.I., 2004]. A new classification of arterial hypertension was adopted at the VIIth National Congress of Cardiology (7 JNC), where was introduced a new category of pre-hypertension (120-139 / 80-89 mm Hg) [Chobanian A.V., 2003]. 7% of young people pre-hypertension overpasses into an arterial hypertension each year [Falkner B., 2008].

**Aim:** was to study the incidence of blood pressure values among male and female GrSMU students.

**Materials and methods:** We examined 1303 GrSMU students (22,4% - male, 77,6% - female). The middle age of probationers was  $19,78 \pm 1,2$  years. We measured students blood pressure and asked them if they've had any episodes of high blood pressure ( $\geq 140 / 90$  mm Hg.). Then we calculated the frequency of occurrence of the various blood pressure categories (recommended by WHO), the pre-hypertension category (120-139 / 80-89 mm Hg.) and the frequency of increased blood pressure episodes in various gender students. For group comparison we used non-parametric U-Mann-Whitney test,  $\chi^2$ -Pearson criteria. Differences were considered as statistically significant at  $p < 0.05$ . The statistical data processing was performed by using STATISTICA 6.0 package.

**Results:** It was found that the boys' average blood pressure was higher than girls': systolic - 130.0 [120.0; 140.0] and 110.0 [105.0; 120.0], respectively,  $p < 0.001$ ; diastolic - 75.0 [70.0; 85.0] and 70.0 [65.0; 75.0], respectively,  $p < 0.001$ . Results of the study revealed the following distribution of boys' blood pressure categories: low ( $< 105 / 60$  mm Hg) - 2.74%, optimal ( $< 120 / 80$  mm Hg) - 38.01%, normal ( $< 130 / 85$  mm Hg) - 42.12%, increased normal ( $< 140 / 90$  mm Hg) - 10.96%, high ( $\geq 140 / 90$  mm Hg) - 6.16%; girls': lower - 17.21%, optimal - 55.19%, normal - 23.15%, increased the normal - 3.66%, high - 0.79%,  $p < 0.001$ . Therefore the boys with pre-hypertension - 53.08%, girls



– 26,81%,  $p < 0.001$ . The number of boys with increased blood pressure episodes was – 43,24%, girls – 23.62%,  $p < 0.001$ .

**Conclusion:** Obtained data indicates that among boys with AH blood pressure level shift in categories with higher values, and they have more frequent increased blood pressure episodes.



# SURGERY

1. The use of biofeedback and electrostimulation therapy as treatment for functional disorders of urinary tract in children.
2. Quality of sexual life among patients with enteric stoma.
3. EndoVAC therapy can help with pancreatico-gastric anastomosis insufficiency - the novel approach.
4. The incidence of atelectasis and the analysis of the existence clinical implications for patients operated on because of Non-Small Cell Lung Cancer.
5. Analysis of factors affecting graft function after renal transplantation
6. Predictive factors of salvage colectomy to treat refractory ulcerative colitis
7. Correlation between mechanism of injury and severity of injuries among patients with politrauma – retrospective analysis
8. Panel of CA19-9, Ca125 and Ca15-3 and inflammatory status differentiate benign pancreatic lesion from pancreatic cancer.
9. Surgical management of perianal fistulas – experience of tertiary referral center
10. Open abdomen technique - comparison of standard methods and negative pressure wound therapy (npwt)
11. Symptomatic peripheral venous hypertension after dialysis fistula formation.  
The importance of the proximal part of the cephalic vein
12. Risk factors for postoperative complications in low anterior resections for rectal cancer.
13. Maximal thymectomy in a patient with myasthenia gravis
14. Sexual disorders after low anterior resection of the rectum
15. Pilonidal sinus treatment by portable VAC-assisted therapy - the assessment of long-term quality of life
16. Oesophageal rupture due to blunt trauma
17. Knowledge of patients with lung cancer before surgical procedure





## The use of biofeedback and electrostimulation therapy as treatment for functional disorders of urinary tract in children.

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**Introduction:** While there are many options for children with treatment functional disorders of urinary tract, there is no single accepted method. Except of pharmacological or physiotherapeutical approach there were some studies providing the positive influence of biofeedback and electrostimulation therapy. Still there is no versatile pattern of that kind of treatment that guarantees fully effective outcomes.

**Aim:** According to promising literature about using biofeedback and electrostimulation therapy in treatment for disorders of urinary tract, we would like to evaluate the efficiency of that kind of therapy as the treatment for overactive bladder syndrome (OAB) and detrusor underactivity (DU).

