

4TH LUBLIN INTERNATIONAL MEDICAL CONGRESS FOR STUDENTS AND YOUNG DOCTORS

LUBLIN, 8TH-9TH DECEMBER 2017



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STUDENS' SCIENTIFIC SOCIETY
OF THE MEDICAL UNIVERSITY OF LUBLIN



LUBLIN 2017

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ABSTRACTS

Anaesthesiology, Intensive Care and Emergency Medicine

ACUTE HEPATITIS A VIRUS INFECTION IN PATIENTS HOSPITALISED AT THE DEPARTMENT OF INFECTIOUS DISEASES, MEDICAL UNIVERSITY OF LUBLIN (EASTERN POLAND) IN THE YEARS 2009-2015

Georgia Lucas, Christiana Lucas, Nicholas Lucas

Scientific supervisor: Dr. Joanna M. Krzowska-Firych

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Introduction: Hepatitis A virus infection is one of the most common causes of acute hepatitis worldwide. Approximately 1.5 million clinical cases occur worldwide annually, but the rate of infection is probably 10 times higher. Currently, Californias public health officials are dealing with an ongoing crisis; with one of the largest person-to-person hepatitis A outbreak in the country siince the development of a vaccine over two decades ago. The aim of our study was to analyse all medical records from the years 2009-2015 for adult patients with acute hepatitis A virus (HAV) infection who were hospitalised at the Department of Infectious Diseases, Medical University of Lublin (Eastern Poland).

Methods: During this 7-year study, we collected data on all confirmed cases of HAV infection between the year 2009- 2015.

Results: There were only 5 hospitalised patients with confirmed HAV infection. In the study group 4 out of 5 patients had travelled to HAV-endemic areas (Egypt, Ukraine), and 3 of the hepatitis A cases were imported from Egypt.

Conclusions: Our data indicate that during the past 7-year period most HAV patients hospitalised at the Department of Infectious Diseases in Lublin were due to travel

Keywords: hepatitis A virus (HAV) infection, epidemiology, Eastern Poland, travellers.

THE CONCENTRATION OF OREXIN IN PATIENTS WITH CHRONIC HEPATITIS C INFECTION DURING ANTIVIRAL THERAPY

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Introduction: Orexin was first discovered in 1998. Orexin-A and orexin-B are neuropeptides that play key roles in the regulation of: feeding, autonomic functions, wakefulness, and energy homeostasis. Currently, a new role is now emerging for orexin as a regulator of insulin and leptin sensitivities responsible for the wholebody glucose metabolism. The potential role for orexin as predictive factor associated with sustained viral response in antiviral therapy of HCV patients has not been established. The aim of this study was to assess the concentration of orexin in chronic hepatitis C patients during antiviral therapy.

Methods: The cohort study consisted of 60 treatmentnaive, chronic hepatitis C patients treated with pegintereron alpha-2 and ribavirin for 48 weeks. The serum concentration of orexin was measured by enzyme-linked immunosorbent assay at the baseline and end of the antiviral therapy.

Results: Amongst a sustained viral response, serum orexin level before treatment measured at 863.74 ± 391.42 and significantly increased at the end of the treatment 1474.88 ± 319.29 ($P=0.0001$). Similarly, in relapsing patients, the orexin concentration increased up to the end of treatment (815.98 ± 389.91 , 1570.49 ± 433.23 , $P=0.0008$). The results demonstrate that the optimal cut-off value of orexin in relapsing patients is >1227.6 pg/mL (AUC=0.9) providing that the sensitivity, specificity is 83.3%, 91.7%, respectively.

Conclusions: Our study exhibits changes in the serum concentration of orexin in patients with chronic hepatitis C infection treated with peginterferon alpha-2 and ribavirin.

Keywords: antiviral, chronic hepatitis C, leptin, Lublin, orexin, Poland, sustained viral response

Basic Sciences and Experimental Medicine

THE ROLE OF AUTOPHAGY PROCESS IN MELANOMA MALIGNANCY

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Introducion: Autophagy represents an essential and also complex cellular process, involved in the physiological mechanisms that mantain cellular homeostasis. Recent studies show the role of autophagy in growth and progression of human neoplasms. Melanoma represents a leading cause of skin cancer death due to its high metastatic potential and limited treatment options. Patients often develop therapy resistance and here is where the autophagy plays its role. We decided to sintetise current ideas about the role of autophagy process in melanoma malignancy, and specifically therapy response.

Methods: We systematically analized evidence from numerous studies based on the connection between autophagy process and melanoma malignancy. We identified articles in data base of PubMed and Cochrane Library until September 2017.

Results: Nowadays, there is a consensus regarding the role of autophagy in oncogenesis, this process being tumor-suppresive in the early stages of cancer and tumor-promoting in established tumors. Autophagy can be activated by various stimuli such as nutrient depletion, hypoxia, infections, stress, and also by aberrant cell growth during cancer. Some studies show that autophagy prevents tumor initiation by protecting cells from metabolic stress. Deficient autophagy can disturb cellular homeostasis due to accumulation of protein aggregates and dysfunctional. This disruption of cellular homeostasis can in turn induce genomic instability and promote cancer development. As tumors progress, autophagy takes on the tumor-promoting role. Recents studies show that malignant cells upregulate autophagy activity as an adaptive mechanism to survive and progress under the stressful conditions of the tumor microenvironment (acidic conditions). On the other hand, aggressive tumor cells with high autophagy levels are more likely to develop drug resistance by using this complex process to escape drug-induced stress.

Conclusions: Although it is established that autophagy has a dual role in cancer, the dynamics by which this catabolic process suppresses or promotes cancer still remain complex. In the particular case of melanoma, pre-clinical models and clinical trials have indeed demonstrated the potential of autophagy inhibition for therapy.

Keywords: autophagy process, metabolic stress, melanoma, drug resistance

THE PRELIMINARY ASSESSMENT OF THE RESVERATROL INFLUENCE ON THE SPONTANEOUS CONTRACTILITY OF THE NON-PREGNANT UTERUS IN HUMAN.

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Introduction: Resveratrol is a polyphenol present in many foods such as: grapes and red wine. The resveratrol content in red grapes ranges from 1.5 to 7.3 µg/g. Recently, many studies have demonstrated that it is a potent antioxidant with anti-inflammatory, anti-steatotic and anti-proliferative (e.g. ovary and prostate cancer) properties. Resveratrol supplements, widely present on the market, have been proposed as a potential therapeutic to improve glucose metabolism. However, little is known about the effects on the contractility of human uterus as well as about the underlying mechanisms. The purpose of the present study is to examine the direct effects of resveratrol on human uterine smooth muscle contraction *in vitro* and to compare it with other known relaxant substances.

Methods: Human, non-pregnant myometrium was obtained from women, aged 41 - 76 years, undergoing hysterectomy due to benign gynaecological disorders. The uterine strips were mounted in an organ bath containing physiological salt solution at 37°C, pH 7.4 and bubbled with carbogen. Responses of the myometrial strips to resveratrol, DEA/NO, SNP were recorded under isometric conditions. Quantification of the response of myometrium strips was done by calculation of the area under the curve (AUC), as well as the amplitude and frequency of contractions.

Results: Human uterus exposed to resveratrol contracts with less basic force by 6,2% (AUC), frequency of contraction decreased by 33%, while duration of contraction was 42,4% shorter.

Conclusions: In summary, the present data demonstrate that the resveratrol inhibits the human uterine smooth muscle contraction *in vitro*, affecting contraction force, frequency and duration.

Keywords: resveratrol, smooth muscle contractility

EFFECT OF TATTOO DYES ON PROLIFERATION AND CYTOTOXICITY IN HUMAN SKIN FIBROBLASTS.

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Scientific supervisor: Dr n.farm. Edyta Rysiak

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Introducion: Skin is the greatest organ of the human body. It is made up of three overlapping layers: subcutaneous tissue, dermis and epidermis. It is adapted to perform many important physiological functions in the body, including receiving stimuli from the outside world. It is an organ absolutely necessary for the proper functioning of the body. The skin is constantly exposed to external factors. Unfortunately the skin along As aging progresses, aging progresses. It is a process regulated by genetic and environmental factors. Skin as a protective body of our body is often "decorated" by us. A tattoo is a "deliberate, voluntarily made pattern on the skin using various techniques, fulfilling various functions and having different meanings for the wearer." The tattoo consists of applying a dye to the dermis. Tattoo ink is a mixture of dyes suspended in a solvent. They also contain additives that improve application properties and provide pigment stability. Tattoo responses As a rule, they are allergic. They appear after months or even years. Reactions appear as inflammation or so-called "lupus" or they can develop skin ulcers and even epidermal hyperplasia. The potential influence of tattoos and dyes on the basic life processes of individual skin elements remains unclear. Therefore, the aim of the study was to determine the influence of the most commonly used dyes on the proliferation process and survival of human skin fibroblasts. The results of the experiments clearly show that tattoo dyes have a negative effect on human skin cells. All inks tested inhibited collagen biosynthesis and decreased cell survival, with varying degrees of intensity depending on the type of pigment used.

Methods: Materials: 1. DPBS phosphate buffer, DMEM medium, MTT [3-(4,5-dimethylthiazole-2-yl)-2,5-diphenyltetrazoline bromide - Sigma, USA 2. Sodium chloride, calcium chloride, glycerol, glacial acetic acid, orthophosphoric acid, hydrochloric acid, sodium potassium tartrate - POCH Gliwice, Poland 3. EDTA, trichloroacetic acid (TCA) - Ubichem Ltd., UK 4. Fibroblasts- American TypeCulture Collection, Rockville, USA 5. Glutamine, penicillin, streptomycin, trypsin EDTA-QualityBiologicals Inc., USA 6. [3H]-Thymidine- AmershamBiosciences. UK 7. Fertilized Bovine Serum - Gibco, USA Ultima Gold XR scintillation liquid - Packard, USA 9. Tris-HCl- Feinchemie, Germany Methods: 1. Preparation of fibroblast culture Human skin cells - fibroblasts were cultured in DMEM medium containing 5% fetal bovine serum, 50 µg / ml penicillin, 50 µg / ml streptomycin, at 37 ° C, 5% CO₂. The cells were grown on 10 cm diameter adhesive plates. At the time of confluence of 90%, cells were transplanted into appropriate culture plates with phosphate buffer containing 0.05 trypsin and 0.02% EDTA. The cells were converted into a hemocytometer and transferred in 1x10⁵ cells in 1 ml culture medium on suitable plates. The culture medium was replaced every 48 hours. Fibroblasts achieved contact inhibition after 6 days of growth. Cells between 8 and 14 were used for the study. The inoculated contact was washed three times with 0.15 mol / l NaCl and then treated with the test agent. 2. Cytotoxicity test The toxicity assessment of tattoo dyes was performed according to the method described by Carmichael [38]. Cell viability was tested using tetrazoline salt (MTT). In the dead cells the conversion process does not take place while the dye is converted to the purple formazone under the influence of mitochondrial dehydrogenases. The cells in contact-inhibitory state were incubated for 24 hours in a medium containing different concentrations of the test compound. Incubation was carried out in a CO₂ incubator, at 37 ° C, in an atmosphere of 5%.

The next step was to remove the medium, flush 1 ml of PBS cells three times, add 1 ml of PBS and 50 ml of MMT (tetrazolium salt) at 5 mg / ml followed by incubation for 10 minutes. Sorensen buffer was added sequentially and the absorbance was measured at 750 nm. The absorbance values obtained in control cell cultures were assumed to be 100%. This value was used as a comparison to the incubated cells in the presence of dyes. The survival of fibroblasts is expressed as a percentage of the control value.

3. Measurement of DNA biosynthesis

Measurement of DNA biosynthesis was performed on cells cultured on a plate that had 24 wells and the cells were subjected to the tested agents. After 20 hours of incubation, 5 μ Ci [³H] thymidine was added to all wells and incubation continued for another four hours. After a certain period of time, Each medium was removed from the medium and the cell surface washed with 1ml Tris-HCl solution of pH 7.8, added with 0.11 M NaCl and successively 1 ml with a 5% TCA solution. The cells were dissolved in 1 mL of 0.1 M NaOH with 1% SDS added. The cells were incubated at room temperature for 5 minutes, after which the resulting lysate for scintillation vials was transferred, which contained 2 ml of scintillation fluid. Finally, radioactivity was measured and the intensity of DNA biosynthesis was expressed in dpm radioactive thymidine. Statistical analysis The results were analyzed statistically. Three independent experiments were performed in which individual trials were performed in duplicates (n = 6). Calculated arithmetic means from individual measurements and standard deviations. Statistical analysis was also performed using the "t" test. Significant differences were observed between mean values at significance level P <0.05.

Results: 1. Evaluation of the effects of tattoo dyes on the survival of human skin fibroblast cells. Tattoo ink is a mixture of dyes suspended in a solvent. They also contain additives that improve application properties and provide pigment stability. Pigments, which are often the main ingredient in the carcass, include salts and oxides of various metals, including titanium, barium, aluminum and copper, as well as antimony, arsenic, cadmium, chromium, cobalt, lead or zinc. Certain metal oxides (alumina, titanium oxide) in nanoscale size are also used to achieve the desired color, clarity and fluorescence. The toxicity of metals and metal nanoparticles in tattoos is a problem that is not controlled as well as often there is no information on the composition of the tattoo dyes. For this reason, I have decided to examine the effects of the most commonly used tattoo dyes on the survival of human skin fibroblasts. Evaluations were made using a cytotoxicity assay, according to the method described in section 3.2.2. The cells were incubated for 24 hours in addition to different concentrations of individual dyes. The concentration range ranged from 0.01% to 0.1%. Four most commonly used colors were chosen: black, white, green and yellow. The obtained results are shown in Figure 7. All dyes used decreased the survival of the examined cells. In the case of green dye (Fig.7C) and black (Fig.7A), the inhibition of survival is clearly dependent on the concentration of dye used. For black pigment the survival rate decreases from about 13% to 0.01% to about 74% at 0.1%. In the case of white dyes (Fig. 7B) and yellow (Fig. 7D) there is no noticeable dependence of the survival level on the dye concentration used. Obtained results show that the white dye is more cytotoxic than yellow, resulting in a reduction in survival of approximately 64% at each concentration, while at yellow dye it decreased on average by 30% compared to the control value.

2. Evaluation of the effects of tattoo dyes on the DNA biosynthesis of human skin fibroblasts.

Reducing the survival of human skin fibroblast cells under the influence of tattoo dyes may result from a decrease in the level of DNA biosynthesis of the substances contained therein. Therefore, it was decided to check whether the addition of the test dyes actually disturbed the process in the proposed research model. The indications were made according to the method described in Section 3.2.3 and the results are shown in Figure 8. In cells exposed to 24 hours exposure to the tested dyes concentrations of

[3H]-thymidine in the deoxyribonucleic acid molecules have been measured at concentrations in the range of 0.01% -0.1%, which determines the intensity of the DNA biosynthesis process. The results were similar to the previous experience. Both the black and the green color decreased the level of DNA synthesis in a manner dependent on the dye concentration used, on average about 52% for the black dye (Fig.8A) and about 46% for the green dye (Fig.8C). As in the cytotoxic assay, no dependence of the inhibitory effect on DNA biosynthesis from the dye concentration on white (Ryc.8B) and yellow (Ryc.8D) was observed. Both dyes reduced DNA biosynthesis by an average of 61% for white dye and about 34% % for yellow color. The results obtained in both experiments show that the dyes used in tattoos have a negative effect on human skin fibroblasts, reducing their survival and inhibiting DNA biosynthesis.

Conclusions: 1. Dyes used in tattoos reduce the survival of human fibroblast cells. 2. Dyes used in tattoos cause inhibition of DNA biosynthesis in human skin fibroblast cells. 3. The most harmful of the tested inks is the white pigment that produces the strongest cytotoxic and antiproliferative effect irrespective of the pigment concentration used.

Keywords: tattoos, fibroblasts, human, biosynthesis, DNA, cytotoxic, antiproliferative, dye

CYCLOOXYGENASE-2 INHIBITION ENHANCES PROLIFERATION OF NKT CELLS DERIVED FROM PATIENTS WITH LARYNGEAL CANCER

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Introduction: The influence of cyclooxygenase-2 inhibitor (COX-2-inh) on NKT cells proliferation has potential role in dendritic cell (DC)-based laryngeal cancer (LC) immunotherapy.

Methods: Peripheral blood mononuclear cells were obtained from 48 male patients diagnosed with LC and 30 control patients without cancer disease. Neoplastic cell lysates preparation were made from cancer tissues obtained after surgery. Dendritic cells (DCs) were generated in vitro after appropriate stimulation. NKT cells proliferation assay were performed based on ³H-labelled thymidine incorporation assay.

Results: Enhanced proliferation of NKT cells was observed in control group than in LC patients regardless of the type of stimulation or treatment. In patients diagnosed with LC statistically higher proliferation of NKT cells stimulated with autologous DCs in the presence of COX-2-inh was observed in comparison to NKT cells stimulated with DC without COX-2 inhibition.

Conclusions: COX-2 inhibition could be regarded as immunotherapy enhancing tool in patients with laryngeal cancer.

Keywords: COX-2, laryngeal cancer, dendritic cell (DC)-based immunotherapy

SHORT TERM EFFECTS OF DUODENO-JEJUNAL OMEGA SWITCH SURGERY AND DIET ON GLUCOSE TOLERANCE IN SPRAGUE-DAWLEY RATS.

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Scientific supervisor: Dominika Stygar, PhD Tomasz Sawczyn, PhD

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Introduction: The improvement in glycemic control after bariatric surgery often occurs within days of the surgery, before any significant weight loss. This points to a role for weight loss independent. Mechanisms related to the changes in gastrointestinal anatomy and transit of nutrients. Although there is no investigation on role of the diet in that effect.