**Materials and Methods:** The research is performed on a group of 20 patients aged 6-12 years, female and male, who were diagnosed with overactive bladder syndrome or detrusor underactivity. The group was selected from the patients of Pediatric Urology Clinic of Korczak Hospital and the selection was based on medical documentation. The experiment is divided into three parts, each of 4 weeks duration. During each part, the patients have 20 minutes treatment sessions the times a week. During treatment session patients train muscles of pelvic floor by using biofeedback (OAB) or electrostimulation (DU). To improve motivation in patients, the standard EMG monitoring interface is replaced by advanced computer games. The evaluation of results is based on voiding chart and urodynamic testing performed before the onset of the whole research and at the end of the each part of the experiment.

**Results:** We have performed the first of three parts of the research and we have obtained preeliminary results. All patients have completed first part of the study (100%). The improvement was observed in 15 of 20 patients (75%). The parameters of average flow rate (Qave) improved about 30% on average in those patients. The symptoms have returned in 3 of 20 patients (15%). In 2 patients no change was observed (10%).



**Conclusion:** We have performed the first of three parts of the research and we have obtained preeliminary results. All patients have complited first part of the study(100%). The improvement was observed in 15 of 20 patients (75%). The parameters of average flow rate ( $Q_{ave}$ ) improved about 30% on average in those patients. The symptoms have returned in 3 of 20 patients (15%). In 2 patients no change was observed (10%).



## Quality of sexual life among patients with enteric stoma.

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**Introduction:** Enteric stoma surgery is a opening on the surface of the abdomen being surgically created in order to divert the flow of faeces. It is estimated that over 13,500 people undergo stoma surgery each year and the most common underlying conditions resulting in stoma formation are colorectal cancer and inflammatory bowel diseases.

**Aim:** The aim of the study was to characterize the impact of stoma on the quality of patients sexual life.

**Materials and Methods:** Patients hospitalized at the Department of General and Colorectal Surgery of the Medical University of Lodz who underwent enteric stoma surgery during the period from January 2014 to February 2016, were asked to complete a questionnaire concerning their sexual activity before and after surgical procedure. Patient over 65 years old were excluded from this study. A statistical analysis of all answers was carried out.

**Results:** The study group consisted of 12 men and 19 women aged 19–53 years old. A strong, statistically significant difference between patient's quality of sexual life before and after enteric stoma surgery was noted ( $p < 0.001$ ). No relationship was found between sex and the quality of sexual life. Analysis revealed that the colostomy has significantly better outcome on quality of sexual life than ileostomy ( $p = 0.01$ ).

**Conclusion:** Enteric stoma affects human life in a negative way and significantly impairs sexual life without differences between male and female patients. It was noted that ileostomy has significantly worse impact on quality of sexual life than colostomy.



## EndoVAC therapy can help with pancreatico-gastric anastomosis insufficiency - the novel approach.

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**Introduction:** Pancreatic leakage after pancreaticoduodenectomy is associated with a high morbidity and mortality. Different techniques have been investigated to improve a safety of anastomosis after pancreatic surgery. Negative pressure wound therapy (NPWT) is a well-established treatment based on a device called vacuum-assisted closure (VAC) system. Endoscopic vacuum-assisted wound closure system (EndoVAC) therapy has been proven to be an important alternative in patients with upper and lower intestinal leakage not responding to standard endoscopic and/or surgical treatment procedures.

**Case report:** A 72-year-old patient was admitted to the Department of General, Endocrinological and Gastroenterological Oncology Surgery because of diagnosed tumor in the head of the pancreas. A CT scan revealed a tumor in the head of the pancreas (14x11x10cm). Pancreatoduodenectomy (Whipple procedure) was performed. Intraoperative histopathological examination diagnosed a neuroendocrine tumor of the pancreas. At 6 day after primary surgery a pancreatico-gastric anastomosis insufficiency was diagnosed. The patient was re-operated twice, at 7 and 15 day after the primary surgery. Because of deterioration of patient's general condition, patient was qualified for EndoVAC therapy at 20 day following the primary surgery. Continuous negative pressure of 100 mmHg was set up. At 6 day following initiated EndoVAC therapy, the check-up with endoscopy was performed. The size of the anastomotic fistula significantly decreased and there was no indication for further NPWT. Patient was discharged from hospital at 21 day after the NPWT was implemented with any signs of pancreatico-gastric anastomotic dehiscence.

**Discussion:** EndoVAC provides perfect wound drainage, closure of the various kind of defect and promotes tissue granulation. This therapy may significantly improve a morbidity and mortality. Moreover, EndoVAC may be usefulness in the multidisciplinary approach – from upper gastrointestinal to rectal surgery complications. Further extensive, large-cohort studies need to be performed to establish application and effectiveness of EndoVAC, before routine widespread use can be recommended.



## The incidence of atelectasis and the analysis of the existence clinical implications for patients operated on because of Non-Small Cell Lung Cancer.

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**Introduction:** Atelectasis is a condition in which some parts of lungs are collapsed and don't inflate properly. It is one of the most common post-lobectomy complication. It can be temporary when lobe re-expand in a few days or chronic in which pneumonitis can occurs. Important factors of this condition is airway obstruction, open pneumothorax during operation or manipulation of the lung.