Methods: Rats were assigned to the control diet CD (n=24) and high fat diet HFD (n=24) groups. After 8 weeks, both groups underwent SHAM and duodeno-jejunal omega switch (DJOS) surgery. All rats were then randomly divided into HFD and control diet (CD) fed group. Glucose tolerance and body weight were measured and compared with the control group.

Results: No changes between the two operations types were observed for groups HFD/HFD (p=0,499) HFD/CD (p=0,073), and CD/HFD (p=0,252). A statistically significant difference in time profile course in the group CD/CD was observed (p<0,01). In SHAM type operations, there were no statistically significant differences in time profile course. In the DJOS type operation, differences were observed between group HFD/HFD and CD/CD (p<0,01). The highest glucose tolerance was observed for the CD/CD and HFD/HFD groups, while a change of diet (HFD/CD or CD/HFD) resulted in disabled glucose tolerance.

Conclusions: Changes of almost all analyzed parameters were observed in the CD/HFD groups following either DJOS or SHAM surgery. It suggests that a change of diet, irrespective of surgery, crucially affects glucose tolerance. Animals, which underwent DJOS surgery, showed improved glucose tolerance for HFD/HFD and CD/CD groups.

Keywords: duodeno-jejunal omega switch, DJOS, metabolic surgery, glucose tolerance, diet-induced obesity

THE COMPARISON OF TENSOR OF VASTUS INTERMEDIUS' FREQUENCY OF OCCURRENCE AND MORPHOLOGY IN FEMALE AND MALE AUTOPSY MATERIAL.

Natalia Pietrzyk, Hubert Opaliński, Paweł Obierzyński, Gabriela Kuroska, Patryk Pieniążek

Scientific supervisor: dr hab. n. med. Grzegorz Staśkiewicz

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Introducion: First scientific report about newly discovered muscle related on vastus intermedius has been published by K. Grob et al. in 2016 [A newly discovered muscle: The tensor of the vastus intermedius. Clin Anat. 2016 Mar;29(2):256-63]. The tensor of vastus intermedius (TVI) occurs in five morphological types and is supplied by the branches of femoral nerve and the lateral circumflex femoral artery.

Methods: The autopsy of 7 female and 23 male bodies have been performed to demonstrate and compare the frequency of occurrence and morphology of tensor of vastus intermedius. The Cadavers came from Forensic Medicine Department, Medical University of Lublin. TVI has been shown by preparing and removing upper layers of thighs tissues, and then the measurement of muscle has been done.

Results: Each of all five morphological types has been revealed among female as well as male bodies, however their frequency of occurrence in both groups was different. Moreover we observed that differences between measurements of TVI in female and male limbs were statistically significant.

Conclusions: In analyzed autopsy material the interindividual differences of morphology and frequency of occurrence of TVI have been revealed. Moreover there are variations in respect of sex. The most commonly type of TVI in female group is "vastus lateralis type" (VL-type, type 3) and in male group - "independent type" (type 1).

Keywords: Tensor of vastus intermedius, anatomy, forensic medicine

EPSTEIN-BARR VIRUS IN CHRONIC LYMPHOCYTIC LEUKEMIA

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Scientific supervisor: Ewelina Grywalska M.D., Ph.D., Associate Professor

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Introduction: Background Viral pathogens play a significant role in many cancers, including hematological ones. A high percentage of patients with chronic lymphocytic leukemia (CLL) reveals an infection with herpesviruses which have the capability to remain in the state of latency after the primary infection and reactivate in favorable conditions. Objectives The aim of this study was the assessment of the presence of the Epstein-Barr virus DNA in the mononuclear cells of patients with CLL and the influence of this infection on the clinical course of CLL and chosen immunological parameters.

Methods: The flow cytometry was used in order to assess surface and intracellular antigens of cells in peripheral blood of 50 patients with newly diagnosed and untreated chronic lymphocytic leukemia. Followingly, the DNA was isolated from PBMCs and the presence of viral DNA was assessed with real-time PCR technique.

Results: The analysis of the presence of the virus DNA in the cells revealed its presence in 36% of patients with CLL. In comparison with the group of patients with CLL EBV-, the EBV+ group was statistically marked by a higher percentage of CD19+CD69+ ($p=0.03$), CD3+CD25+ ($p=0.03$), and CD3+CD69 ($p=0.01$) cells. In the EBV+ group a tendency has also been demonstrated for the virus to appear more frequently with the more advanced clinical stages of the disease. The capability of CD3+CD4+ T cells to produce cytokines after polyclonal stimulation in the CLL EBV+ and EBV- groups of patients was also assessed.

Conclusions: The received results indicate the influence of EBV on CLL prognosis.

Keywords: Hematology, Immunology, Chronic Lymphocytic Leukemia, Epstein-Barr virus

DICLOFENAC, MORPHINE OR ACETAMINOPHEN - WHICH ONE SHOULD BE THE FIRST-LINE DRUG FOR RENAL COLIC IN THE EMERGENCY DEPARTMENT?

Magdalena Cielma, Karolina Żak, Sylwia Gajek, Sebastian Kowalski, Alicja Kaczorowska

Scientific supervisor: Halina Piecewicz-Szczęsna M.D., Ph.D.

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Introduction: Patients with the symptoms of renal colic often go to the emergency room. Pain in renal colic is described as one of the strongest pain sensations known, therefore it requires quick and effective treatment. To make easier and standardize the choice of first-line drug for the treatment of renal colic attack big clinical trial was conducted. In this study one of the NSAIDs - diclofenac (administration i.m.) was compared with morphine or acetaminophen (administration i.v.).

Methods: Analysis of randomized study concerning the use of above- mentioned drugs in patients with renal colic attack.

Results: In big randomized research made in Katar it was evaluated which drug- diclofenac, morphine or paracetamol should be used as first-line therapy in case of hospitalization due to renal colic with moderate or severe intensity of pain. The research was conducted among 1644 adults admitted to the hospital at the age of 18-65 years [med. 35 years], 83% of participants were male. Patients suffering from kidney or liver diseases has not been qualified. Participants did not know which drug they will take. They were separated into three groups. One group received diclofenac 75 mg im, second morphine 0,1 mg/kg iv and third acetaminophen 1g/100 ml iv. It has been proved that diclofenac when compared to morphine and acetaminophen reduced the intensity of the pain more effectively. The effectiveness of paracetamol (1 g i.v. within 3-5 min) compared with morphine was of almost the same. The use of acetaminophen and diclofenac when compared with morphine was associated with a lower risk of serious side effects.

Conclusions: Mentioned research has shown that the most preferred drug for the relief of pain in patients with renal colic was administered intramuscularly diclofenac, therefore, it should be a first-line drug. Diclofenac is the most effective drug for patients in ER to reduce the pain caused by renal colic.

Keywords: renal colic, treatment, emergency department

EFFECT OF HELICOBACTER PYLORI COMPONENTS, DIETARY ELEMENTS AND PHARMACOLOGICAL PRODUCTS ON ENDOTHELIUM CELLS

Bujana Allushi, Adrian Gajewski, Magdalena Chmiela

Scientific supervisor: Magdalena Chmiela

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Introduction: Infections due to Gram-negative *Helicobacter pylori* and coronary heart disease (CHD) are health problems for more than 50% of world population. *H.pylori* colonize gastric epithelium and initiate cell damage causing gastritis, ulcers and promote the development of gastric cancer. In *H.pylori* infected patients increases the concentration of oxidized lipids such as 7-ketocholesterol (7-kCh) - classic risk factor for coronary heart disease. CHD patients systematically take anti-inflammatory drugs such as acetylsalicylic acid (ASA), which may increase *H.pylori* cytotoxicity in the stomach. The aim of this study was to assess a potential association between *H.pylori* infection and CHD risk factors by the evaluation of determining effects of both *H. pylori* components as well as 7-kCh and ASA towards endothelial cells, which are involved.

Methods: The ability of the human umbilical vein endothelial cells (HUVEC) to reduce tetrazolium salt - MTT was selected as cytotoxicity marker. The cells were stimulated for 24h, 37°C, 5% CO₂, with *H.pylori* antigens: glycine acid extract (GE), cytotoxin-associated gene A (CagA) protein, urease subunit (UreA) and lipopolysaccharide (LPS) alone or in combination with ASA and/or 7-kCh. Complete EGM-2 medium and 0.06% H₂O₂ were used as positive and negative control of cell viability, respectively. Myeloperoxidase (MPO) production was chosen as oxidative stress marker.

Results: *H.pylori* GE, UreA, CagA but not LPS [1ng/ml] diminished the population of HUVEC cells able to reduce MTT about: 20%, 40%, 10% respectively. In the presence of *H.pylori* antigens, ASA and especially 7-kCh the number of cells metabolically activity was further decreased. In the milieu of *H.pylori* GE and 7-kCh the HUVEC cells responded by the significant release of MPO.

Conclusions: In conclusion, HUVEC cells were susceptible to the deleterious effect of different *H.pylori* components which was even deeper in the presence of 7-kCh and ASA. This may suggest the cumulative role of *H.pylori* components as well as 7-kCh and ASA in development of endothelial barrier dysfunction in CHD patients infected with *H.pylori*.

Keywords: *Helicobacter pylori*, coronary heart disease, acetylsalicylic acid, 7-ketocholesterol,

BRAIN ENERGY METABOLISM IN NEURODEGENERATIVE DISORDERS.

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Introduction: The etiology of many neurodegenerative diseases is still unknown, but many studies have shown that Parkinson's disease, Alzheimer's disease, dementia, and Huntington's disease are closely related to energy metabolism disorders. More and more studies show that neuronal glucose metabolism and its control by the insulin signal transduction cascade with insulin-like growth hormone (IGF-1) are responsible for regulating many processes in the nervous system such as learning and memory, neuronal survival and their longevity.

Methods: This work has been developed on the basis of scientific research carried out in other research units.

Results: Desensitization of insulin receptors in the brain causes a number of changes, glucose depletion in cells, acetylcholine, cholesterol, ATP, which are associated with changes in the metabolism of amino acids and fatty acids. Insulin signaling causes the neurons to lack energy, thereby being exposed to oxidation and other metabolic factors that impair their plasticity. The relationship between metabolic diseases and neuropsychiatric disorders has been strengthened by numerous clinical trials in humans.

Conclusions: Metabolic disorders affect the occurrence of neuropsychiatric diseases, and the incidence of neurodegenerative diseases is higher in people with metabolic diseases. It is thought that the effects of intracellular insulin affect the pathogenesis of metabolic and neuropsychological disorders. In this paper we review the mechanisms by which insulin and glucose metabolism can affect neurodegenerative diseases.

Keywords: Dementia, neurodegenerative disorders. Alzheimer, Parkinson

CORRELATION OF GUT MICROBIOTA AND NEUROPSYCHIATRIC DISORDERS.

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Introduction: The gut-brain-axis is the bidirectional dialogue between gut microbiota and the central nervous system, including the neuroendocrine and neuroimmune systems, more precisely the hypothalamic-pituitary-adrenal axis (HPA axis), sympathetic and parasympathetic arms of the autonomic nervous system, including the enteric nervous system and the vagus nerve. Recent studies have emerged focusing on the connection between dysbiosis and CNS disorders, including depressive disorders, anxiety, schizophrenia and autism spectrum disorder.

Methods: Standard up-to-date criteria were followed for review of the literature data. A search for English-language articles in PubMed database was performed.

Results: According to the study conducted in 2015[1] two-week probiotic treatment caused a decrease in ACTH and corticosterone levels in rats indicate suppressive effects of probiotics on HPA axis. This research illustrating that probiotics have the potential to decrease the HPA axis response to chronic stressors. In a 30-day study, healthy volunteers without previous depressive symptoms were given either antidepressants or probiotics. Those people who were given probiotics demonstrated reduced cortisol levels and improved psychological effects to a similar degree as volunteers administered Diazepam. Similar studies [3][4] found that probiotic therapy as well as Citalopram and Diazepam reduced depressive symptoms and improved HPA-axis functionality.

Conclusions: Presented studies have shown that probiotics reduced depressive and anxiety symptoms similar to conventional medications. The findings above underline the importance of future studies in order to understanding the gut flora. Depression and anxiety are increasing global problems, accessible and effective treatments would benefit people worldwide.

Keywords: microbiome, probiotic, depression, anxiety

SUPPLEMENTATION OF OMEGA-3 ACIDS REDUCES THE RISK OF AGGRESSION.

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Introduction: Aggression is the growing problem in society, so it is important to identify potential factors preventing aggression. In the recently years scientists have observed decreased concentrations of omega-3 acids in people prone to aggression. This discovery suggested that the key to reducing aggression could be omega-3 acids supplementation.

Methods: Standard up-to-date criteria were followed for review of the literature data. A search for English-language articles in PubMed database was performed.

Results: In randomized study scientists discovered that omega-3 acids supplementation results in 42-68% reduction in parental complaints about aggressive behaviors in children. The improvement of behavior persisted for six months after cessation of treatment. Scientists in 2015 found out that in the prison population, low levels of omega-3 acids in the blood correlate with more aggressive behavior. Patients in treatment group were characterized by more than 30% reduction in aggressive behaviors comparing to the placebo group. The same conclusions that aggression against others and impulsivity were lower in the group receiving omega-3 acids we can notice in another review study.

Conclusions: A greater susceptibility to aggression has been observed among patients who have lower levels of omega-3 acids in the blood. Scientists have demonstrated positive omega-3 effects on the reduction of aggressive behaviour. Omega-3 supplementation is a safe and well tolerated method and can be used in combination with other methods of aggression treatment.

Keywords: omega-3, aggression ,treatment

EXENATIDE MODULATES APOPTOSIS IN OVARIAN CANCER CELLS

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Introduction: Numerous meta-analyses confirm an existing correlation between diabetes and different types of cancer. Furthermore, patients manifesting both diseases have worse prognosis, higher mortality and shorter relapse-free survival. According to the current recommendation, incretin mimetic drugs such as Exenatide, a synthetic analogue of Exendin-4, are used as therapy for type 2 diabetes. Incretins are a group of metabolic hormones that decrease blood glucose level by increasing insulin release from pancreatic beta cells in response to a meal. The mechanism of action of incretin drugs is through the binding to incretin receptor (e.g. GLP-1R) present on various types of cells. GLP-1R is being expressed in many cell types, e.g. pancreatic beta cells and some cancer cells. Several recently published studies suggest that incretin mimetic drugs inhibit growth and enhance apoptosis of ovarian cancer cells. In our study, we investigated the effects of Exenatide on apoptosis-associated protein expression in ovarian cancer cells.

Methods: Ovarian cancer cell line SKOV-3 was treated with Exenatide for 24 hours. The results were compared with unstimulated control cells. Total protein concentration from cell lysates was determined by the bicinchoninic acid method. To assess the results Proteome Profiler™ Human Apoptosis Array Kit was used as a screening. The results were compared by Western Blot and Multiplex analysis.

Results: Exenatide regulates activation of apoptotic signalling mediators in SKOV-3 such as Cytochrome C, Claspin, XIAP, Livin and Caspase-3.

Conclusions: These findings suggest potential anti-tumoral actions of Exenatide by modulating concentration of proteins involved in regulation of apoptosis in ovarian cancer cells.

Keywords: Exenatide, incretins, ovarian cancer, diabetes, apoptosis

EXENATIDE AMELIORATES CONCENTRATION OF ADHESION MOLECULES IN VASCULAR ENDOTHELIUM INDUCED BY GLYCATED ALBUMIN

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Introduction: Cardiovascular diseases (CVD) are the main cause of premature mortality and disability in Europe. Diabetes mellitus type 2 (DM2) is an independent risk factor of accelerated atherosclerotic plaque formation. The endothelial damage caused by hyperglycaemia and increased production of advanced glycation end-products (AGEs) leads to elevated oxidative stress. Furthermore, hyperglycaemia is known to cause endothelial activation, which is a contributing factor of the endothelial damage in atherosclerosis. Endothelial activation results in enhanced expression of inflammatory cytokines, and endothelial adhesion molecules, such as ICAM, VCAM and P-Selectin. Glycated albumin, a product of non-enzymatic glycation of human serum albumin, reflects mean plasma glucose concentrations over approximately 2–3 weeks. In patients with uncontrolled diabetes, the level of glycated albumin exceeds 16% of the total albumin. Exenatide is an incretin mimetic drug, prescribed in DM2. The mechanism of action of exenatide is through the binding to incretin receptors (GLP-1R) present on various types of cells e.g. pancreatic beta cells, and endothelial cells. Incretin mimetic drugs decrease blood glucose level by increasing insulin release from pancreatic beta cells. The aim of our study was to evaluate the influence of glycated albumin (500 mg/L) and exenatide (10 nM) on the concentration of ICAM, VCAM and P-Selectin in three different arterial endothelial cell lines in vitro.

Methods: Three different arterial endothelial cell lines (aortic, iliac and coronary) were incubated for 24 hours with glycated albumin (GlyAlb) and stimulated with exenatide. Levels of selected adhesion molecules were quantified by ELISA assay. The results were normalized to total cellular protein concentration determined by the bicinchoninic acid method and compared with unstimulated control group.

Results: Exenatide significantly reduces adhesion molecule (ICAM-1 and VCAM-1) expression in endothelial cells after stimulation with GlyAlb. P-selectin protein levels remained unchanged.

Conclusions: These findings indicate that exenatide can prevent pro-inflammatory action of GlyAlb in endothelial cells that may play an important role in preventing cell adhesion to the endothelium.

Keywords: Exenatide, endothelium, diabetes, incretins, adhesion molecules

POSSIBLE ANTICANCER EFFECTS OF HOPS EXTRACT THROUGH REGULATION OF METALLOPROTEINASES' ACTIVITIES (PILOT STUDY).

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Introduction: Hop (*Humulus lupulus* L.) extract is a plant product rich in secondary metabolites, which exerts several health-promoting effects including anti-inflammatory, antioxidant, antimicrobial and anticancer ones. Here, we investigated the possible anti-cancer potential of three varieties of hop used in beer production: Marynka extract (M1), Magnum extract (M2) and two hop distillates of Magnat extract (D1 and D2).

Methods: In the present study we evaluated the toxic effect of 24-hour incubation of 5, 10, 25, 50, 100, 250, 500 µg/ml of 2 extracts (M1 and M2) and 2 distillates of hop extracts (D1 and D2) on human astrocytoma cell line 1321N1. Astrocytomas are a type of cancer of the brain that arise from astrocytes - star-shaped cells that make up the "glue-like" or supportive tissue of the brain. The MTT test was performed to evaluate cells viability after 24-hour treatment of 1321N1 cell line with hop extracts and distillates. The level of MMPs (MMP-2 and -9) secretion into the medium from above cells was measured by gelatin zymography. Statistical analysis of results and dependencies was made using GraphPad 6Prim software.

Results: The results of our experiment demonstrated that all extracts and distillates inhibited the secretion of MMPs and unexpectedly we have found dose-dependent correlation between cells viability and MMPs activities. The concentrations of 5 and 10 µg/ml showed the best results of neurotoxic influence of hop extracts and distillates on examined cell line 1321N1.

Conclusions: The obtained outcomes revealed that extracts of hops may play a role in treatment of neoplastic diseases, especially in the field of protection against metastases. Future studies should be conducted to determine the most effective dose of examined extracts and distillates and prove their effects on other types of cancer cells. Moreover, chromatographic determinations of chemical compositions of examined hop extracts and distillates will also be performed.

Keywords: *Humulus lupulus* L.; hop extract; astrocytes; MMPs; astrocytoma

EXAMINATION OF NATURAL KILLER CELLS CYTOTOXICITY

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Introducion: Natural killers (NK) are a subset of lymphocytes that play an important role in an innate immune system. Their major activity is to kill tumor transformed and infected cells through the spontaneous cytotoxic effect. This effect is regulated through the balance of stimulating and inhibiting signals, which are received by the NK cells. Impaired NK cells' action is examined as an important symptom of some severe diseases. Nonetheless this type of immune diagnostic is available only in specialistic laboratories. For that reason blood samples have to be transport to the distant places what is time-consuming and may affect results of the cytotoxicity tests. Two basic aims of the study: 1. An assessment of the influence of the time of blood storage on the results of cytotoxicity test. 2. The comparison between three anticoagulants: heparin, K2EDTA, citrate and evaluation which of them is the most appropriable for cytotoxicity tests.

Methods: Peripheral venous blood from healthy donors was drawn to three tubes with three different anticoagulants (heparin, K2EDTA and citrate). All procedures were performed 1 hour after blood taking and after 24 hour storage. Peripheral blood mononuclear cells (PBMC) were separated, cultured with target K562 cells and incubated for 4 hours. Then stained with propidium iodide and analyzed in flow cytometer.

Results: At the day of blood taking the highest value of the cytotoxicity tests were observed in sample taken with K2EDTA anticoagulant. The lowest result were found in sample with heparin. After 24h storage of the blood samples the values of cytotoxicity ware considerably lower. The highest value of the cytotoxicity tests were observed in a sample taken with citrate. The lowest result were found in a sample with heparin. The biggest drop of the cytotoxicity results after 24 h storage was observed in samples with K2EDTA .

Conclusions: Our findings suggest that time of the sample storing has a great impact on NK cells activity. Therefore cytotoxicity tests should be performed at the day of blood taking. In the group of three analyzed anticoagulants K2EDTA seems to protect the best from the decline of cytotoxicity results.

Keywords: Natural killer cells, cytotoxicity test

INFLUENCE OF AUTONOMIC NERVOUS SYSTEM AND QUALITY OF LIFE ON PATIENTS WITH IRRITABLE BOWEL SYNDROME.

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Introduction: Nowadays irritable bowel syndrome is a very popular chronic gastrointestinal disease. Different studies estimate irritable bowel syndrome affects from 3% to 20% of the adult population, that is why this medical problem is very actual. Changes of autonomic nervous system in case of the digestive disorder poorly investigated.

Methods: We examined 46 patients with irritable bowel syndrome to identify new mechanisms of bowel dysfunction. The diagnosis of irritable bowel syndrome exhibited due to Rome III criteria (2006). All the patients were divided into 3 groups according to the type of disorders of the digestive system. The first group included 17 patients with irritable bowel syndrome diarrhea-type, the second group consisted of 19 patients with irritable bowel syndrome with constipation, third - 10 persons without intestinal dysfunction. We performed general clinical research and evaluated the autonomic nervous status by the Kerdo index and heart rate variability. We also assessed quality of life due to questionnaire SF-36.

Results: It was revealed significant differences in the manifestations of autonomic imbalance by heart rate variability in patients with various forms of irritable bowel syndrome, indicating a multidirectional impact autonomic imbalance in combination with other neurohumoral factors on functional activity of the intestine. The quality of life in patients with diarrhea was the worst.

Conclusions: This requires new approaches to the treatment of these patients with influence to the mechanisms of their occurrence. We proposed to add to the treatment of these patients, combined medication meteospasmyl. Our study showed that treatment of patients with irritable bowel syndrome using meteospasmyl allowed to achieve positive clinical effect, reduce the autonomic imbalance and increase quality of life in all patients. The positive changes in the lifestyle have brought about a significant change in the recovery of the patients with IBS.

Keywords: Irritable bowel syndrome, autonomic Nervous System, meteospasmyl.

THE ROLE OF AUTOPHAGY IN NEUTROPHIL EXTRACELLULAR TRAPS FORMATION DIFFERENTIATED HL-60 CELLS.

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Introduction: Neutrophil extracellular traps (NETs) formation is one of the neutrophil strategy to defend body against invading pathogens. The mechanism of NETs release remains a poorly understood phenomenon. Several studies indicate that NETs formation is dependent on an interplay between three processes: histone citrullination, production of reactive oxygen species (ROS) and autophagy. Studies focused on the involvement of autophagy pathway in NETs are based only on non-specific pharmacological agents, In order to understand contribution of autophagy in NETs formation genetically modified models are required and such approach have not been described so far. The aim of this study was to evaluate the role of autophagy pathway in neutrophil extracellular traps formation using the genetically modified in vitro HL-60 model.

Methods: ATG5, an essential gene for autophagosome formation, was knock-out by Adgene One lentiviral system using lentiCRISPRv2 with cloned sgRNA targeting ATG5 sequence. Stable ATG5 knock-out HL-60 cell line was obtained with lentiviral transduction and selection with puromycin. Subsequently, a new clonal line were established. ATG5 deficiency in HL-60 clones was confirmed by Western Blot. ATG5 knock-out HL-60 cells were differentiated towards granulocyte-like cells using N, N- dimethylformamide (DMF, 70 mM for 5 days). Cell differentiation was assessed morphologically by May-Grünwald-Giemsa staining and by evaluating CD11b and CD14 expression by flow cytometry. Cells were subjected to NET-inducing agents the phorbol myristate acetate (PMA) or calcium ionophore(CI) NETs release was evaluated qualitatively by fluorescent microscopy and quantitatively by fluorometry.

Results: Among 36 obtained clones only 4 was ATG5 deficient as confirmed by Western blot analysis. ATG5 knock out HL-60 cells revealed lack of ability to form autophagosomes, upon chloroquine incubation, by analysis of LC3-I conversion to LC3-II using Western blot. Selected clones were used for further experiments. DMF differentiated knock-out HL-60 cell morphology, assessed by May-Grunwald-Giemsa, was similar to peripheral blood neutrophils. Flow cytometry also revealed that DMF effectively differentiated HL-60 cells toward granulocyte-like cells. Lack of CD14 expression indicate that DMF treatment did not induce monocyte differentiation. DMF differentiated HL-60 clones were stimulated to release NETs with PMA and CI. We observed lower NETs release in all clones when compared to controls. NETs release upon PMA stimulation was significantly lower than in the CI stimulated clones.

Conclusions: We concluded that granulocyte- like cells, obtained by genetic manipulation of HL-60, without the vital autophagy gene are able to form NETs, but with lower efficiency when compared to controls.

Keywords: Neutrophil extracellular traps , autophagy, using lentiCRISPRv2 , granulocyte-like cells

NKT CELLS AS SOURCE OF IL-17 IN MULTIPLE SCLEROSIS. PRELIMINARY RESULTS.

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Introducion: Multiple sclerosis is a chronic, inflammatory demyelinating disease of the central nervous system. It affects probably about 40 000 Polish citizens. Although new studies emerge each year its causes are still unknown. NKT cells are small subpopulation of T cells that can potentially be important source of IL-17, especially in early phases of inflammatory response. The aim of our study is checking whether NKT cells can be a source of IL-17 during relapse of multiple sclerosis.

Methods: A total of 19 patients (15 during relapse and 4 in remission) with confirmed diagnosis of multiple sclerosis as well as 5 healthy volunteers were recruited for the study. Each of them voluntarily donated a sample of peripheral blood. Samples were stained with anti-human TCRgamma? FITC, CD3 PE-Cy5, RORgammaT PE, IL-17 APC and IL-23R PE antibodies and afterwards analysed by flow cytometry. This study utilised a standard, whole-blood assay with erythrocyte cell lysis for preparation of the peripheral blood specimens. Statistica 12 was used for statistical analysis.

Results: Although the percentage of NKT cells is lower in both remission and relapse patients than in control, the percentage of IL-17+ NKT cells is higher in both groups of patients. The expression of RORgammaT is the highest in relapse patients and the lowest in control while in case of IL-23R the highest value is observed in control group while the lowest in remission. The last difference is statistically significant ($p=0.03$, Kruskal Wallis test).

Conclusions: The differences observed suggest that NKT cells may be an important source of IL-17 in multiple sclerosis. High concentration of IL-23 during relapse may result in observed down-regulation of its receptor and increased expression of RORgammaT – a transcription factor for IL-17.

Keywords: multiple sclerosis, NKT cells, IL-17

DOES CARBENOXOLONE ENHANCE THE ANTICONVULSANT ACTIVITY OF TIAGABINE AGAINST PENTYLENETETRAZOL-INDUCED SEIZURES IN MICE?

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Introduction: Epilepsy is one of the most common neurological diseases. Incorrect and irregular electrical discharges in the brain are associated with the occurrence of seizure activity. Approximately, about 50 million people worldwide suffer from epilepsy. The main problem with this disease is that ca 30% of patients with epilepsy is resistant to available antiepileptic drugs. Moreover, serious adverse effects of antiepileptic drugs encountered in a significant number of patients may limit their curative use. Tiagabine (TGB) has an impact on the central nervous system by blocking the gamma-aminobutyric acid (GABA) transporter 1 (GAT-1), which is responsible for transporting GABA to neurons. GABA is the major inhibitory neurotransmitter in the central nervous system. The effects of TGB are: increase in the intensity and availability of GABA in the brain, and increase in time of GABA activity. These effects are generally responsible for the inhibitory influence of TGB on seizure activity. Carbenoxolone (CBX), a gap junction blocker, was used for the treatment of peptic, esophageal and oral ulceration and inflammation. Pentylenetetrazole (PTZ) is used to study seizure phenomena. It binds to the GABA-A receptor, as well as increases calcium influx and sodium influx, both of which depolarize the neuron with a subsequent seizure activity. Aim of study was to find out whether CBX may potentiate the anticonvulsant potential of TGB against PTZ-induced convulsions in mice.

Methods: Swiss male mice were used. Control group was administered only TGB and vehicle, experimental groups - TGB with CBX in a dose 75 mg/kg or 150 mg/kg. CBX and TGB were injected intraperitoneally. In the next step, animals received subcutaneous PTZ injection at it's CD97

Results: In a case of combinations with TGB, no significant impact of CBX (at 75 mg/kg) on the effectiveness of TGB was found (its ED50 was insignificantly reduced from 0.87 ± 0.140 to 0.76 ± 0.114 mg/kg). In contrast, CBX (at 150 mg/kg) significantly elevated the ED50 value of TGB from 0.87 ± 0.140 mg/kg to 1.64 ± 0.208 mg/kg ($p < 0.01$).

Conclusions: Unexpectedly, CBX significantly reduced the anticonvulsant activity of TGB against PTZ-induced seizures in mice.

Keywords: Carbenoxolone, tiagabine, pentylenetetrazole, mice, epilepsy, ED50.

EFFECT OF TATTOO DYES ON COLLAGEN BIOSYNTHESIS IN HUMAN SKIN FIBROBLASTS.

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Introducion: Human skin is divided into three layers: the epidermis, the dermis and the subcutaneous tissue. In the dermis, fibroblasts form the largest group of loose cells. The function of fibroblasts is to create collagen fibers, elastin, reticular fibers and matrix elements. Tattoos are the result of the desire to attract attention, belong to a particular peer group, or perform aesthetic purposes. He has appeared in many tribal cultures as a part of ritual rituals, and was also reserved for tribal warriors to discourage the enemy. Pigments used for permanent make-up should meet numerous requirements including: should be water insoluble, non-toxic, inert to tissue metabolism and allergy tested. Most synthetic inorganic pigments are derivatives of iron oxide. Organic pigments used in micropigmentation and tattooing are carbon-based molecules. They are formed from kerosene, acids and other chemical compounds at high temperature or high pressure. In addition to synthetic dyes, pigments of vegetable origin are also used in tattoos. The aim of the study was to evaluate the effect of tattoo dyes on the biosynthesis of collagen of human skin cells - fibroblasts. The results show that the substances contained in the dyes inhibit collagen biosynthesis. At the same time they increase proliferative activity - an enzyme involved in the degradation of collagen proteins.

Methods: Materials 1. Albumin, DPBS phosphate buffer, manganese chloride, SDS, Gly-Proline (Gly-Pro), ninhydrin, DMEM medium, sodium salt, sodium thiosulphate, Temed, Trolox, Tween 20- Sigma, USA 2. Sodium chloride, calcium chloride, glycerol, glacial acetic acid, orthophosphoric acid, hydrochloric acid, Folina and Ciocalteau reagent, lowrelior reagent (sodium carbonate, sodium hydroxide, copper oxide), Triton X-100, sodium potassium tartrate- POCH Gliwice, Poland 3. EDTA, trichloroacetic acid (TCA) - Ubichem Ltd., UK 4. Fibroblasts - American Type Culture Collection, Rockville, USA 5. Glycine, hydroperoxide tert-butyl- FlukaChemie AG, Switzerland 6. Glutamine, penicillin, streptomycin, trypsin EDTA- QualityBiologicals Inc., USA 7. Fertilized seedling - Gibco, USA Ultima Gold XR scintillation liquid - Packard, USA 9. Tris-HCl- Feinchemie, Germany L-5 [3H] proline (28Ci / mmol) - Amersham, UK. Methods: 1. Preparation of fibroblast culture Fibroblasts were cultured in DMEM supplemented with 10% fetal bovine serum (FBS), 2 mmol / l glutamine, 50 U / ml penicillin, 50 ?g / ml streptomycin at 37 ° C, 5% CO₂. Cells were transferred from "Costar" bottles to 6 "Nunc" mesh plates (Wiesbaden, Germany) using a calcium phosphate buffer with 0.05% trypsin and 0.02% EDTA. The cells were counted in a hemocytometer and transferred in an amount of 1x10⁵ cells per "mesh" in 1ml culture medium. The culture medium was replaced fresh every 48 hours. The cells covered approximately 80% of the mesh area over a 24-hour period. Fibroblasts achieved contact inhibition after 4 days of growth. Cells between 8 and 14 were used for the study. Fibroblasts in contact inhibition state were washed three times with about 5ml of PBS, suspended in 1.5mL of PBS and centrifuged at low speed (200 x g) for 10 minutes, and the supernatant was discarded. Subsequently, the centrifuged cells were suspended in 0.3 mL of 0.05 M / L Tris-HCl pH 7.8 and subjected to ultrasound three times at 10 ° C at 0 ° C. The samples were centrifuged at 16,000 x g for 15 minutes at 4 ° C. The resulting supernatant was labeled with protein and used for further experiments. 2.Determination of protein content The protein found in the supernatant was determined by Lowry et al. [58]. 50?L of 0.05mol / l Tris-HCl buffer pH 7.8 was added to 50?L of tissue homogenate. The mixture was mixed with 1 ml of Lowrell reagent (9.8ml 2%

sodium carbonate, 0.1ml 1% copper (II) sulfate, 0.2% sodium potassium tartrate). After mixing, incubate for 10 minutes at room temperature. 0.1 ml of Folina-Ciocalteu reagent was diluted 1: 1 with water. After shaking, stand for 40 minutes at room temperature. The protein was colorimetrically measured by absorbance at 750 nm. Standard bovine albumin solutions (BSA) were used to calculate the results. 3. Measurement of collagen biosynthesis

Measurement of collagen biosynthesis was performed by the method described by Peterkofsky et al. [56]. Fibroblasts or human skin cells were used. These cells were incubated for 24 hours with the test compound together with labeled 5- [3H] proline (5 μ Ci / ml, 28 Ci / mmol). After 24 hours, the fibroblasts were washed twice (2 x 1 mL) of PBS with 10 mmol / L of L-proline. The resulting cell suspension was transferred from individual bubbles to Eppendorf tubes and subjected to ultrasonic homogenization three times in 20 seconds at 0 ° C. The proteins that were contained in the homogenates were precipitated by the addition of 1.5 mL 20% TCA with 20 mmol / L of L-proline (1.5 ml). After 5 minutes the samples were centrifuged for 10 minutes at 1000x g, keeping the temperature at 40 ° C. The supernatant was discarded and the pellet was dissolved in 1 mL of 5% TCA with 10 mmol / L of L-proline. Then he was centrifuged. The resulting supernatant was discarded and the remaining solids dissolved in 0.6 mL of 0.2 mol / L NaOH. Two samples of 0.2 ml of lysate were taken from each tube and transferred to two vials. They were neutralized by addition of 0.16 mL 0.15 mol / L HCl and 0.1 mL 1L / L Tris-HCl pH 7.2. Then 20 μ l of 62.5 mmol / l of N-ethylmaleimide (NEM) and 10 μ l of CaCl₂ and 10 μ l of DPBS with collagen 1 mg / ml (test assay) or no collagen (control assay) were added. Samples were then incubated for 90 minutes at 37 ° C. At this time, 0.5 ml of cold 10% TCA was added and cooled for 5 minutes (0 ° C). After five minutes the samples were centrifuged and the collected supernatant was transferred to scintillation vials containing 4 ml of scintillation fluid. The radioactivity of the samples was measured. The collagen content is expressed in dpm units of 5- [3H] -proline embedded in sensitive collagen proteins of bacteria expressed as μ g of protein and relative values. 4 Evaluation of proliferative activity

Activation of prolidase requires 24-hour preincubation (temperature 37°C) with manganese ions: 100 μ l of cell extract were incubated with 100 μ l 0.05 mol / l Tris-HCl buffer at pH 7, 8, which contained 20 mmol / L of MnCl₂. After incubation, the reaction was started by the addition of 100 μ l of incubation mixture to 100 μ l of 94 mmol / L glycine proline (Gly-Pro) until a final peptide concentration of 47 mmol / l. The samples were incubated for one hour at 37 ° C. The reaction was quenched with 1 ml of 0.45 mol / L TCA. The liberated proline was determined by mixing 0.5 ml of the reaction mixture with 2 ml of a 1: 1 mixture consisting of glacial acetic acid and Chinard reagent consisting of 24 g ninhydrin in 600 ml glacial acetic acid and 400 ml 6 mol / l orthophosphoric acid). The samples were incubated at 90°C for 10 min. The amount of proline released from the substrate was measured colorimetrically at 515 nm. Calculation of results was performed on the basis of a calibration curve for standard proline solutions. Its activity is shown as the amount of nanomolar proline released from the synthetic substrate per minute per milligram of the protein contained in the extract derived from the cell homogenate and in the form of relative values for control. 5. Statistical analysis

The results were analyzed statistically. Three independent experiments were performed in which individual trials were performed in duplicates (n = 6). Calculated arithmetic means from individual measurements and standard deviations. Statistical analysis was also performed using the "t" test. Significant differences were observed between mean values at significance level P <0.05.