Surgery is used to excise diseased lung parenchyma in patients with chronic lung diseases.

Some of the examples are lobectomy or segmentectomy as a treatment of NSCLC.

**Aim:** The aim of this study was to evaluate the incidence of atelectasis and its impact on the clinical course of patients with thoracic surgery because of NSCLC

**Materials and Methods:** The charts of 67 patients who underwent lobectomy, bilobectomy, segmentectomy and pneumonectomy at the Military Medical Academy University Teaching Hospital – Central Veterans' Hospital in 2015 were examined retrospectively. The postoperative atelectasis was determined by the chest radiographic reports. It was examined if age, sex, BMI, size and histological type of tumor and type of surgery has an impact on the incidence of atelectasis.

**Results:** The incidence of atelectasis was 37%. Patients who developed lobar atelectasis were more likely to be male (42,85% vs 31%). This complication occurred often in patients in early old age (60-74 years) - 21 of 45 patients (46,6%). In patients with obesity atelectasis developed in 13 of 21 (62%). Gathered 65 histopathological diagnoses where in 13 patients of 28 (46%) with carcinoma planoepitheliale and 11 of 32 patients (34%) with adenocarcinoma developed atelectasis. There was no significant difference in size tumor. Patients who underwent right inferior lobectomy (13 patients), right bilobectomy (3 patients) and right segmentectomy (6 patients) developed atelectasis more often (61,5% vs 66,7% vs 66,7%) than other



operations. Average hospitalization in patients with and without atelectasis was similar (5,7 days vs 5,5 days).

**Conclusion:** Male are more susceptible to atelectasis after operation because of NSCLC. It is often complication in patients with obesity. Early old age patients are more likely to this complication. It develops more often after operation because of carcinoma planopitheliale.

There is higher incidence of atelectasis in patients who underwent right inferior lobectomy, right bilobectomy and right segmentectomy. It has no influence for clinical implication we analyzed such as length of hospitalization.



## Analysis of factors affecting graft function after renal transplantation

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**Introduction:** Successful kidney transplantation is renal replacement therapy of choice for the most patients with end-stage renal disease. In these patients pre-transplant dialyses are mainly applied. Due to renal ischemia, which occurs during kidney transplantation, delayed or slow graft function might develop as undesirable outcome.

**Aim:** The aim of the study was to confirm relations between various preoperative factors and the result of kidney transplantation.

**Materials and Methods:** Data of 159 patients after kidney transplantation in one transplantation center in years 2007-2014 was retrospectively analysed. The factors that have been concerned are the following: age and gender of the patients, incidence of diabetes, dialysis modality applied before the transplantation and duration of those dialyses. The result of kidney transplantation was assessed by occurrence of delayed graft function (DGF) and levels of serum creatinine in first day, tenth day after transplantation and at the discharge from hospital. DGF is defined as a need of dialyses in the early posttransplant period and it is associated with adverse outcome.

**Results:** 121 patients were under hemodialysis (HD) before the operation, 27 had peritoneal dialysis (PD) and 11 were operated pre-emptively. DGF occurred in 30 patients in HD group (24,8%) and in 1 patient in PD group (3,7%). Serum creatinine levels in tenth day was 2,92 mg/dl (HD) vs 2,01 mg/dl (PD), at discharge 1,89 mg/dl vs 1,56 mg. DGF occurred in 11 patients with diabetes (42,3%) and in 24 patients without diabetes (18,0%). Hospital stay was longer in HD group than PD: 21,8 vs 18,2 days and in patients with diabetes: 25,5 vs 20,5 days.

**Conclusion:** Compared with HD, PD is associated with better early outcome. Presence of diabetes is associated with worse outcome after kidney transplantation.



## Predictive factors of salvage colectomy to treat refractory ulcerative colitis

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**Introduction:** Ulcerative colitis (UC) is an inflammatory bowel disease of unknown etiology, which course is characterised by periods of exacerbations and remissions. In group of patients who do not respond to, or are intolerant of medical treatment, colectomy is the treatment of choice, however the precise timing of the operation is difficult in most cases.

**Aim:** The aim of this study was to analyze patients who were hospitalized for severe acute colitis in order to identify potential factors available on a day of admission pointing out patients who will require salvage colectomy.

**Materials and Methods:** All patients hospitalized in Department of General and Colorectal Surgery between 2005 and 2015, because of severe ulcerative colitis were retrospectively analyzed, including also early postoperative morbidity and further surgical interventions. All factors (from anamneses, physical examination, and biochemical tests) were analyzed in uni- and multivariate analysis for their predictive role for need of performing colectomy during hospitalization.