Results: 1.Effect of tattoo dyes on collagen biosynthesis in human skin fibroblasts. Collagen is a basic protein synthesized by fibroblasts and is an important component of the extracellular matrix. Responsible for flexibility and endurance. In addition to the role of building blocks,

this protein is also a ligand of numerous membrane receptors, through which it participates in the regulation of many processes such as growth, cell division and differentiation. It was decided to test the effect of tattoo dyes on collagen biosynthesis in human skin cells - fibroblasts. Five most commonly used colors of ink were black, white, red, yellow and green. Designations were made according to the method described in Chapter III.3.2.3. Human skin fibroblasts were incubated for 24 hours in the presence of different concentrations of test dyes (range of concentrations from 0.01% to 0.1%). The level of collagen biosynthesis in the method used is the amount of [3H] -proline embedded in the bacterial collagen-sensitive proteins. The value of 100% corresponds to the control and was compared to tests incubated with the tested dyes. The results show that all dyes (except for the lowest yellow concentrations) are impaired by collagen biosynthesis in the cells tested (Figure 1). In the case of green (1B.) And red (1C) pigment, there is also a noticeable dependence of the inhibitory effect on the applied concentration. The complete lack of such a relationship was demonstrated by the use of white dye (1E), which in each of the concentrations tested caused a decrease in collagen biosynthesis level of about 55-60% in comparison to the control sample. The weakest effect of collagen biosynthesis in the examined cell was shown by a yellow pigment (1D), which in the lowest concentrations stimulated the synthesis of this protein. The results of this experiment indicate that tattoo dyes lead to collagen biosynthesis in cultured human skin fibroblasts.

2. Effect of tattoo dyes on prolidase activity in human skin fibroblasts. Previous experience has shown that substances contained in tattoo dyes impair collagen biosynthesis in human skin fibroblasts. One of the important elements involved in the metabolism of this protein is prolidase. It is one of the cytoplasmic enzymes that participates in the last stages of collagen degradation. Due to the role of prolidosis in biosynthesis and degradation of collagen proteins, it was decided to test whether the dyes used in tattoos also affect the activity of this enzyme. The marking was made according to the method described in chapter III.3.2.4. Cells, as in the first experiment, were incubated for 24 hours in the presence of different concentrations of test dyes. The obtained results are shown in Figure 2. The prolaryase activity in the control sample was 100% and the values in the dye addition tests were compared. Only in the case of white pigment (2E.) The activity of the enzyme is reduced. Remaining dyes increase proliferative activity, with slight variations in the intensity of this phenomenon depending on the pigment used. Increased proliferative activity due to tattoo dyes may increase collagen degradation, which in turn may lead to a poorer synthesis of this protein.

Conclusions: 1. The substances contained in the tattoo dyes cause a decrease in the level of collagen biosynthesis in the human skin fibroblasts. 2. Substances contained in tattoo dyes increase proliferative activity, thereby exacerbating the degradation of collagen fibers in human skin fibroblasts.

Keywords: dyes, tattoo, prolidosis, fibroblasts, skin,

THE INFLUENCE OF DAIRY PRODUCTS CONSUMPTION ON THE COURSE OF ACNE VULGARIS.

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Introduction: The role of a diet in the treatment of Acne vulgaris is controversial, in particular it concerns dairy products consumption. Studies have shown that hormones present in cow's milk may have the comedogenic effect on the skin. Furthermore, milk is characterized by high value of glycemic index (GI) which leads to rise of the level of insulin and IGF-1 in blood serum. High levels of IGF-1 concentration in blood serum are perceived as a factor, which enflames the course of acne vulgaris. Other studies have shown that skimmed milk consumption is more harmful because of the lack of estrogen which is present in whole milk and has a positive effect on the skin condition. There are also scientific reports which confirm that eating of some dairy products may even relieve symptoms of acne, this statement applies to fermented products rich in lactoferrin and Lactobacillus spp. The aim of this presentation is to check and discuss how dairy products included in diet affect the skin condition and the course of Acne vulgaris.

Methods: The research was conducted through variety of databases such as UpToDate, PubMed etc., in order to find articles concerning studies, which assess the influence of dairy products consumption on the course of Acne vulgaris.

Results: The diet has an influence on the course of Acne vulgaris and a lot of studies have shown that consumption of dairy products have a negative effect on the treatment of this skin disease. There is also a variety of molecular mechanisms that prove the impact of diet on the symptoms of acne. In fact, some products as sour milk are perceived as advantageous and may cause improvement of the skin affected by Acne vulgaris. Thus the consumption of dairy products is not strictly prohibited, but some of them should be avoided during the treatment of Acne vulgaris.

Conclusions: Patients affected by Acne vulgaris should be provided with clear advice concerning consumption of particular dairy products in their dietary habits.

Keywords: acne vulgaris, dairy, diet, IGF-1

THE INFLUENCE OF CIGARETTE SMOKING ON SELECTED PARAMETERS OF INNATE IMMUNITY IN CORD BLOOD.

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Introducion: Cigarette smoking activates inflammatory cells producing local and systemic inflammation. Tobacco metabolites can cross the placenta influencing both adaptive and innate fetal immune system. The aim of the study was to assess whether and to what extent maternal smoking reflected by cigarette smoke-conditioned media (CSCM) influence intracellular Toll-like receptors (TLR2 and TLR4) activation on the human cord blood neutrophils and monocytes.

Methods: 28 cord blood samples obtained from term, healthy newborn born from non-smokers mothers were used. Each sample was divided into 3 parts: Control group (C) - standard media, Smoke 1 - standard concentration of CSCM (S1), Smoke 2 - half of CSCM concentration (S2). To assess changes in TLR2 and TLR4 activation we used neutrophils and monocytes grown for 24 h in standard or CSCM media. TLR2/TLR4 expressions were assessed using flow cytometry.

Results: Neutrophil expressions of TLR2 in C group in comparison with S1 and S2 group were respectively: $1,7\pm0,8\%$ vs. $8,4\pm4,5\%$ vs. $11,0\pm6,3\%$; monocyte expressions were $1,1\pm0,8\%$ vs. $5,6\pm2,6\%$ vs. $6,5\pm3,7\%$. TLR4 neutrophil expressions were $1,8\pm0,9\%$ in C group vs. $12,3\pm9,4\%$ in S1 group vs. $10,9\pm7,9\%$ in S2 group. Monocytes TLR4 expressions were $1,3\pm1,0\%$ vs. $7,1\pm3,1\%$ vs. $11,6\pm7,0\%$. In all cases C vs. CSCM p was $<0,05$.

Conclusions: Our study showed, that while CSCM is responsible for innate monocytes/neutrophils pro-inflammatory signaling, this process is dose-dependent. Higher concentration of CSCM reduces monocytes/neutrophils TLR2 and TLR4 expression (but increasing monocytes TLR4 expression). Our findings show that maternal smoking might have significant immunological effect on toll-like-receptor-mediated innate response pathways.

Keywords: immunology, innate, smoking, cord blood

RETROSPECTIVE ANALYSIS OF STENTGRAFT IMPLANTATION IN 2016 IN DEPARTMENT OF VASCULAR SURGERY IN LUBLIN.

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Introducion: Abdominal aortic aneurysm (AAA) is a localized enlargement of the abdominal aorta such that the diameter is greater than 3 cm or more than 50% larger than normal diameter. The abdominal aorta is the most common site of true arterial aneurysm affecting predominantly the segment of aorta below the renal arteries (intrarenal aorta). Well-defined risk factors associated with the development of AAA include older age, male gender, Caucasian race, a positive family history, smoking, the presence of other large vessel aneurysms and atherosclerosis.

Methods: A retrospective analysis of clinical data of the patients admitted to the Interventional Radiology Department and Vascular Surgery in Lublin was made. Patients with AAA and with endovascular stentgrafts implantation procedure in year 2016 were chosen for the analysis. Age and sex of the patients as well as mode of the operation were extracted from the Interventional Radiology Department`s database.

Results: A total of 63 abdominal stentgrafts were implanted in 2016 – only 9 patients were women. Average age of the patients was 73±11,18 years. 33,3% of the implantations were performed as an emergency and life-saving procedures.

Conclusions: Older age and male gender is once more proved to be related to general higher risk of AAA development. Moreover emergency AAA stentgrafting is less often performed than the scheduled surgery. That possibly indicates higher awareness of the patients and a success of the screening tests.

Keywords: Abdominal Aortic Aneurysm, Stentgraft, Interventional Radiology, EVAR.

RTS,S/AS01 - THE FIRST MALARIA VACCINE

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Introduction: According to the WHO, in 2016 there were 212 million new cases of malaria resulting in 429,000 deaths. The best solution complementing the existing armamentarium of anti-malaria tools, would be inventing the effective vaccine(s). Nevertheless, malaria is caused by *Plasmodium* spp. parasites which are much more complex and adaptable than any bacteria or viruses. This leads to the problem of variety of antigens connected to the different life cycle stages of *Plasmodium* spp.

Methods: Analysis of studies and publications concerning progress in inventing vaccines against malaria.

Results: The RTS,S/AS01 is a pre-erythrocytic vaccine containing circumsporozoite protein (CSP) of the *Plasmodium falciparum* and T-cell epitopes fused to a viral surface protein of the hepatitis B virus (HBsAg). Although the first ideas of inventing it occurred in 1967, it was created in 1987 by scientists working at GSK laboratories and then being developed. Safety and efficacy profile was confirmed during the Phase 1 and 2 of clinical trials, first in adult volunteers (USA, Belgium), then by adults, adolescents, children and infants living in malaria-endemic regions (Africa). Moreover, the Phase 2 confirmed the partial protection against malaria in children. Over the first year after vaccination in the Phase 3, RTS,S/AS01 reduced the number of malaria cases by half in children and by one third in infants. The highest efficacy was observed shortly after vaccination. It was proved that a fourth dose could successfully prolong it. In the final result, published in 2015, it was found out that in the young children category who received a fourth dose, the efficacy was 39%. However, it was 26% in the category of three doses given, over an average 48 months of follow-up.

Conclusions: The WHO/AFRO announced that Ghana, Kenya and Malawi will partner in the Malaria Vaccine Implementation Programme beginning in 2018. Children between 5 and 9 months of age would receive 3 doses, followed by a fourth dose 15-18 months later. Despite limited efficacy of the RTS,S/AS01 vaccine, it still seems to be a chance to reduce mortality caused by malaria.

Keywords: malaria, vaccine, *Plasmodium falciparum*

PHASE ANGLE AS AN OBJECTIVE NUTRITIONAL ASSESSMENT PARAMETER OF BODY COMPOSITION IN YOUNG PEOPLE.

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Introduction: Phase angle (PA) is correlated with the cell mass and the cellular health with extrapolate on the overall health and body composition. It has been proved that higher values of phase angle (PA) are linked with much better sport results. PA was calculated as an index of reactance (X_c) and resistance (R). The main purpose of the study was to assess the following parameters: fat mass, free fat mass, total body water and phase angle by BIA (Bioelectrical Impedance Analysis) in the selected groups. BIA has been established as an easy-to-use, non-invasive, reproducible and thus valuable tool in the evaluation of body composition and nutritional status.

Methods: This study included 17 students were divided into 2 group by sex. The first group includes 9 women's with average age of $17,55 \pm 0,52$ while the second group includes 8 men's with average age of $19,25 \pm 1,75$ years. BIA was performed by a medical doctor using SECA mBCA 515. BIA was conducted at 50 kHz.

Results: This two groups has the same BMI ($21,22 \pm 1,98$ in woman vs $21,21 \pm 1,29$ in man group). PA was significant higher in man group ($6,11 \pm 0,51$ vs $5,03 \pm 0,32$ $p=0,012$). The group of man was characterized also by higher values of free fat mass% ($87,82 \pm 2,15$ vs $74,55 \pm 3,4$ in women $p=0,098$) and total body water% ($63,79 \pm 1,48$ vs $54,72 \pm 2,41$ in woman). The woman's group was characterized by higher value of fat mass% ($25,45 \pm 3,43$ vs $12,2 \pm 2,12$ in man $p=0,14$) and resistance value ($700,16 \pm 34,51$ vs $579,33 \pm 50,06$ in man $p=0,075$).

Conclusions: Study confirm that higher values of phase angle correlate with much better muscle development and higher hydration of the body in study groups. This indicates a significant correlation between PA values and the overall health status.

Keywords: phase angle, BMI, nutritional assessment, BIA, body hydration, muscle development

THE IMPACT OF INHIBITORS OF ENZYMATIC BROWNING ON TUMOR GROWTH AND CELL CYCLE IN LUNG CANCER

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Introducion: Polyphenol oxidase (PPO) is the main enzyme involved in the enzymatic browning. Change of colour of fruits and vegetables is associated with their deterioration, so it is needed from the economic point of view to inhibit the process of enzymatic browning. For this purpose inhibitors with different mechanism of the action are applied. Some of them in appropriate concentration may lead to apoptosis, which plays an important role in cancer therapies as a popular target of many treatment strategies.

Methods: The objective of this study was to evaluate the inhibition of polyphenol oxidase activity (antibrowning effect) of tested compounds. The browning index was determined by rating the visible browning appearance of apple pieces stored for sight days at 25°C by eleven individuals. On each piece of apples the same volume of examined reagent was added. The subsequent aim of the study was to evaluate the potential influence of strongest tested inhibitors on the development and growth of cancer cell lines A549. In order to perform it, lung cancer A549 cell lines have been established. Initially MTT assay was employed to determine IC50 of potassium metabisulfite (concentration of compound, at which cell viability is inhibited in 50%). The cells were incubated with potassium metabisulfite for 24 hours. The cells of line A549 were prepared to the cytotoxicity assay detecting the apoptosis by the flow cytometry using ready-made Annexin V-FITC Apoptosis Detection Kits. The impact of particular potassium metabisulfite concentrations on the tested cancer cells (10 mM; 5 mM; 2.5 mM; 1 mM and 0.5 mM respectively) has been assessed. Positive control was provided by staurosporine at 1µg/ml concentration for 3 hours.

Results: The obtained results showed that application of potassium metabisulphite and salicylhydroxamic acid inhibits the processes of enzymatic browning in apples in the most effective way. The other results showed concentration limit reaching up 0.5 mM of potassium metabisulfite, which when exceeded, induced the apoptosis in cancer cells.

Conclusions: Potassium metabisulfite, as the inhibitor of enzymatic browning, possess the potential to inhibit the development and growth of lung cancer.

Keywords: Enzymatic browning, polyphenol oxidase, potassium metabisulfite, cell viability, lung cancer.

INTRAVENOUS VASOPRESSIN AT PRESSOR DOSE INHIBITS PULMONARY VENTILATION

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Introduction: Vasopressin (AVP) is a potent pressor neurohormone. Limited number of studies suggests that AVP may inhibit pulmonary ventilation. However, main stimuli for AVP release – hypotension and hypovolemia – lead to increase in pulmonary ventilation. Therefore, our goal was to investigate how intravenous AVP infusion affects ventilation in anesthetized rats.

Methods: The study was performed on adult male Sprague-Dawley rats (n=6). The vascular catheters were implanted into femoral artery and femoral vein for recording hemodynamic parameters and for intravenous infusions, respectively. Tracheotomy was also made and was followed by insertion of the tracheal tube for recording of airflow. The following parameters were recorded in urethane-anesthetized rats: mean arterial blood pressure (MABP), respiratory rate (RR) and minute ventilation (MV) before and after intravenous infusion of saline (0.9% NaCl, 100 µL) followed by intravenous infusion of pressor dose of AVP (10 ng/100 µL).

Results: Intravenous infusion of 0.9% NaCl had no effect on hemodynamic and ventilatory parameters. Intravenous infusion of AVP triggered a significant decrease in MV and RR and an increase in MABP (p<0.05, paired Student t-test).

Conclusions: Our results show that intravenous AVP administered at pressor dose inhibits pulmonary ventilation, suggesting involvement of the neurohormone in the control of respiratory system.

Keywords: vasopressin, ventilation

THE IMPACT OF VASOPRESSIN ON THE CHEMORECEPTOR REFLEX.

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Introduction: Arterial chemoreflex is triggered from the carotid bodies and integrates cardiovascular and respiratory responses to low oxygen, high carbon dioxide, and acidity in the blood. Stimulation of carotid bodies results in increase in arterial pressure, ventilation and arousal. Vasopressin (AVP) infused intravenously decreases ventilation. However, main stimuli for AVP: hypotension and hypovolemia lead to an increase in pulmonary ventilation. It was shown before that AVP sensitizes arterial baroreflex. However, little is known about the impact of AVP on peripheral chemoreflex. Our goal was to assess how AVP affects chemoreceptor reflex.

Methods: The study was performed in urethane-anesthetized adult male Sprague Dawley rats, which were divided into the control (n=6) and experimental group (n=6). We implanted a catheter in both the femoral artery and femoral vein for recording hemodynamic parameters and for intravenous infusions, respectively. Additionally, we made a tracheotomy and inserted a tracheal tube for recording the airflow. The arterial chemoreflex was triggered pharmacologically with potassium cyanide (KCN) (30 microg/100 microL), which was administered after pretreatment with (0.9%NaCl 100 microL i.v.) (control group) or pretreatment with AVP infusion (0.6ng/min/20 microL for 5 min) (experimental group).

Results: Stimulation of chemoreflex with KCN triggered increase in mean arterial pressure (MABP), respiratory rate (RR), minute ventilation (MV) and a decrease in expired end-tidal CO₂ (ETCO₂). There were no differences between control and experimental groups in maximal response to KCN. However, experimental groups had a significantly longer ventilator response (p<0.05, Student t-test). In the experimental group, ventilation was still increased above the baseline and ETCO₂ was lower than baseline at 1 min after KCN-induced chemoreflex.

Conclusions: Our findings suggest that AVP sensitizes the peripheral chemoreflex, which is reflected in the prolonged respiratory response to pharmacologically induced chemoreflex in anesthetized rats.

Keywords: vasopressin, chemoreflex

STUDYING MOLECULAR DYNAMICS OF 1,2,3,4,6-PENTA-O-(TRIMETHYLSILYL)-D-GLUCOPYRANOSE – A POTENTIAL EXCIPIENT FOR APIS, AT AMBIENT AND ELEVATED PRESSURE.

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Introduction: An alternative to crystalline APIs (Active Pharmaceutical Ingredients), especially from class II and IV of BCS (Biopharmaceutical Classification System), are their amorphous equivalents. In many cases, pharmaceuticals prepared in the amorphous form show higher solubility and hence better bioavailability. Unfortunately, they are physically unstable and tend to revert to a stable crystalline state. Therefore, researchers are trying to find efficient methods to prevent this. A preparation of amorphous binary mixtures of an API and excipient (e.g. modified saccharides, polymers) seems to be a promising way. However, in order to apply mentioned compounds as effective stabilizers, thorough molecular dynamics studies are needed. The aim of this research was to investigate the structural and secondary relaxation dynamics of potential excipient, 1,2,3,4,6-penta-O-(trimethylsilyl)-D-glucopyranose (S-GLU), at different thermodynamic conditions.

Methods: S-GLU has been synthesized for the purpose of the paper. Dielectric measurements were carried out using the Novocontrol Alpha dielectric spectrometer. For high pressure experiments we applied a chamber with a special parallel capacitor. Calorimetric measurements were performed with the use of a Mettler–Toledo DSC apparatus.

Results: Our studies showed that apart from the structural relaxation, one asymmetric secondary process (beta) is observed in the spectra measured at ambient pressure. According to applied criteria, a beta-process in S-GLU is a Johari-Goldstein (JG) relaxation of intermolecular origin. However, high pressure experiments revealed that there are in fact two secondary processes contributing to this relaxation. The slower one (beta) is likely the true JG-process. In turn, the faster one (?) is the intramolecular non-JG relaxation. It is also worth mentioning that we found extremely high pressure coefficient of the glass transition temperature ($dT_g/dp=412\text{K/GPa}$) for S-GLU.

Conclusions: 1,2,3,4,6-penta-O-(trimethylsilyl)-D-glucopyranose is characterized by the strong sensitivity of the structural relaxation to compression. The great value of dT_g/dp has not been obtained so far for any amorphous system. High pressure experiments are very important for verifying whether the observed secondary mode is the true JG relaxation or not.

Keywords: 1,2,3,4,6-penta-O-(trimethylsilyl)-D-glucopyranose, molecular dynamics, high pressure, Johari-Goldstein relaxation

Cardiosurgery and Thoracic Surgery

IMPACT OF THE ACCESS SITE, VALVE SIZE AND TYPE ON DAILY CHANGES IN PLATELET COUNT AND ALLIED HEMOGLOBIN LEVEL AFTER TAVI.

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Introduction: Transcatheter aortic valve implantation (TAVI) is an increasingly used technic to treat patients with symptomatic aortic stenosis. Several studies have indicated that a platelet count (PLT) drop as well as a hemoglobin (HGB) decline, are both independent predictors of poor outcome after TAVI. Additionally, it has been shown that high mean platelet volume (MPV) and low platelet distribution width (PDW) are associated with higher short-term bleeding complications. Different valve types and access sites are available to treat patients. Our goal was to assess whether the access site has an impact on pattern and relation between PLT and HGB changes after TAVI. Furthermore, we checked if post TAVI early platelet decline varied among different type and size of implanted valve. Finally, we analyzed the influence of MPV and PDW on HGB and PLT changes.

Methods: Among consecutive 293 pts (79.9±7.5 years old, 68% female, EuroSCORE II=3,9±3,3%) treated with TAVI (Aug 2009–December 2016), serial changes in PLT, HGB, MPV and PDW were measured prior to and daily 7days post procedure.

Results: Valves were implanted from transfemoral (85.8%), transsubclavian&axillary (7.9%), transaortic (3.4%) and transapical (3.0%) sites. An early PLT drop was seen on day 1, reaching nadir PLT on day 2-3 post procedure (?%PLT1=27±14% and ?%PLTmax=43±15%, both p<0.001, respectively). An early HGB decline was seen on day 1st, reaching nadir HGB level at day 2-3 post procedure (?%HGB1=14±9% and ?%HGBmax=22±13%, both p<0.001, respectively). Patterns of an early PLT response and HGB decline were both equal among different access sites with equal ?%PLTmax but increasing ?%HGBmax for transfemoral vs transsubclavian&axillary vs transaortic+apical (22±14 vs 24±5 vs 28±20, p=0.030 respectively). Early PLT decline was equal among different valve types and sizes. Neither MPV nor PDW were correlated with ?%HGBmax and ?%PLTmax.

Conclusions: An access site has no impact on the platelet count response after TAVI, but a relative hemoglobin decline is greater for transaortic and transapical access sites. Patterns of early PLT drop are equal among different types and sizes of implanted valves. MPV and PDW do not influence HGB and PLT changes.

Keywords: TAVI, thrombocytopenia

Case Report

TOTAL ANOMALOUS PULMONARY VENOUS RETURN

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Background: Total anomalous pulmonary venous return (TAPVR) is classified as a cyanotic, congenital heart disease. In this abnormality the 4 veins that take blood from the lungs to the heart do not attach normally to the left atrium (left upper chamber of the heart). Instead, they attach to another blood vessel or the wrong part of the heart. There are 4 types of total anomalous pulmonary venous return: supracardiac, intracardiac, subcardiac and mixed.

Case Report: We present a case of a 60-year-old patient with a congenital ASD type II (Ostium Secundum Atrial Septal Defect). She was admitted to a hospital to have an ablation treatment because she suffered from recurrent supraventricular tachycardia. The patient was diagnosed with TAPVR during the multislice computed tomography.

Conclusions: Multislice computed tomography is an important complement to research in the diagnosis of congenital heart disease. It confirms diagnosis because it allows for a more accurate visualization of non-cardiac vascular structures with a high spatial resolution.

Keywords: Total anomalous pulmonary venous return, ASD, MSCT

AORTIC ANEURYSM DISSECTION - DIAGNOSIS BASED ON CLINICAL SYMPTOMES.

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Background: Aortic aneurysm dissection is a life-threatening condition. It is caused by disruption of intima and provides the blood flow between the layers of media. Immediate operation should be performed to prevent rupture of aorta with fast, massive bleeding. For a proper diagnosis, in majority of cases, imaging tests are nessesary.

Case Report: 58 year-old man was diagnosed with aortic aneurysm dissection and pericardium tamponade.. Patient complained on severe chest pain lasting for several hours. Other symptoms in basic clinical examination, changes in ECG, BP, HR, FAST USG let doctors at Emergency Unit made a proper diagnosis without using more advanced tests as usually are needed. Patient was transferred immediately to the hospital with Cardiac Surgery Departement. Urgent procedure was performed right after CT scan, which confirmed diagnosis. Within 24 hours after operation patient underwent resternotomy due to bleeding complications. Hospitalization was prolonged because of ischemic brain injury revealed after cardiac surgery.

Conclusions: Clinical examination is often neglect by doctors at the Emergency Unit. However, clinical manifestation of the disease can speed up important medical decisions and - as a result - save patient's health or even life.

Keywords: aortic aneurysm dissection, tamponade, symptomes, diagnosis, resternotomy

HYPERTENSIVE HEART DISEASE OR HYPERTROPHIC CARDIOMYOPATHY – DIFFERENTIAL DIAGNOSTICS CHALLENGE.

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Background: Hypertrophic cardiomyopathy (HCM) is defined by a thickening of the myocardium that is not explained solely by loading conditions. It can be difficult to differentiate between hypertensive heart disease and HCM associated with systemic hypertension.

Case Report: 35-year-old man, obese, with arterial hypertension and hyperlipidemia was admitted to hospital after the episode of loss of consciousness. On the admission patient general condition was good, electrocardiogram showed normal sinus rhythm. For 2 years before current syncope episode, he had a limited exercise tolerance and recurrent fainting episodes. Since the first diagnosis of hypertension patient's blood pressure was well controlled, however patient did not attend check-up visits. In the echocardiographic examination performed when hypertension was diagnosed, isolated hypertrophy of the subaortic segment of interventricular septum was detected with benign systolic anterior motion, without significant left ventricular outflow tract obstruction (LVOTO). In the context of data from history, physical examination and electrocardiogram this finding was considered as hypertensive heart disease. Control echocardiography confirmed the presence of isolated hypertrophy of the subaortic segment of interventricular septum, with systolic anterior motion and LVOTO 20 mmHg at rest, and 100 mmHg during Valsalva maneuver. In 24-hr holter monitoring and during exercise tests there were no Ventricular Ectopic Beats. Cardiac MRI confirmed hypertrophy of basal septum, without late gadolinium enhancement. Finally, the diagnosis of HCM was established. 5-year risk of sudden cardiac death was calculated, implantable cardioverter-defibrillator was implanted and treatment with beta-adrenolytic drug was implemented.

Conclusions: The differential diagnosis of HCM in young patient with hypertension, isolated basal septal hypertrophy and high Valsalva induced LVOTO, with history of syncope, but normal electrocardiogram can be challenging. Clinical decisions, especially those related with implantation of cardiac device require multimodality imaging based diagnostics.

Keywords: Hypertrophic cardiomyopathy, hypertension

PARATHYROID CANCER AS A RARE CAUSE OF PRIMARY HYPERPARATHYROIDISM.

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Background: Primary hyperparathyroidism is a condition in which there is an oversecretion of PTH caused by overactivity of parathyroid gland(s). By far the most common cause of primary hyperparathyroidism is a single adenoma, followed by parathyroid hyperplasia, and rarely, parathyroid carcinoma, which accounts for less than 1% of cases. Main symptoms include, those resulting directly from hypercalcemia, such as kidney stones, peptic ulcers, muscle weakness, fatigue, psychiatric abnormalities, and those related to hyperparathyroid bone disease (bone pain, low bone mineral density and pathological fractures). The diagnosis of parathyroid carcinoma constitutes a challenge, because there are no strict guidelines for treatment and management beyond surgical removal.

Case Report: A 67 year old female patient underwent the resection of the right lower parathyroid gland in 2008, after she had been diagnosed with symptomatic primary hyperparathyroidism. She had a history of recurrent kidney stone disease and chronic kidney disease, osteoarthritis, hypertension and was admitted to the hospital for a regular check-up. The resection of enlarged parathyroid gland was preceded by an intraoperative histological examination, which indicated the diagnosis of parathyroid carcinoma. A year later a localised recurrence of the illness was confirmed, and the patient underwent complete thyroidectomy. During the postoperative period the patient was diagnosed with hungry bone disease and the vitamin D3 analogs and calcium doses were reevaluated and adjusted. In 2013 during regular follow-up examination laboratory results revealed a worsening of renal function. The patient was diagnosed with end-stage renal disease and was qualified for dialysis. The PTH, vitamin D3 and calcium serum levels normalized after treatment readjustment. Currently the patient continues the treatment in an outpatient clinic.

Conclusions: Parathyroid carcinoma is an uncommon malignancy, and rare cause of primary hyperparathyroidism. Surgical removal is the first-line treatment option. Both prolonged preoperative hyperparathyroidism and postoperative mismanagement of dosage regimen of vitamin D analogs and calcium therapy can lead to a worsening of kidney function.

Keywords: primary hyperparathyroidism, parathyroid carcinoma, chronic kidney disease

THE FIRST SYMPTOMS AND SIGNS OF WILMS' TUMOR: A CASE SERIES STUDY.

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Background: Pediatric solid tumors make up 50% of all pediatric cancers. Wilms' tumor is one of the most common type of solid tumor found in children accounting for up to 6% of all childhood malignancies. Each year in Poland more than 60 children are diagnosed with Wilms' tumor. There are several important differences between adults and children with solid tumors. One of them is aggressive growth in childhood cancers.

Case Report: We would like to present 3 cases of Wilms' tumor in male of different ages. The age of patients range from 12 months to 7 years old. The first patient was admitted to the Department of Pediatric Hematology, Oncology and Transplantology due to advanced stage disease. A few days before an increased and uneven pathology mass was observed by its' mother. The computed tomography showed pulmonary metastases. The second patient suffered from fever only. The blood and urinalysis showed no abnormalities. Though the ultrasound of abdomen revealed Wilms' tumor in the both kidneys. The third patient- the oldest, reported sudden, acute pain in the abdomen. Based on additional tests Wilms' tumor was detected. Suddenly after a full oncology treatment, the boy reported cough. The antibiotic was administered. Unfortunately, there were pulmonary metastases.

Conclusions: Some of pediatric patients not possessing speech and language skills may not complain about pain. The time from onset of symptoms to final diagnosis can be extended. It is important for parents and general practitioners to be aware of fact that even subtle child behaviour or non-specific symptoms may presage neoplasm.

Keywords: Wilms' tumor, pediatric oncology

DOUBLE SUICIDE ATTEMPT WITH LONG-ACTING INSULIN - A RARELY USED DRUG TO COMMIT SUICIDE.

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Background: In recent years, we could have seen an increase in the number of suicide attempts and the suicide rate death is much higher in Poland than the European average (15,51 vs. 11.25 – data from Eurostat in 2014). In 2016 there were 9 thousand 861 suicide attempts and 5 thousand 405 people took their own lives (data from Polish Central Statistical Office). The problem concerns young people- most suicide attempts in 2016 were taken by people aged 30-49. Intoxication is a rare tool for attempting suicide-11th place of types of the ways of suicides. Rarely poisoning, but often with severe patient status, is intoxication with hypoglycemic drugs, including insulin. Since 2013, there have been documented 22 patients with that type of poisoning in the Department of Toxicology and Cardiology in Lublin.

Case Report: 41-year-old patient was hospitalized two times at the Toxicology and Cardiology Department due to the insulin poisoning. During the first hospitalization she was treated because of intoxication with analog of long-acting insulin 900 IU and 60 tablets of glimepiride a 3mg. Two years later patient has come to the Toxicology and Cardiology department because of another suicide attempt by injection 1800 IU of long-acting insulin. The patient required intensive pharmacotherapy, including a specific antidote - glucagon, concentrated glucose solutions and steroid therapy. In each case, severe recurrent hypoglycemia was observed up to 25mg% until the fifth day of hospitalization instead of used treatment. The patient's condition improved and there was no development of serious complications. Due to the interview, the patient was referred for further psychiatric treatment.

Conclusions: Diabetes is a civilization disease and more people is treating with hypoglycemic drugs. Therefore the number of poisonings is increasing in both directions: accidental one and suicide attempts. Insulin poisoning can be severe, the most dangerous complication may be neuroglycopenia, but due to effective treatment at the right time, patients can recover completely.

Keywords: suicides, insulin poisoning

SEVERE BONE MARROW INSUFFICIENCY AS A RARE COMPLICATION OF INFECTIOUS MONONUCLEOSIS.

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Background: Infectious mononucleosis is the most common clinical manifestation of EBV infection which affects mainly adolescents and young adults. Typical set of symptoms involves sore throat, tiredness, malaise, fever and abdominal pain. Although disease is usually self-limited, there are some serious complications which can occur in several percents of patients including spleen rupture, myocarditis, meningitis, encephalitis, Guillan-Barre syndrome and bone marrow dysfunction.

Case Report: 19-year-old female patient with a history of ulcerative colitis (cured with azathioprine) was admitted to the Department of Infectious Diseases with symptoms of mononucleosis syndrome: pharyngitis, high fever, generalized lymphadenopathy, hepatosplenomegaly. During 2-week of previous ambulatory treatment, due to initially diagnosed streptococcal angina pharyngitis patient received three courses of antibiotics with no clinical improvement. Laboratory tests and radiological examination revealed moderate anemia, severe thrombocytopenia, agranulocytosis, positive heterophile antibody test (typical feature of infectious mononucleosis) and significant enlargement of liver and spleen. Furthermore, other possible infectious causes of mononucleosis syndrome (HIV, HBV, HCV, Toxoplasma gondii, result for CMV was ambiguous) were ruled out. Due to severe bone marrow insufficiency with a high risk of generalized infection patient received G-CSF, cefotaxime, ganciclovir, fluconazole and symptomatic treatment for underlying pathology. Serological and molecular blood tests confirmed EBV infection with a high viral load. After 2 weeks of treatment patient was discharged from the department with normalized morphology results in a good general condition.