**Results:** Overall 156 patients were recruited including. In this group 31 (20%) had undergone salvage colectomy for severe UC. In univariate analysis male gender, age < 35y and CRP were statistically significant ( $p < 0,05$ ). In multivariate analysis only male gender and CRP > 100 remain significant ( $p < 0,05$ ). 6 patients (19%) were reoperated with in-hospital mortality of 13% (4 patients).

**Conclusion:** Patients demanding salvage colectomy in severe UC do not constitute significant amount in all hospitalized patients. Male gender, age less than 35y and CRP > 100 may be helpful in discriminating this group of the patients on a day of admission to the hospital.





## Correlation between mechanism of injury and severity of injuries among patients with politrauma – retrospective analysis

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**Introduction:** According to WHO data, annually about 75 mln people sustain injuries, including 17 mln who die or become disabled. In Poland trauma is 4th cause of death in general (6,5% in 2010) and 1st cause of death of people aged 0-44 years. Verification of correlation between mechanism and severity of injuries on Polish ground may lead to more effective qualification and field-triage of trauma patients.

**Aim:** The aim of the study was to evaluate the influence of mechanism of injury on severity of injuries in ISS-scale in group of patients with initial diagnosis politrauma who were admitted to trauma center.

**Materials and Methods:** The study was based on retrospective analysis of medical history of patients who were admitted to regional Trauma Center (Copernicus Memorial Hospital in Łódź) between 01.01.2014 and 31.12.2014. Inclusion criteria was initial diagnosis multi-organ trauma (politrauma), described in ICD-10 code as T06.8. Mechanism of injury (MOI) was defined as circumstances of an accident that may indicate severe injuries, according to American Field Triage Guidelines (CDC 2012). To assess severity of injuries, ISS score was calculated for each patient. Injuries were divided on: excessively severe (ISS>25), severe (ISS 16-25) and moderate/mild (ISS<16). Moreover 24-hour, 7-day and 30-day survival was evaluated.

**Results:** Among 3173 patients, 159 met inclusion criteria. The largest group (64,15%) sustained injuries in traffic accidents (in which 49,02% in car accidents, 33,3% in pedestrian/cyclist vs. vehicle collision, 16,65% in motorcycle crash). In this group 40,2% patients reached ISS score >25 (extremely severe injury) and 33,3% ranged 16-25 (severe injury). Pedestrian/cyclist vs. vehicle collision victims was associated in 52,94% with ISS>25. The same result was in group of motorcyclists. Extremely severe injuries were also correlated with following factors: need of extrication (71,43%), rollover (60%), high-speed crash (37,5%), death in the same compartment (33,3%). The second most frequent MOI were falls (23,27%). In this group ISS-score >25 was reached in 45,95% cases and in 51,85, excluding falls from <5 m. Last group described as "others" (11,95% cases), consists of injuries with unknown circumstances or non-specific MOI. Unfortunately, incomplete medical records were quite frequent in: high-speed crash (32,08%), airbag explosion



(28,3%), death in the same compartment (25,16%), need of extrication (23,27%), rollover (10,06%). Sensitivity of MOI criteria to predict severe or extremely severe injuries is 77,42% and the specificity is 50%.

**Conclusion:** . 1. MOI is a valuable predicting factor of severe or extremely severe injuries with high sensitivity and moderate specificity.

2. Relatively high number of incomplete data does not allow to confirm correlation directly between some MOI and severity of injuries.



## Panel of CA19-9, Ca125 and Ca15-3 and inflammatory status differentiate benign pancreatic lesion from pancreatic cancer.

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**Introduction:** Pancreatic cancer is a destructive disease, with the 5-year relative survival of 5%. That is why, this cancer is the fourth leading cause of cancer-related death. One of the first diagnostic problems is answering the question of whether the pancreatic tumor is malignant or not. This is frequently a complicated issue and for that reason, the frequency of pancreatoduodenectomy revealing benign lesions differs from 5% to 26%.

**Aim:** Our goal in this study was to assess the clinical significance of routinely used cancer biomarkers and inflammatory status (Neutrophil to Lymphocyte Ratio) in differentiating pancreatic mass of unknown aetiology.

**Materials and Methods:** We performed single centre retrospective study. Our study group consisted of 234 patients ( $62 \pm 9,16$ , median age 62; 141 male/ 93 female) with pancreatic cancer (PC) and 92 patients ( $55,34 \pm 13,72$ , median age 57; 62 male/ 30 female) with benign lesion (BL) (50 patients with inflammatory tumor, 34 patients with inflammatory cyst, 4 with IPMN, 4 with MCN and 1 with arteriovenous malformation). We obtained data concerning levels of CA19-9, Ca125, Ca15-3, CEA and blood morphology on admission.

**Results:** PC group had significantly higher mean concentration of CA19-9 (636 ng/mL vs. 62,36 ng/mL  $p < 0,0001$ ), Ca125 (45,37 ng/mL vs. 12,74 ng/mL  $p < 0,0001$ ), Ca15-3 (46,03 ng/mL vs. 15,77 ng/mL  $p = 0,027$ ) and CEA (11,95 ng/mL vs. 5,44 ng/mL  $p = 0,043$ ). However, patients with benign lesions had higher mean Neutrophil to Lymphocyte Ratio (NLR) (3,79 vs. 3,86  $p < 0,0001$ ). Taking into account these results, we built ROC curves separately for every factor. CA19-9 and Ca125 had the biggest Area Under Curve (AUC) – 0,736 (95%CI 0,676-0,795  $p < 0,001$ ) and 0,717 (95%CI 0,653-0,782  $p < 0,0001$ ) respectively. NLR had moderately good AUC (0,624 95%CI 0,556-0,692  $p < 0,0001$ ), while Ca15-3 and CEA could not be considered as independent biomarkers for the differentiation of pancreatic mass.

On multivariate analysis factors such as high concentration of CA19-9, Ca125 and Ca15-3 were associated with the presence of pancreatic cancer, while high NLR was associated with the presence of benign lesion. Afterwards we built a logistic regression model, taking into consideration CA19-9, Ca125 and Ca15-3. This model resulted in test



with an enhanced AUC (0,803 95%CI 0,749-0,857  $p < 0,0001$ ). With the optimal cut off point our test has sensitivity of 75% and specificity of 71%.

**Conclusion:** Biomarkers currently used for the detection and differentiation of pancreatic cancer are hampered by low specificity and sensitivity. Our study supports the notion that routinely used biomarkers separately are moderately useful in these aspects. Yet, our study shows that panel of cancer biomarkers may be useful in differentiation of pancreatic cancer from benign lesion, which may result in important clinical implications.



## Surgical management of perianal fistulas – experience of tertiary referral center

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**Introduction:** Perianal fistula is one of the most common anorectal diseases. It is a chronic abnormal canal that can develop between the end of the bowel and the skin surrounding the anus. The only effective method of treatment for an perianal fistulas is surgical operation.

**Aim:** The aim of the study was to analyse the results of treatment of perianal fistulas in the Department of General and Colorectal Surgery in Lodz in years 2011-2015

**Materials and Methods:** This was a retrospective analysis of standardized patient charts. From 2011 to 2015, 451 patients underwent perianal fistula procedures. This group of patients consisted of 328 (72,7%) men and 123 (27,3%) woman, aged 17 – 87 (mean 46,75). Analysed parameters included: body mass index (BMI), type of fistula, kind of operation, common diseases, age, the number of days of hospitalization, cigarette smoking, American Society of Anesthesiologists (ASA) scale rating, morphology, transrectal ultrasound test (TRUST) result, recurrence of anal fistulas. Patients with anal fistula arising from inflammatory bowel diseases (IBD) (87 patients) were excluded. A statistical analysis of retrieved data was carried out.

**Results:** In our study, 595 operation of anal fistula was performed. Intersphincteric fistula was diagnosed in 269 (45,2%), transsphincteric in 33 (4,5%), suprasphincteric in 30 (5%), extrasphincteric in 25 (4,2%). There were also observed 52 (8,7%) subcutaneous fistulas, 134 (22,5%) complex, 31 (2,5%) submucous and 33 (5,5%) horseshoe fistulas. Recurrent fistula occurred in 212 (71,4%), primary fistula in 85 (28,6%). The Hipocrates method was used in 253, fistulectomy in 250, fistulotomy in 219, curettage in 152. 103 (22,8%) patients had overweight, 168 (37,3%) had 1° of obesity, 113 (25%) had 2° of obesity, and 45 (1%) had 3° of obesity. 116 (25,7%) patients had hypertension, 49 (10,9%) had another heart diseases, 44 (9,8%) had diabetes, 17 (3,7%) had neoplasm, 6 (1,3%) had mental diseases, and 119 (26,4%) had another



comorbidity. Perianal fistula in 141 (23,7%) was accompanied by an abscess, 26 (4,4%) by an fissura, 19 (3,2%) by polyp and 62 (10%) by an another condition. During the operation the thread drain was used 129 times and the rubber drain 235 times. Average time of days of hospitalization was 3 days. Preoperative TRUST was done in 197 cases. 40% of smokers had a recurrent perianal fistulas in 12 months follow-up, and only 30% of non-smokers had a recurrent perianal fistulas ( $p=0,022$ ).

**Conclusion:** With 95% probability cigarette smoking increase possibility of recurrent perianalis fistula. People suffering from fistulas should aim renunciation of smoking and the proper treatment of chronic diseases.