Conclusions: Hematopoietic insufficiency is considered as rare but severe complication of EBV infection which can be detected in blood morphology test ran in ambulatory treatment. Difficulties in differential diagnosis of pharyngitis and flu-like syndromes should encourage general practitioners to be more careful in the cases of ineffective treatment of such conditions.

Keywords: infectious mononucleosis, bone marrow insufficiency

BONE RECONSTRUCTION AS A TREATMENT OF OSTEOSARCOMA IN 13 YEAR OLD FEMALE - CASE REPORT.

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Background: Osteosarcoma is a malignant tumor which arises from mesenchymal origin. It remains the most common primary bone tumor. It is most prevalent in children and young adults. The first symptoms can be nonspecific such as pain, swelling or even a fracture of affected bone. The most common location of the tumor is knee joint - distal part of femur or proximal part of tibia. Historically the surgical treatment was amputation or disarticulation. However, currently the primary method of treatment performed on 90% of all patients is limb salvage surgery, that is the removal of the tumor followed by reconstruction using metal implant or a bone graft. Unfortunately, some of the operations do not have positive outcomes and therefore other methods are considered to deal with the tumor.

Case Report: 13 year old female patient with a pain in the peripheral part of a left thigh, was wrongly diagnosed with aneurysmal bone cyst located in the distal part of left femur, which later led to a pathological fracture. She was admitted to hospital in 2004 and re-diagnosed with osteosarcoma. The limb was stabilized with a cast to prevent further pain, and chemotherapy has been implemented. The tumor has been removed. Bone cement and intramedullary rod were used to stabilize the femur. In 2005 the patient was reoperated and had the cement replaced with a frozen bone graft. However the transplant did not implement well. In 2011 a necrosis occurred in the transplanted bone, which led to the reappearance of pain and prevented the patient from walking properly. In 2012, as a result of a surgery of multidisciplinary team of orthopedists and otorhinolaryngologists, a vascularized right fibula flap was transplanted to the damaged part of the femur. It had implemented well, and the patient remains under the care of orthopedics clinic without any serious complications.

Conclusions: The presented case proves that although limb salvage surgery is the primary method in the treatment of osteosarcoma, still some of the cases must be treated differently. One of the methods is transplantation of the free flap - in this case right fibula flap was used.

Keywords: osteosarcoma, free flap, transplantation

COR TRIARIATUM SINISTER DIAGNOSED IN ECG-GATED CARDIAC COMPUTED TOMOGRAPHY: A CASE SERIES STUDY

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Background: Cor triatriatum sinister is a rare congenital anomaly, constituting only 0.1-0.4% of all congenital cardiac malformations. It consists of a fibromuscular membrane that separates the left atrium into two chambers. Cor triatriatum sinister may occur in isolation (classic) or in association with other congenital cardiac anomalies (atypical) such as atrial septal defect, transposition of the great arteries, tetralogy of Fallot or atrioventricular septal defect. Most patients are diagnosed with the condition in infancy or childhood. In adults cor triatriatum sinister usually is asymptomatic and rarely diagnosed. The definitive treatment for symptomatic patients is surgical excision of the intraatrial membrane. Asymptomatic patients do not require medical management.

Case Report: We present four cases of cor triatriatum sinister in adults (two men and two women) in different ages. The age of patients ranged from 45 to 69 years old. ECG-gated cardiac computed tomography (CT) showed presence of fibromuscular membrane in the left atrium which divided it into two distinct chambers. Two patients had one and two patients had two fenestrations in the membrane which size ranged from 11 to 33mm. In addition patients presented enlargement of left or both atria and extension of pulmonary veins. Some patients had additional findings e.g. noncompaction cardiomyopathy and partial anomalous pulmonary venous drainage.

Conclusions: ECG-gated cardiac CT is a valuable method allowing excellent imaging of cor triatriatum sinister and may be used in the diagnosis, assessment of anatomical morphology and monitoring the course of disease.

Keywords: ECG-gated cardiac computed tomography, cor triatriatum sinister, congenital cardiac malformations

CONGENITAL CYTOMEGALOVIRUS DISEASE IN NEWBORN WITH DOWN SYNDROME – CASE REPORT.

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Background: Cytomegalovirus (CMV) is the most common congenital viral infection with an overall birth prevalence 0.6%. However only 10% of congenitally infected infants have symptoms of disease at birth and they are at significantly increased risk of developing adverse long-term outcomes. Clinical findings include generalized petechiae, thrombocytopenia, cholestasis, hepatosplenomegaly, pneumonia, periventricular calcifications. Down syndrome is the most common autosomal chromosome abnormality, caused by the presence of all or part of a third copy of chromosome 21. It is typically associated with physical growth delays, characteristic facial features and intellectual disability. During the neonatal period, patients with trisomy 21 have an increased risk of complications, including pathological jaundice of neonates (often cholestatic), blood disorders (for example thrombocytopenia).

Case Report: Full term newborn, in 38th week of gestational age, the ways of nature, Apgar score of 10 points, birth weight 3100g, from 2nd pregnancy, complicated by mother's hypothyroidism, in prenatal test suspicion of trisomy 21. Physical examination, performed at birth, revealed characteristic dysmorphic feature of Down syndrome, syndactyly of the 3rd and 4th fingers and additional phalanx in the left thumb, suspicion of heart defect. After an hour the general condition deteriorated significantly (hypotonia, cyanosis, oxygen saturation 80%, petechiae all over body) and was treated in ICU with combined antibiotic therapy. In additional tests thrombocytopenia and other hemostatic disorders, cholestasis, hepatomegaly, pneumonia. He was transferred to the Department of Neonatal Pathology for further diagnosis and treatment. Laboratory tests revealed high level of total and direct bilirubin, GGTP, thrombocytopenia, positive CMV IgM and IgG antibodies, PCR for CMV DNA in blood negative, in urine positive. Because of increasing level of direct bilirubin and transaminases, it was decided to start treatment with ganciclovir, which occurred be effective (reduction of cholestasis and pneumonia, and virus elimination from urine). Karyotype test confirmed Down syndrome. The patient remains under the care of specialists.

Conclusions: Both Down syndrome and congenital CMV infection can cause cholestasis and thrombocytopenia. This fact is a reason of difficulties with making diagnosis and treatment delay. Possibility of coexistence of a genetic disorder with congenital infection should be always considered.

Keywords: congenital cytomegalovirus disease, Down syndrome

FAST DEVELOPED SEPSIS CASE

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Background: Streptococcus pneumoniae is a pathogen that causes sinus infections, acute otitis media, exacerbation of chronic bronchitis, pneumonia as well as in a severe cases meningitis and sepsis. Sepsis, severe sepsis and septic shock are responsible for approximately 34% of hospitalizations in intensive care units (ICU) in Poland. Mortality due to sepsis is from 39.4% to 54.5%.

Case Report: The 70-year-old patient reported to the Emergency Department because of fainting. The Computer Tomography of the head was done and the patient was discharged from a hospital. In the evening, the patient was again admitted in severe condition with diagnosis: sepsis, disseminated intravascular coagulation (DIC), acute circulatory-respiratory failure. Wide-spectrum antibiotic therapy, fluid therapy, pharmacotherapy, ventilation therapy were used. 13 hours after admission to Intensive Care Unit, the patient died.

Conclusions: Sepsis caused by Streptococcus pneumoniae induces many problems in the selection of antibiotics because of the frequently occurring resistance to penicillin and other antibiotics.

Keywords: Streptococcus pneumonia, sepsis, DIC, acute cardiorespiratory failure

FIBRODYSPLASIA OSSIFICANS PROGRESSIVA AS A CHALLENGE FOR MEDICINE

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Background: Fibrodysplasia ossificans progressiva is one of the most rare genetic bone disorders in the world with autosomal dominant allele. Inflammatory process of unknown origin changes fibrous and muscle tissue into bone. Those symptoms may lead to severe condition of a patient.

Case Report: Our patient was sent to our clinic to orthopedic ward with fibrodysplasia ossificans progressiva. Due to serious condition, many risk factors, and gradually developing symptoms, careful treatment has been performed.

Conclusions: There are no effective treatment methods fibrodysplasia ossificans progressiva. Our aim was to show that even without that, interdisciplinary approach is needed to that kind of patient. Due to special care and particular symptomatic treatment, we can improve quality of life which is most important thing in end stage of this disease

Keywords: FOP, fibrodysplasia, ossificans, progressiva, orthopedic, surgery

A-SYMPTOMATIC, EARLY STAGE OSTEOMYELOFIBROSIS IN 23-YEAR-OLD FEMALE PATIENT

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Background: Primary myelofibrosis (PMF) is a rare, malignant hematologic disorder. It is a chronic disease characterized by splenomegaly, leukoerythroblastosis, teardrop poikilocytosis (i.e., dacryocytes). Often found phenomena could also be: increased BM microvessel density, some degree of bone marrow (BM) fibrosis and extramedullary hematopoiesis (EMH). Every fourth patient can be entirely asymptomatic and comes to medical attention because of an abnormal blood cell count or peripheral blood smear. The disease can also begin with an enlarged spleen detected during routine physical examination.

Case Report: A 23-year-old female medicine student demonstrated thrombocytopenia in control blood assessments conducted by the GP throughout 6 to 8 months. First platelet count measured was 520 G/l. Patient was admitted to our Department in 2014 with the platelet count of 890 G/l. The spleen is slightly enlarged and measures 13 cm in long axis in ultrasonographic assessment, palpable by maximal inspiration. WBC level was 12 G/l, blood smear was normal, with single teardrop-shaped red blood cells. Myelogram showed a remarkably hypercellular, properly maturing and represented bone marrow. Numerous polymorphic megakaryocytes were found. In the trepanobiopsy bone marrow was: remarkably hypercellular, highly represented with white blood cells with preserved maturing, along with very numerous megakaryocytes with polylobular, polymorphic nuclei. The fibrotization was (+). In 2014 the level of CARL del52 mutation was below the detection threshold. Screening was repeated in 2016 with the High Resolution Method and it resulted in finding the mutation of first type in 9th exon in 21% of cells. The result was also confirmed by the capillary electrophoresis. It is an evidence of molecular progression of the disease.

Conclusions: The whole picture suggests early osteomyelofibrosis (MF). Patient has got no matching bone marrow donor in her family. She has never required transfusions. The risk of progression assessed by IPSS and DIPSS scales is low. Patient feels well, has no symptoms. The question remains if and how to treat the patient and these were consulted in Hadassah Medical Center in Jerusalem.

Keywords: Osteomyelofibrosis, Primary myelofibrosis, PMF, Splenomegaly, Haematology

UNMASKING PSYCHOSIS: A STORY OF HOW DIFFICULT IT CAN BE TO DIAGNOSE SCHIZOPHRENIA IN CHILDREN

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Background: Schizophrenia is a psychiatric disorder which also occurs in pediatric population, having a significant impact on the functioning and further development. Nowadays a satisfactory treatment can be performed in many cases and one of the important factors affecting the prognosis is the time between the onset of the symptoms and the diagnosis - the so-called “duration of untreated psychosis”. The right diagnosis in young patients can be problematic because of different clinical presentation than in adults with the same diagnostic criteria. The prodromal symptoms of the disorder draw a parallel to autism spectrum, ADHD or other psychiatric disorders.

Case Report: In August of the current year a 13-year-old patient was admitted to the Department of Child and Adolescent Psychiatry as an emergency patient without a committal. The motive of admission was disorganized behavior, difficulties in social interaction, escalated aggression and autoaggression. According to the family the boy had been recently reacting with an intense emotional excitement to even minor stimuli. The psychomotor development and social interactions had been inappropriate since the early days. The boy presented with compulsive or inadequate and transcending the social norms behaviors and autoaggression. At school he had problems with interacting with other children, could not concentrate and was diagnosed with dyslexia and dyscalculia. For the last 3 years patient had been seeing mental health specialists. 1,5 year ago Asperger syndrome was diagnosed. During the hospitalization imaging, psychiatric and psychological examinations were performed. On their basis hebephrenic schizophrenia was diagnosed. Patient received antipsychotic treatment which led to the improvement in interaction and social functioning. The emotional tension relieved and aggression disappeared.

Conclusions: The history of this patient is an example of how difficult it can be to find the right diagnosis in a case of an early-onset schizophrenia. Disorganized functioning led to the diagnosis of autism spectrum, while the premises to diagnose schizophrenia appeared after extending the examination. It is also an evidence that the right diagnosis and the applied treatment give a chance for improvement. In practice it means the necessity of screening the patients with the diagnosis of autism spectrum for psychosis, which unfortunately is often omitted.

Keywords: psychiatry, pediatric schizophrenia, hebephrenic schizophrenia, Asperger syndrome, autism spectrum

WHAT IS THE CONNECTION BETWEEN TURNER SYNDROME AND DIABETES TYPE II?

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Background: Turner syndrome is a genetic disorder, which occurs among female and it is caused by full or partial absence of one of the chromosome X in cariotype. The most characteristic features of this disease are short height and gonadal dysgenesis, which causes lack of sexual hormones and barrenness. Therapy is symptomatic and consist on i.a. growth and sexual hormones. The aim of a treatment is to improve quality of patient`s life. It is known that women with Turner syndrome are more likely to have cardiovascular diseases and diabetes type II. Undoubtedly it could be associated with hormonal disorders.

Case Report: 47-year old patient was admitted to the Department of Endocrinology in Lublin in order to revision of hypoglycemic therapy. Woman with Turner syndrome has been having diabetes type 2 for 5 years. Until this time, patient had been on oral therapy. According to anamnesis, woman has a autoimmune hepatitis. Moreover she had a metabolic syndrome; obesity (BMI 32,49 kg/m²), hypertension and hyperuricemia (9,2 mg/dl).

Conclusions: Diabetes mellitus type 2 is more than 10 times more often among patients with Turner syndrome than among women in general population. There is also a difference between age in which the disease appears. Typically, women with no genetic disorders have diabetes type 2 around menopause period. In the case of patients with Turner syndrome the disease appears in young age. Propably it is connected with hormonal disorders which contributes towards obesity, which is the main risk factor of diabetes type 2.

Keywords: Turner syndrome, diabetes type II

JUVENILE NASOPHARYNGEAL ANGIOFIBROMA IN A 15 YEAR OLD MALE PATIENT SUFFERING FROM COAGULATION DISORDERS - CASE REPORT.

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Background: Nasopharyngeal angiofibroma describes a unique type of benign vascular tumor which occurs, exclusively, in the nasopharynx of prepubertal and adolescent males. The onset of such neoplasms usually begins between the ages of 7-20 and is rarely experienced in patients older than 25. The most commonly observed symptoms are nasal obstruction, frequent epistaxis, headaches and facial swelling together with anosmia, deafness or deformities of the cheek when locally invasive. Treatment depends on the location and size of the tumor and involves such procedures as hormonal therapy, radiotherapy or surgical intervention.

Case Report: A 15 year old male patient was admitted to hospital with recurrent nasal bleeding, difficulties with breathing through the nose and a visible tumor in the posterior part of the left nasal duct. The tumor, observed in an MRI scan, filled the posterior part of the lower and middle left nasal ducts, the nasal part of the pharynx and the upper level of the oral part of the pharynx. An angiogram was performed and revealed pathological blood supply to the tumor coming from the left maxillary artery. The artery was selectively catheterized and embolized. Preoperative tests showed abnormalities regarding the coagulation system: prolonged APTT, PT and INR. Further hematological diagnostics proved lowered V factor values. The hematologist ordered a preoperative administration of fresh frozen plasma to normalize the APPT and PT levels after which surgery was performed. The tumor was completely removed from the nasopharynx, pterygopalatine fossa and infratemporal fossa. Postoperative histopathological tests recognized a juvenile nasopharyngeal angiofibroma. Currently the patient is in fair overall condition and remains under the control of laryngological and hematological clinics. No recurrence has been observed.

Conclusions: The presented clinical case is a typical example of a juvenile nasopharyngeal angiofibroma. Treatment of the neoplasm depends on the size of the tumor, the extent of its penetration, and the destruction of adjacent structures of the skull as well as on the presence of additional disorders. Therefore, it is crucial to remember about the importance of diagnostic imaging in the diagnosis of the tumor as well as including preoperative tests in the process of qualifying for surgery.

Keywords: nasopharyngeal angiofibroma, coagulation disorders

RECONSTRUCTIVE SURGERY USING THE FREE MEDIAL FEMORAL CONDYLE FLAP AS A UNIQUE METHOD IN THE TREATMENT OF TRACHEAL STENOSIS - CASE REPORT.

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Background: Tracheal stenosis is the complete or partial narrowing of the trachea and results in shortness of breath, cyanosis, hoarseness, coughing, recurrent pneumonitis and upper respiratory infections. Apart from congenital disorders, the causes of tracheal stenosis are prolonged intubation or tracheostomy, trauma, neoplasms, radiation therapy and systemic disorders. Treatment depends on the cause, location and severity of stenosis. It includes bronchoscopic tracheal dilation, bronchoscopic laser procedures, insertion of a tracheobronchial airway stent or tracheal resection and reconstruction. One of the most common complications following surgical treatment is the recurrence of stenosis. Patients suffering from acquired stenosis present less severe postsurgical complications and the mortality rate among those with non-congenital causes of the stenosis is much lower.