## Open abdomen technique - comparison of standard methods and negative pressure wound therapy (npwt)

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**Introduction:** Open abdomen is a technique in which the fascia is left open intentionally to avoid elevation of intra-abdominal pressure (IAP). According to WSACS (World Society on the Compartment Syndrome) the correct value of intra-abdominal pressure is 5-7 mmHg. The intra-abdominal hypertension (IAH Intra Abdominal Hypertension) is recognized when pressure  $\geq 12$  mmHg.

**Aim:** Aim of this study was to compare the results of treatment of the open abdomen using standard therapy and negative pressure wound therapy (NPWT).

**Materials and Methods:** The study included 37 patients hospitalized in the Department of General, Endocrinological and Gastroenterological Oncology Surgery and Department of Anesthesiology and Intensive Care of Poznań University of Medical Sciences in 2009-2012 and divided into two groups. Group I (n = 20) was treated by standard surgical procedures (laparostomia, repeated washing of the peritoneal cavity). Group II (n = 17) was treated with NPWT. The analyzed data included time of hospitalization and the clinical outcome (survival vs death), the presence of atmospheric enterocutaneous fistulas, cyclic quantitative determination of C-reactive protein level.

**Results:** Mortality was lower in the group treated with NPWT compared to the group treated with the standard procedures (3 vs 9). Number of fistulas during hospitalization decreased in the group treated with NPWT compared to the standard treatment (18% vs 70%). Decrease in CRP levels was also observed in the group treated with NPWT.

**Conclusion:** The use of NPWT in patients requiring treatment with open abdomen is reasonable because of the increase in patients survival, decrease in the amount of intestinal fistulas. It is necessary to train doctors in the use of this form of therapy in training workshops and in the clinical setting.

**Keywords:** C-reaktor protein, negatively pressure wound therapy, open abdomen



## Symptomatic peripheral venous hypertension after dialysis fistula formation. The importance of the proximal part of the cephalic vein

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**Introduction:** Arteriovenous fistula is commonly used for patients with end-stage renal disease as a vascular access for dialysis. The presence of stenosis and occlusion are the most frequent complication of dialysis fistula. The etiology of formation of vascular stenosis is multifactorial. Fistula stenosis and occlusion increases vascular resistance and frequently leads to fistula thrombosis.

**Case report:** 70-year-old female patient was admitted to the Clinic with end-stage renal failure and increasing swelling of the left upper limb. She had brachio-basilic fistula (third dialysis access) on the left arm. Numerous vessels of collateral circulation in area of the left upper limb and the thorax were observed. Dialysis fistula with a palpable murmur and pulse was notice. Moreover, problems with extended bleeding after fistula puncture, a significant recirculation and hypertension in the venous line during dialysis were observed. The ultrasound examination revealed patency of dislocated basilic vein to the level of the brachial vein, increasing resistance in venous flow, suspicion of the axillary vein obstruction, patent subclavian vein and numerous collateral vessels in the proximal part of the arm. Fistulography showed short occlusion of the dialysis fistula and short occlusion of the axillary vein. Patient was qualified for endovascular recanalization which was unsuccessful then patient was qualify for surgery treatment Reconstruction involved outflow transposition from the basilic and brachial veins to cephalic and subclavian veins. Short bypass between the basilic vein (previously used to fistula creation) and the proximal part of the cephalic vein was created. Reinforced PTFE (6mm) prosthesis was used. Significant reduction in pressure in the venous line, shortening post-puncture bleeding time of fistula has been reported.

**Conclusion:** In most cases symptomatic venous hypertension occurs when obstruction or occlusion is placed in distal part from the arterio-venous anastomosis with good inflow from the arterio-venous fistula. Efficacy of our proceedings shows opportunity to effective treatment venous hypertension in patients with arteriovenous fistula for hemodialysis.





## Risk factors for postoperative complications in low anterior resections for rectal cancer.

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**Introduction:** Colorectal cancer (CRC) is the second most common cause of tumour-related death in Europe. Nearly 40% of the CRC affect the rectum. With primarily extra peritoneal location and differences in metastatic behavior rectal cancer (RC) is often considered as an independent entity.

In the recent years, the advent and increasing use of stapling devices in creating colorectal anastomosis has promoted low anterior resection (LAR) as the preferred surgical option for low RC. Despite the technical advances, postoperative complications following the procedure still remain an important issue in patient management. Simultaneously, possible risk factors for such impairment continue to be disputable.

**Aim:** The aim of this study was to assess the rate of postoperative complications of LAR in RC patients. Additionally, we tried defining possible risk factors for negative outcomes of RC surgery.

**Materials and Methods:** The study included 241 patients with RC treated at the Department of General and Colorectal Surgery between 2010 and 2015. All included patients underwent LAR without performance of a protective stoma during the primary operation. The medical data was collected in a retrospective manner basing on hospital records. The analyzed parameters included length of hospitalization, gender, age, BMI, concomitant conditions, American Society of Anesthesiologists classification score (ASA), carcinoembryonic antigen (CEA), carbohydrate antigen 19.9 (CA 19.9) and postoperative complications. Statistical analysis was used to evaluate the correlation between the variables and postoperative complications.

**Results:** In all, 144 (59,8%) males and 97 (40,3%) females were evaluated. The mean age of the population was 64,7 years. Postoperative complications occurred in 24/241 patients (9,96%). Among the group 20 males (83,3%) and 4 females (16,7%) were identified ( $p=0,013$ ). 15/24 (62,5%) patients required relaparotomy out of which



6 (40%) due to anastomotic leak (AL). Individuals experiencing complications presented with longer hospitalization rate, compared to patients with uncomplicated postoperative period (20,8d vs. 10,2d;  $p < 0,001$ ). Other variables such as age and BMI revealed no statistical difference between the two groups.

**Conclusion:** With 40% AL remains a major issue of curative surgery in RC. Requiring relaparotomy, this postoperative complication entails not only increased risk for patient, but also prolonged hospitalization and increased healthcare costs. Based on the results, a particular attention should be paid to male population of operated individuals. An appropriate selection of patients for protective stomas can potentially decrease the incidence of anastomotic leakage, thus reduce the risk of critical complications.



## Maximal thymectomy in a patient with myasthenia gravis

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**Introduction:** Myasthenia gravis (MG) is a neuromuscular disorder caused by autoantibodies which block acetylcholine receptors in the neuromuscular junction. The disease manifests as fatigability that is tendency to deterioration in activity and its effects can be observed in the articulatory, respiratory, limb and eye-movement muscles. Approximately 10-15% of patients with myasthenia present thymoma and it is an indication for thymectomy. However, this surgery is also recommended for patients without thymoma, resulting in a decreased incidence of exacerbations and a reduction of medications requirements, as well as a higher incidence of long-term remission. The purpose of our case is to present modified videothoracoscopic maximal thymectomy in our patient with MG and to show advantages of VATS in faster recovery and better cosmetic effect.

**Case report:** A 58-year-old male patient was referred to Department of General Surgery, Oncology, Metabolic and Thoracic Surgery - Military Institute of Medicine in Warsaw for a thymectomy in myasthenia gravis. After mediastinoscopy he was qualified to operation. Thymectomy was performed via Kocher's incision and substernal incision using bilateral videothoracoscopy. Surgery was carried by removal of whole thymus and perithymic, mediastinal and cervical fat. Limits of the removal tissue were determined by: superiorly - inferior horns of thymus, laterally - phrenic nerves, inferiorly - dome of diaphragm. Using this new modified surgery gives possibility to reveal mediastinum, all pathology in them as well as sampling tissue for histopathology examination. In postoperative RTG there were any abnormalities. The patient was discharged after 3 days in a good condition.



**Conclusion:** Total thymectomy, despite postoperative complications such as perioperative respiratory failure against pneumonia, bleeding or infection complications like mediastinitis and pleural empyema, is one of the best treatments in MG. Owing to the possibility of implementing minimally invasive techniques in thymus operations, the necessity for sternotomy which puts additional burden on the patient, can be eliminated.



## Sexual disorders after low anterior resection of the rectum

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**Introduction:** Low anterior resection of the rectum is a treatment of choice in patients with diagnosed low rectal cancer. Surgical resection of the rectum can result in multiple complications related to lesion of neighbouring neural structures responsible for fecal continence as well as urinary and sexual function.

**Aim:** In our study we investigate the sexual disorders in patients who underwent a low anterior resection of the rectum. The sexual activity, comfort of the experience, quality of sexual life during 3 periods: before surgery, a month after and half a year after were analyzed. Analysis of comorbidities, previous surgeries and trauma as risk factors of sexual disorders.

**Materials and Methods:** Patients with rectal cancer who underwent low anterior resection of the rectum at the Department of General and Colorectal Surgery at the Medical University in Lodz during the period from 2003 to 2015 were asked to complete a questionnaire concerning their sexual activity before and after surgical procedure. The questionnaire was comprised of 37 closed-ended questions. Only fully completed questions (surveys) were included to further statistical analysis.

**Results:** The study analysis involved 20 fulfilled questionnaires – 8 (%) women and 12 (%) men. Patients mean age was  $56,9 \pm 7,6$ . A statistical, significant differences between the periods of time (before surgery, month after surgery and half year after surgery) and quality of sexual life was noted ( $p < 0,001$ ). No relationship was found between the sex of patients and quality of their sexual life. However, the quality of sexual life one month after the surgery was significantly lower in patients with diagnosed hypertension ( $p = 0,009$ ).

**Conclusion:** Low anterior resection (of rectum) significantly impairs the sexual activity of patients. However, these disorders are passing over time. Also LAR procedures



have strong negative impact on fecal, gas and urinary incontinence which may, in addition, intensify sexual discomfort.