Case Report: A 67 year old female suffering from asthma and hypertension was admitted to hospital in February 2015 after being diagnosed with a laryngeal chondroma resulting in tracheal stenosis. The first reported symptom was shortness of breath. The tumour was identified for the first time in November 2014 and therefore tracheotomy was performed a month later. The chosen method of treatment was surgery. Resection of the neoplasm together with 2/3 of the cricoid cartilage and the entire cricothyroid joint was performed. This was followed by reconstructive surgery using the left free medial femoral condyle flap. The perioperative period was uneventful. After the operation the patient experienced nausea and dizziness. Due to low hemoglobin levels she was given 1 unit of packed red blood cells. Pain in the operated area was treated with routine pharmacotherapy. The patient was discharged 9 days after the operation. No complications were reported.

Conclusions: Tracheal stenosis is a rare but severe disorder. Achieving a long-term favourable outcome presents a problem in selecting appropriate management techniques. Frequent reoccurrence due to scarring often requires repeated surgical intervention. Integrated treatment involving the resection of obstructive tissue and reconstruction of the trachea offers promising long-term results. Not only does the reconstructive approach restore the appropriate functionality of the airways, it also helps achieve a satisfactory cosmetic outcome and reduces risk of scarring.

Keywords: tracheal stenosis, reconstructive surgery, laryngeal chondroma

DOUBLE UTERUS. A RARE UTERINE MALFORMATION – CASE REPORT.

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Background: Uterine malformation occurs in about 1% of female population. Double uterus is a rare form of uterine malformation resulting from an incomplete fusion of the Mullerian ducts. Most cases are asymptomatic, but when occur patients report: dysmenorrhea, pain, primary infertility and inability to carry a pregnancy to full term. Special attention during pregnancy may be needed, due to higher possibility of malpresentation and premature birth in females with uterus defects.

Case Report: 12-year old female patient was referred to Department of Interventional Radiology and Neuroradiology for MRI examination of pelvis. The main symptom, which patient reported, was menstrual pain in lower abdomen. Transvaginal ultrasound was not performed due to presence of hymen. Examination was performed with use of T1-weighted and T2-weighted sequences. Scans showed presence of double uterus with two separate cervixes – a rare malformation called uterus didelphys.

Conclusions: Uterine malformations can be diagnosed with use of techniques such as: transvaginal ultrasonography, sonohysterography, hysterosalpingography, magnetic resonance imaging and hysteroscopy. Nowadays 3D Ultrasound is said to be perfect, non-invasive method of diagnosis congenital uterus defects. In this case, due to presence of hymen, MRI is examination of choice. It is non-invasive and precisely shows the structure of uterus without destructing continuity of hymen.

Keywords: double uterus, ultrasound, pelvic MRI, uterine malformations, uterus didelphys.

ATYPICAL COMPLICATIONS FOLLOWED APPENDECTOMY - CASE REPORT.

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Background: Enteritis is the most common form of infection caused by *Salmonella* spp. In some individuals arthritis develops in 1-4 weeks in response to *Salmonella* infection then termed reactive arthritis (ReA). The diagnosis of ReA is based on the relationship between clinical symptoms and bacterial infection confirmed with specific serological test.

Case Report: 13-year-old boy was admitted to the Department of Pediatric Surgery due to suspected appendicitis. He had abdominal pain and diarrhea for the last few days. Appendectomy was performed, histopathological examination confirmed the diagnosis of acute purulent appendicitis. 8 days after surgery fever and inflammation of the left knee joint appeared. Septic arthritis was suspected. Laboratory tests showed significantly elevated CRP and ESR, and mild anemia. The cultures of the articular fluid, aspirated twice from the left knee were negative thence septic arthritis was excluded. Then inflammation of the right ankle and right wrist appeared. The patient was transferred to the Department of Rheumatology. Laboratory tests showed: high markers of inflammation, high titer of antibodies against *Salmonella* enteritidis and the presence of antigen HLA-B27. Fecal occult blood test was positive. The diagnosis of ReA was made. Patient was treated with ceftriaxon and NSAIDs. Results of this treatment was not satisfactory therefore the patient received prednisone and sulfasalazine and also intraarticular injection of glucocorticoid. After 1.5 months of therapy the patient still presented clinical and laboratory symptoms of inflammation. He started the treatment with methotrexate. In the 7th month exacerbation of the symptoms appeared. Methylprednisolone injection into the left knee was given. In follow up a slow decline of markers of inflammation and remission of symptoms were observed.

Conclusions: *Salmonella* enteritidis infection is usually presented as enteritidis, which resolves spontaneously after a few days. However, in rare cases, the course of infection may be complicated by ReA or acute appendicitis. NSAIDs are the most commonly used and sufficient drugs in treatment of ReA. Sometimes the patient requires the use of intraarticular and systemic glucocorticosteroids and DMARD (disease-modifying antirheumatic drugs). Approximately 15-30% of patients with ReA develop symptoms of a long-term spondyloarthropathies.

Keywords: reactive arthritis, appendicitis, *Salmonella* enteritidis

GIANT DIVERTICULUM OF THE TRANSVERSE COLON: A UNIQUE CAUSE OF NONSPECIFIC INTESTINAL SYMPTOMS

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Background: Giant colonic diverticulum (GCD) is a rare manifestation of diverticular disease of the colon. By definition GCD are greater than 4 cm in size. GCD are classified as three distinct types. Types 1 and 2 are described as pseudodiverticula, since they are not formed by all the layers of intestinal wall, unlike type 3 GCD, the so called true diverticula. Type 3 GCD are the least common ones, usually of congenital origin. Fewer than 200 cases of GCD have been reported in the literature. Most of them occur in the sigmoid colon; the transverse colon is an extremely rare location reported in five cases, among which only two were classified as type 3 true diverticula. CT is the most accurate method in GCD diagnosis. The preferred treatment is resection of the diverticulum and adjacent colon with primary colonic anastomosis.

Case Report: A 40 y.o. woman with a history of nonspecific intestinal symptoms – flatulence and fullness – was initially referred for a barium swallow test, that revealed a pathology: an enlarged intestinal loop in the projection of the transverse colon. More radiological examinations followed. Double contrast barium enema turned out to be the most conclusive one: the images suggested a cyst or a large diverticulum of the colon. The patient underwent a laparotomic surgery, during which a true giant transverse colon diverticulum was identified. An extended right hemicolectomy with ileocolic anastomosis was performed; the postoperative course was uneventful.

Conclusions: Presented here is a unique case of a true GCD located in the transverse colon – only two such examples exist in the literature. Due to the rarity and nonspecific clinical presentation of GCD, their diagnosis is not obvious and depends mainly on imaging, where CT is considered the most sensitive modality. In this case, however, double contrast barium enema provided a result closest to the final intraoperative diagnosis, thus emphasizing the usefulness of classical imaging methods.

Keywords: Giant colonic diverticulum, transverse colon, double contrast barium enema.

DEATH CAP POISONING - LIVER TRANSPLANTATION AS A LIFE RESCUE.

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Background: Collecting mushrooms is a very common and popular way to spend freetime during autumn in Poland. Consumption of mushroom combines with a risk of eating poisonous species and as a result of it, occuring dangerous complications for health and life. The most frequent cause of fatal poisoning is death cap, which contained α -amanitine. The toxine is a inhibitor of RNA II polymerase, therefore it suppresses the synthesis of proteins. The substance is hepatotoxic. In many occasions the poisoning is connected with very serious liver damage that the transplantation is one and only chance to saves human`s life.

Case Report: This case is a about two patients who were hospitalized in Department of Toxicology and Cardiology in Lublin in years 2016-2017. According to anamnesis, patients confirmed eating selfcollected mushrooms about 2 days before admission to the hospital. In both cases there was a typical course of poisoning with gastroenteritis in the begining and afterwards, the latent period which held on for a dozen or so hours. Diarhaea and stomachache appeared once more and that was a reason to go to the hospital In laboratory tests there were signs of liver damage, the activity of transaminases was increased 200 times more than the upper limit of standard and INR was more than 7. Despite of intensive treatment by inter alia n-acetylcysteine and silimaryne, biochemical parametres were not improved and the general condition of patients were getting worse. In view of acute liver damage, patients were qualified to organ transplant.

Conclusions: Consumption of poisonous mushrooms is essential problem, which can cause acute liver damage. The time between eating toxic mushrooms and admission to the hospital has a big meaning in efficiency of therapy. Unfortunately, there are some cases in which pharmacology is insufficient and one and only solution is liver transplantation. It is worth to say that appropriate education of people and abide by not eating unknown mushrooms may protect people against death cap poisoning.

Keywords: death cap, poisoning, transplantation

SEVERE KETOACIDOSIS AND SEPSIS AT ONSET OF TYPE 1 DIABETES - CASE STUDY

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Background: Diabetic ketoacidosis (DKA) is an life-threatening complication of type 1 diabetes (T1DM). Reviews of literature on this topic found that a significant number of children with new-onset T1DM develop symptoms of DKA. Diagnostic delay and infection, the main risk factors of DKA incidence in newly diagnosed T1DM, are associated with higher risk of severe DKA. We report a patient with severe DKA accompanied by sepsis, Acute Kidney Injury, rhabdomyolysis, maxillary sinusitis, otitis media and mastoiditis.

Case Report: A 5-year-old boy with four day history of vomiting was admitted to Diabetology Ward in critical condition - unconscious, responding only to pain, with tachycardia, tachypnea, ketone breath and features of dehydration. Laboratory tests revealed hyperglycemia (>1000mg/dl) and metabolic acidosis (pH 6.96, BE -26), CRP>3, elevated creatinine, urea, uric acid, creatine kinase and D-dimer concentration. Intravenous fluids, insulin, and antibiotic treatment was administered. Due to fever, symptoms of meningitis and hemorrhagic skin lesions sepsis was suspected. CT showed bilateral opacification of tympanic cavities and mastoid air cells. There were no changes in cerebrospinal fluid suggestive of infection. Blood and cerebrospinal fluid were culture-negative. After three weeks of treatment, the patient was discharged home in good general condition with diagnosis of T1DM and recommendation of intensive insulin therapy.

Conclusions: All things considered, this report is timely to raise awareness of DKA among pediatricians. It is crucial to remember about DKA in differential diagnosis, factors triggering DKA and the fact that DKA can coexist with sepsis and lead to severe complications.

Keywords: ketoacidosis, diabetes, SIRS, sepsis, acute kidney injury, rhabdomyolysis

SMILE DESIGN – INTEGRATED AESTHETICS WITH FUNCTION – CASE REPORT

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Background: This article presents the case of a 21-year-old woman who reported to the Clinic and Department of Conservative Dentistry with Endodontics for a non-aesthetic correction of her approximately 2 mm parallel diastema between the patients maxillary central incisors 11 and 21. The second case is of a 20 year old female with a defect in the patients maxillary lateral incisor 12 of a IV class according to Black's classification on the distal side. In both cases, GC's Essentia composite materials were used for aesthetic renewal of the front teeth and a silicone impression made according to the adhesive dentistry technique recommended by professor Vanini.

Case Report: Aesthetic restoration, improvements of the appearance of minor dysfunctions of dental morphology is becoming more a frequent purpose for patient visits to a dental practice. New materials used in conservative dentistry enable effective single-session reconstruction without the involvement of dental prosthetics. Composite materials provide a wide choice of colors and translucency for reconstructing the dentin and enamel of natural color gradation from the neck of tooth to the incisal margin.

Conclusions: Both cases present the possibilities of aesthetic restoration and recovery of the function of the stomatognathic system thanks to conservative restoration, without the surgical interference into the tissues of the tooth necessary for prosthetic restoration.

Keywords: smile design

40 YEARS OLD PATIENT WITH MULTIPLE FIBROUS DYSPLASIA OF BONES

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Introducion: Fibrous dysplasia of bone is a disorder where normal bone and marrow is replaced with fibrous tissue, resulting in formation of bone that is weak and prone to expansion. As a result, most complications result from fracture, deformity, functional impairment and pain

Methods: Patient after many operations in many centers... She decided to get pregnant and broke her hip bones as a results of that. She has been operating in our Department of Orthopaedics and Traumatology of the Musculoskeletal System at Medical University of Warsaw

Results: Patient moves with prosthesis of mentioned bones

Conclusions: Due to our particular care and interdisciplinary approach is now able to walk without pain. Apart from that, patient can afford household duties and live normal social life. In the course of treatment the most important destination should be achievement of results, which satisfy not only a doctor but first of all – a patient

Keywords: Fibrous dysplasia of bone, fracture, prosthesis

PHARMACOMECHANICAL THROMBECTOMY IN A DEEP VENOUS THROMBOSIS - CASE OF A 24 Y.O. MALE.

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Background: Deep vein thrombosis (DVT) is a condition in which a blood clot forms in one of the body's deep veins, most commonly of the leg or pelvis. Before the fourth decade of life risk of DVT is low (about 1 per 10000). After the age 45 it rises and approaches about 5 per 1000 by the age of 80. Noteworthy is the fact, that patients with positive family history have a higher risk of DVT at a young age. Standard treatment method of DVT is conservative treatment which involves pharmacological anticoagulation and compression therapy. Pharmacomechanical Thrombectomy (PMT) - that combines catheter-based thrombectomy and catheter-directed thrombolysis is a recent advancement of treating DVT, which appears to be effective.

Case Report: We present a case of a 24 y.o. male, with a history of thrombophilia. The patient was diagnosed with the antithrombin deficiency. He also had a history of DVT in a family - father in a year of 19 y.o suffered from a serious episode of DVT and a pulmonary embolism. Our patient reported with an acute DVT. He was qualified for a Pharmacomechanical Thrombectomy (PMT), using Angiojet Thrombectomy system. After the procedure, his condition got better, and in a 18 months follow-up, we observed a vein patency, lack of edema and no symptoms of recurrent thrombosis.

Conclusions: Pharmacomechanical Thrombectomy is a promising alternative to current treatment methods, for the management of DVT. PMT with adjunctive thrombolytic therapy can be effective treatment modality, and early thrombus removal can prevent development of PTS. Most of the authors reports good results, although they indicate a need of a bigger, randomised trial. Considering the age, the patient is in the group of low risk of DVT. In this case risk was higher, because he was diagnosed with thrombophilia and positive family history of thrombosis.

Keywords: deep vein thrombosis, pharmacomechanical thrombectomy, vascular surgery, thrombophilia

TUBERCULOSIS OF THE KIDNEY

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Background: Tuberculosis (TB) is an infectious disease caused by bacteria *Mycobacterium tuberculosis*. TB clinically is manifested as primary and secondary tuberculosis. Lungs are the most common site of TB location. The urogenital localization represents about 27% of all extra-pulmonary TB. Solitary tuberculosis, which is a specific form of secondary TB, became more common in immunosuppressed patients, such as: patients with HIV, transplant recipients. Renal tuberculosis often spreads from the kidney to the ureters, bladder, and testicles causing lower urinary symptoms. Early granulomatous kidney disease may present as dysuria, frequent voiding and flank, back or abdominal pain. Constitutional symptoms such as fever, weight loss, fatigue and anorexia are less common. Laboratory abnormalities include pyuria, proteinuria, and hematuria. When disease advances it may cause obstructive uropathy, bladder defects and loss of kidney function. Conventional radiography may demonstrate tumorlike lesions in kidney, often misdiagnosed as a tumor or extensive parenchymal calcification in a nonfunctioning kidney, which is characteristic of end-stage tuberculosis. Total or partial nephrectomy is the most common method of treatment. The kidneys are commonly affected by milliary TB, where lesions can be found in renal tissue as a result of hematogenic dissemination, particularly in the cortical region. Cortical granulomas enlarge and create a lesion mass. Histopathological examination shows typical tubercles with caseous necrosis in the center surrounded by a zone of epithelioid cells and Langhans' giant cells.

Case Report: We present two cases of solitary tuberculosis of the kidney. Two patients, male and female, were admitted to the urology unit. In both cases tumour mass was initially diagnosed within the kidney. Surgery was performed and histopathology revealed microscopic appearances of renal solitary tuberculosis.

Conclusions: Tuberculosis of the kidney is usually clinically silence till the advanced stage. Histopathological examination of the surgical material still remains the most accurate diagnostic method in such cases.

Keywords: Renal tuberculosis, tumour, case report.

KNIFE IN THE HEART – ROLE OF THE ECG-GATED CARDIAC CT IN ASSESSMENT OF POSTTRAUMATIC LESIONS IN THE HEART.

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Background: Chest trauma can cause a heart damage. Nearly half of the heart trauma represents penetrating injuries which can result from suicide attempt and are characterized by a high mortality rate. Survival depends on the time between trauma and surgical intervention. Initial diagnostic imaging is not frequently performed in haemodynamically unstable patients, therefore radiological methods are used mainly in post-operative evaluation. ECG-gated cardiac CT (ECG-CT) plays a significant role in assessment of haemodynamically stable patients, allowing full evaluation of range of posttraumatic changes and potential damages of other chest organs. The purpose of this report is to present two cases of stab wounds of the heart resulting from suicide attempt and their assessment in ECG-CT.

Case Report: Patient, aged 17, admitted to the hospital with stab wounds of the chest in precordial area after suicidal attempt, as a result of psychoactive drugs intake. Operated immediately due to cardiac tamponade – 2 stab wounds of the anterior wall of the left ventricle were sewn. Features of the anterior wall infarct were stated post-op. The ECG-CT was conducted, which revealed postinfarct changes of the anteroseptal segment of the left ventricle and the apex of the heart and posttraumatic closure of LAD. Patient, aged 34, with depressive disorder, admitted to the hospital due to numerous stab wounds of the chest. Due to signs of tamponade she was treated surgically in emergency mode – penetrating wound of right and left ventricle was sewn. Due to progressive failure of tricuspid valve in post-op period and persistent interventricular shunt the patient was referred to the ECG-CT examination, which showed ventricular septal perforation, intramural haematoma of the left ventricle and features of tricuspid insufficiency with enlargement of the right atrium. Suggestion of posttraumatic rupture of the right ventricular papillary muscle was made. The patient was qualified for reparative surgery of the tricuspid valve.