## Pilonidal sinus treatment by portable VAC-assisted therapy - the assessment of long-term quality of life

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**Introduction:** Multiple therapeutic approaches of the treatment of pilonidal sinuses (PS) have been described in the literature, but there are still controversies and lack of standardization. Vacuum Assisted Closure (VAC) therapy has potential beneficial effect on the wound healing after the sinus resection.

**Aim:** The aim of the study was to analyze the results of VAC therapy and long-term quality of life in the treatment of PS.

**Materials and Methods:** After randomization, in the group I (14 men) the simple excision of the pilonidal cyst was performed with the standard wound dressing. In the group II (16 men and 1 woman) after surgical procedure, the VAC-assisted therapy was instaled with mobile VAC Freedom device. To assessed a quality of life, the Dermatology Quality of Life protocol was used in both group after 12-months follow-up. The wound size, were compared.

**Results:** Group II returned to work after mean time of  $10.17 \pm 4.62$  days compared to mean time of  $17.35 \pm 5.70$  in group I ( $p=0.000002$ ). The number of dressings changes was statistically different -  $5.17 \pm 0.88$  – group II vs.  $12.71 \pm 4.76$  – group I ( $p=0.000003$ ). The number of visit in Out-patient Clinic was  $15.21 \pm 5.65$  times – group I vs.  $6.23 \pm 1.39$  times – group II ( $p=0.000001$ ). In group I DQoL Index was  $6.14 \pm 0.94$  before surgery and  $3.21 \pm 2.45$  after 12 months ( $p=0.0055$ ). In group 2 DQoL Index was before surgical procedure  $6.00 \pm 1.06$ , and after was  $1.35 \pm 2.31$  ( $p=0.0003$ ). The post-operative complications rate was 17.65% in group II and 57.14% in group II ( $p=0.02$ ).

**Conclusion:** VAC therapy can be easily used in an outpatient setting, mobile device is highly accepted, operation of the equipment is simple. VAC therapy significantly decreases the time of wound healing and absenteeism from work as well as the postoperative late pain.



## Oesophageal rupture due to blunt trauma

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**Introduction:** Oesophageal ruptures are rare and uncommon despite the variety of backgrounds. They are usually situated in cervical part of oesophagus - 82% of all incidents are located above the level of carina. Perforations are extremely dangerous associated with symptoms which are often masked by more common blunt thoracic injuries. They exacerbate quickly and become life-threatening after 24 hours of delay with mortality rate up to 50%. Nevertheless these incidents are often omitted by surgeons especially when they are situated in the intrathoracic region. That is why this condition is characterised by high morbidity and mortality. Oesophageal ruptures are usually stitched during operation, however in some cases conservative management is recommended.

**Case report:** I present the case of 24 year old male who was admitted to hospital in critical condition with oesophageal rupture secondary to car accident. The patient also suffered from multiple injuries, fractures and respiratory failure. However due to location of perforation on clavicular level and good-quality CT scan, the patient was not misdiagnosed and soon was operated (left cervicotomy secured with Redon drainage which was removed after 72 hours). After the operation the patient was intubated and admitted to ICU in severe condition. The aim of almost immediate surgical intervention was prevention of development severe complications (sepsis and mediastinitis).

**Conclusion:** Quick response and accurate diagnosis which significantly depends on location of perforation and quality of imaging can reduce risk of severe complications such as sepsis and mediastinitis in the case of oesophageal ruptures. Treatment should be established after taking into account the background, general condition of patient and time elapsed from injury. It is crucial to remember that atypical complications should not be excluded in blunt traumas due to car accidents.





## Knowledge of patients with lung cancer before surgical procedure

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**Introduction:** Patient education is an important part of therapy before surgical procedure. The high level of reliable knowledge has a positive effect during the period of convalescence and eliminates the modifiable risk factors of complications.

**Aim:** To evaluate the level of patients' knowledge before surgery and to determine the manner of its acquisition.

**Materials and Methods:** The study included 60 patients with lung cancer treated at the Department of Thoracic Surgery, General Surgery and Oncology. The research tool was a questionnaire filled in by respondents themselves.

**Results:** Among the patients 98% feel adequately informed about the planned surgical procedure. However, it should be noted that the state of knowledge about the neoplastic disease is much worse because 40% of patients believe that they know not much and 8% say they do not know anything about it. 46 patients (77%) indicated doctor as the main source of knowledge about cancer. The vast majority (92%) are aware of the dangers of tobacco smoke and identified it as the main cause of lung cancer.

**Conclusion:** It has been shown that about half of the respondents rate their knowledge as unsatisfactory, but the vast majority considered surgery as an important stage of treatment. It should be verified the quality of patients' knowledge and expand it, because it has a positive effect on the therapeutic process. It also important to encourage the family to support the patient, because it is an important psychological element.



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