Conclusions: Because of the short duration of the examination and its high resolution, ECG-CT is a method of choice in assessment of posttraumatic changes of the heart as well as possible coexisting extracardial damages.

Keywords: cardiac injury, penetrating cardiac injury, stab cardiac wounds, suicide attempt

18 YEAR-LONG TREATMENT OF 67-YEAR OLD PATIENT WITH OLFACTORY NEUROBLASTOMA – A CASE REPORT

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Background: Olfactory neuroblastoma (ONB) is an uncommon malignant neuroectodermal nasal tumor. It comprises about 2% of all sinonasal tract tumors with an incidence of approximately 0.4 per million population. We present a patient with ONB in nasal cavity, sinuses, lymph nodes and other regions which is in treatment for almost 20 years.

Case Report: In 1999 the patient admitted to outpatient clinic of Department of Otorhinolaryngology and Oncological Laryngology in Zabrze due to nasal obstruction, olfactory disturbance and epistaxis lasting eleven months. In rhinoscopy left side unilateral nasal polyps were observed. The polyps were bleeding easily. In biopsy ONB exulceratum G1 was diagnosed. On CT scans the pathological mass involving nasal cavity, left maxillary sinus, ethmoidal sinuses, sphenoidal sinus and both frontal sinuses was observed. The surgery of the tumor was performed on 21.09.1999. The postsurgical radiochemotherapy was applied. In January 2006 the relapse of the neoplasm was revealed and the removal of the tumor with left side lymphadenectomy was done. Complimentary radiotherapy and chemotherapy was applied. In July 2006 right lymphadenectomy was performed due to metastases. Afterwards the patient took chemotherapy. In October 2007 the resection of submandibular gland with regional lymph nodes was performed due to the metastases. In 2013 the tumor of the the left parapharyngeal space with infiltration to the left internal carotid artery was diagnosed on MR scans. The palliative conformal radiotherapy was given. In 2015 PET examination confirmed two pathological areas - first in the left lateral cervical region, second in the right enlarged submental lymph nodes. In August 2017 CT scans revealed intraglandular lymph nodes in superficial lobe of the left parotid gland. Ultrasound guided biopsy showed hypoechogenic structure located in the left parotid gland, histopathology results reported as ONB. The total left parotidectomy was performed in September 2017. The patient is continuing treatment in the Center of Oncology.

Conclusions: 1. The ONB may be easily misdiagnosed as inflammatory polyps. 2. The treatment of ONB is difficult, may last for many years and requires multidisciplinary treatment. Frequent controls are of great importance in those patients. 3. Metastases of ONB to salivary glands are very rare.

Keywords: olfactory neuroblastoma, maxillary sinus, epistaxis, salivary gland

POLYPHARMACY IN GERIATRIC PATIENTS

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Background: The presence of several diseases (multimorbidity), often leads to treatment with multiple medications - polypharmacy. The prevalence of this phenomenon in the older people is high, ranging from 30% to 70%, reaching 90% in residents of nursing homes. Unfortunately, polypharmacy may predispose older adults to a number of adverse consequences including adverse drug reactions, nonadherence, geriatric syndromes, disability and mortality.

Case Report: Sixty-eight year old man presented at Students' Pharmacological Consultation Point to have his medication list simplified. He was diagnosed with diabetes type II (poorly controlled - fasting glucose level of 160 mg/dl and presence of diabetic foot), hypertension and benign prostatic hyperplasia. He also reported allergy to nickel and chrome and abnormal results of spirometry and lipid profile in the past. When analyzing his treatment regimen two major problems were identified: polypharmacy (he used 14 medications) and specific dosing times interfering with his daily routine (he took drugs 10 times a day: one hour before breakfast, half an hour before breakfast, during breakfast, after breakfast, two hours after breakfast and one before dinner, during and after dinner, during and after supper). During our consultation we removed four drugs from the list (including Pantoprasole and Essentiale max). We also advised him to consult endocrinologist to improve glucose control and pulmonologist to ask if formoterole was still needed due to no dyspnea for a long time. We divided remaining 10 medications in 3 groups: taken during breakfast, dinner and after supper. The patient found it very helpful and much easier to follow.

Conclusions: Our case report highlights the relevance of the systematic review of the pharmacological treatments in geriatric patients.

Keywords: Polypharmacy, older people, multimorbidity

THE LEAST EXPECTED LOCATION OF BURKITT LYMPHOMA

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Background: Burkitt lymphoma is a non-Hodgkin's lymphoma in which cancer starts in B-cells. It is associated with impaired immunity and can result fatal if left untreated. It occurs most commonly in malaria endemic regions, EBV or HIV patients.

Case Report: The 45-yo patient was submitted to the cardiology department due to suspected chronic ischemic heart disease appearing with the progressing decrease in exercise capacity, tachycardia, dyspnea, feverishness and chest pain radiating to two upper limbs. ECHO revealed suspicious tumor mass infiltrating and affecting mobility of right atrium's wall. Thorax and abdomen CT revealed infiltration in whole wall of right ventricle, ostium of the upper vena cava and right atrium's lumen but no changes in abdomen. Due to CT, TEE, TTE results, cardiac surgeons removed pathologies in right atrium and partially reconstructed its wall. Post-surgery ECHO showed right atrium's wall and tricuspid valve were still infiltrated by the tumor but the valve was not stenosed. Histopathology revealed a surprising result, the Burkitt lymphoma (c-myc+; CD20+; CD10+, Bcl2; Bcl16+; TdT-; MIB+ 100% cells). Shortly after, patient developed infective endocarditis and was submitted to the hematology department with ECOG scale 4. He was treated with life- saving GMALL chemotherapy protocol which was continued for following six months. During cytostatic therapy, heart function significantly improved rising to 60% of LV EF. The PET/CT valuation after C1 cycle and after ending the GMALL protocol proved a complete metabolic remission. Now, almost 3 years after the dreadful diagnosis patient is in a very good condition (ECOG 0/1) and professionally active.

Conclusions: The case shows that adequate tactic of multimodal treatment can save a fatal condition. The malignity and bad localization required both, surgery and chemotherapy. If only one of them was chosen, this would have been insufficient for complete remission. Although difficult decision making pathway, a great cooperation of different health centers saved patient's life.

Keywords: Burkitt lymphoma, heart tumor, non-Hodgkin lymphoma,

THE PCSK-9 INHIBITOR AS A THERAPEUTIC CHANCE FOR FAMILIAL HYPERCHOLESTEROLEMIA PATIENTS WITH HEPATIC DYSFUNCTION.

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Background: Familial hypercholesterolemia, is characterized by increased LDL-C levels and leads to an increased risk for premature cardiovascular disease. The FH patients pharmacotherapy is based on statins or statins and ezetimibe. However, patients with liver impairment are unable of tolerating most of anti-cholesterol drugs, because most of them have hepatic metabolism and the only help which remains is LDL apheresis, which cannot become a routine treatment for everybody. The hope is the PCSK-9 inhibitor. The PCSK-9 protein degrades LDL-receptor, thus inhibition leaves more LDL-receptors on hepatocytes and less cholesterol circulates in body. The PCSK-9 inhibitor is also metabolized as other monoclonal antibodies, namely it follows the endogenous IgG degradation pathway. Nevertheless, there are no findings regarding this drug usefulness in hepatic disabled patients.

Case Report: A 65 years-old woman was in need of cardiac consultation due to liver transplantation enrollment. Besides PBC, she had hypertension, steroid-induced diabetes, chronic ischemic heart disease and a positive CVD first-degree family history. She also had coronary angioplasty of two vessels. Her blood tests showed total cholesterol level of 748 mg/dL and LDL-C 680 mg/dL, and finally she was diagnosed with FH (Dutch score: 17). Standard treatment could not have been used in this patient as she was statin intolerant thus she was given evolocumab (PCSK-9 inhibitor). Six months later, her control blood tests indicated TC 259 mg/dL and LDL-C 204 mg/dL, without sign of liver impairment progression. The LDL-C reduction was more than 60%, which is consistent with the guidelines regarding use of statins and ezetimibe in reduction of absolute cardiovascular risk.

Conclusions: As the rate of diagnoses of co-existing liver and cardiovascular disorders increases, finding and implementing a therapy which can treat both is an important issue. The PCSK-9 inhibitor, used for PBC patient was a good decision, although no guidelines for such a procedure. Thus, the safety and efficacy of such therapy suggest a need of further research in the field of hepatic and congenital lipid metabolism disorders.

Keywords: familial hypercholesterolemia, PCSK-9 inhibitor, PBC

INTERRUPTION OF THE SPINAL CORD IN A PATIENT AFTER A CAR ACCIDENT.

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Background: With the development of technology to ensure safety and improvement of the quality of roads in Poland, the number of road accidents has decreased by 35% in the last decade, but it keeps on going on a high-level (in 2016 - 36664, in which 3026 people have died). The most common injuries occurring in road accidents are bone fractures, but there can also appear less frequent and more distressing such as the spinal cord breaks. After stabilization of vital functions, the most important thing is injuries diagnosis, in which, apart from laboratory tests, the basis is radiological diagnosis.

Case Report: 27-year old man patient after car accident was directed to computed tomography in politrauma protocol and magnetic resonance imaging of thoracic spine. There were present areas suggesting lungs contusion and a small amount of fluid in the pleural cavity in CT of thoracic cage. Additionally, it is observed fractures of Th1/Th2 spinous processes and comminuted fractures of Th3/Th4 vertebrae bodies with displacement and intrathecal evagination of bones' pieces. There are also fractures of right lateral processes in L2/L3/L4. MR showed a reduction in AP spinal cord size to 1 mm at Th3 level due to compression by the piece of the vertebra. The above image suggests its interruption at this level. At the level of Th2-Th4 and Th10-Th12 visible is a contusion of the spinal cord and at the level of Th11/Th12 possible post-traumatic hernia of intervertebral disc. Additionally, it is possible to see soft tissue hematoma anteriorly to the vertebral column at the level of Th1-Th6.

Conclusions: CT and MR imaging are among the basic tests performed in patients from road accidents. CT is performed first, because it's good for overview of all injuries, while MR is the best way to visualize traumas and pathologies connected directly with vertebral column. Among the above patients, the most frequent changes connected with vertebral column are vertebral fractures and edema of spinal cord. Interruption of the spinal cord in traffic accidents is rare, but above case report indicates that it could happen.

Keywords: spinal cord, car accident, CT, MR

CAN THE ANATOMICAL VARIABILITY OF THE AORTA MAKE IT EASIER FOR SURGEONS TO PERFORM SURGERY?- THORACIC AORTIC ANEURYSM IN A PATIENT WITH A RARE ANATOMICAL VARIATION OF AORTIC ARCH BRANCHING - A CASE REPORT.

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Background: Aortic arch aneurysms are a relatively rare cause of surgical interventions in cardiac surgery departments, however they are associated with high mortality if misdiagnosed and not treated accordingly. This case presents an even more complex scenario that includes an anatomical variant of the left common carotid artery originating from the brachiocephalic trunk, which occurs in 5% of the Caucasian population. The term "Bovine Arch" is widely used to describe this anatomical variant, however it is considered to be a misnomer.

Case Report: A 70 year old Caucasian male was admitted to the Emergency Department with chest pain. Comorbidities included coronary artery disease, type 2 diabetes and hypertension. The thoracic aortic aneurysm, and the left common carotid artery originating from the brachiocephalic trunk, were revealed with computed tomography. After admission to the Cardiovascular Surgery Department, the patient underwent an elective surgery with cardiopulmonary bypass in a deep hypothermic circulatory arrest. During the procedure the left subclavian artery was ligated, the stent graft section of the thoracic hybrid stent graft (JOTEC E-vita OPEN PLUS) was implanted into the thoracic aorta and the aortic arch was replaced with the woven vascular graft section of the hybrid stent graft, a vascular prosthesis was implanted into the brachiocephalic trunk and connected with the woven vascular graft section of the hybrid stent graft. Subsequently a coronary artery bypass graft (CABG) of the left main coronary artery was performed using the great saphenous vein. During postoperative treatment only temporary neurological complications were observed. The patient was discharged in a good general condition and was scheduled for an elective endovascular procedure of the abdominal aortic aneurysm.

Conclusions: The case shows that technology available today allows for the surgical treatment of very extensive aortic aneurysms. Ascending aorta and aortic arch require the majority of patients to provide 'open' rather than endovascular procedure. The combination of these two techniques is increasingly used. However, these procedures still involve a high risk of complications. The anatomical variant of the common artery catheterisation of the aortic arch may facilitate the operation of the surgeon.

Keywords: Aorta, aneurysms, cardiac surgery, anatomical variation

THE USE OF DOPPLER ULTRASOUND EXAMINATION IN DIAGNOSIS OF COMPLICATIONS FOLLOWING CATHETERIZATION OF THE RADIAL ARTERY.

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Background: An increasing number of diagnostic angiographies and PCIs (Percutaneous Coronary Interventions) are performed using the radial artery as the point of vascular access. In comparison to the femoral approach, trans-radial access is associated with similar success rates, improved patients comfort, earlier discharge form hospital, lower costs and fewer access site complications. However, every invasive procedure carries the risk of complications. The most common are: hemorrhage or hematoma in puncture area, pseudo aneurysm, infection, arteriovenous fistula formation and thrombosis.

Case Report: The female patient reported to the Emergency Department after the performance of the coronary angiography via the radial artery. The patient was complaining about the increasing pain in her left hand. The Doppler ultrasonography was performed. The examination revealed the thrombosis in the radial artery along its all course.

Conclusions: The Doppler ultrasound examination shall be a first choice diagnostic method, it enables to visualize the complications following radial artery angiography. An early, accurate diagnosis lead to implementation of the specific treatment thus improves prognosis.

Keywords: arterial thrombosis, complications of angiography, radial artery, Doppler ultrasound examination

ACUTE ABDOMINAL PAIN AND VOMITING IN EARLY PREGNANCY – MUSHROOM POISONING OR NOT?

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Background: Acute abdominal pain is a common and nonspecific symptom. Its occurrence among pregnant women may be related to a wide range of obstetric, gynecological and surgical/medical causes. It is also important to take under consideration the possibility of psychological causes of this phenomenon. Medical history and physical examination are essential in differential diagnosis, however laboratory tests and radiological imaging are necessary to finally diagnose and treat the disease. Some physiological changes that occur during pregnancy often mislead and delay the diagnostic process.

Case Report: 34-years pregnant women (12hbd of IV pregnancy) was admitted to ER. She presented acute, diffused lower abdominal pain which sustained since 2am last night. Peritoneal signs were negative. There was one episode of vomiting. She reported eating mushrooms which she collected herself the day before. The gynecological examination was normal, transvaginal ultrasound showed a normal, viable pregnancy. Toxicological consultation was performed. Presence of mushroom toxins was excluded. Laboratory tests revealed leukocytosis and increased level of inflammatory markers. She was admitted to gynecology ward and the diagnostic procedure was widened. Physicians excluded gynecological and urological causes of her state. The patient's condition worsened, peritoneal signs appeared and the patient was finally qualified for laparotomy because of suspected appendicitis. During surgery the diagnosis was confirmed and appendectomy was performed. There were no further complications and the patient recovered.

Conclusions: Acute diseases during pregnancy often proceed in an unusual way. Even if the medical interview and the clinical state of a patient seem to suggest one particular cause, more extensive diagnostics should always be conducted taking into consideration other medical conditions.

Keywords: pregnancy, abdominal pain, mushroom poisoning, acute appendicitis

THE RARE CASE OF THERMAL INJURY OF THE SMALL BOWEL WITHOUT PERFORATION OF THE BLADDER AFTER TRANSURETHRAL RESECTION OF TUMOR.

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Background: TURT is a key tool used in management of non-muscle-invasive disease and the diagnosis of bladder cancer. It's a standard procedure which characterizes in relatively low complication rate. The most common are severe perioperative bleeding, transfusion, perforation of the bladder and urinary tract infections, which are easy to diagnose and manage.

Case Report: 65-year-old patient was qualified to transurethral resection of tumor due to papilloma like tumor of the bladder. There were no complications noticed during the procedure nor postoperative period. On the 2nd postoperative day the patient was discharged in a good clinical condition. In the following day, she reported to the ER with the symptoms of acute abdomen. The radiology imagining (RTG standing position, CT-abdomen) revealed great amount of free fluid and air in the abdominal cavity. The diagnostic laparotomy was performed immediately. In a wall of the ileum a 2cm rapture was found and secured. Continuity of the bladder wall was checked with no evidence of perforation. After long recovery time the patient's clinical state improved and she was discharged.

Conclusions: Thermal injury of the small bowel without perforation of the bladder is extremely rare but potentially fatal post-TURT complication. Awareness of that complication is important to prevent delay of diagnosis.

Keywords: transurethral bladder tumor resection, thermal injury, bowel perforation, postoperative complications.

ENDOVASCULAR MANAGEMENT OF NECK SKIN CANCER LESION BLEEDING

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Background: Skin cancer progression during palliative treatment can lead to arteries infiltration and uncontrolled hemorrhage from skin cancer lesion, that can be fatal to the patient.

Case Report: A 80 years patient with skin cancer of neck and right supraclavicular region after palliative radiotherapy was admitted to hospital because of bleeding from one of cancerous ulceration in neck region. After initial haemostasis and stabilizing the patient arteriography of aortic arch was performed. It visualized branching of right subclavian artery which were supplying cancerous lesions and caused bleeding. Covered stent was implanted in right subclavian artery occluding its branches with preserved patency of vertebral artery. Patient was discharged from hospital 3 days after procedure, postoperative recovery was uneventful.

Conclusions: Hemorrhage caused by cancerous skin lesions can be treated using endovascular approach. Implanting endovascular prosthesis occluding pathological vessels can minimize risk of recurrence of bleeding. Further studies are needed to evaluate long term effects of such approach.

Keywords: vascular surgery, endovascular, covered stent, skin cancer, hemorrhage

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME: A TRULY TREATABLE NEUROLOGIC ILLNESS.

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Background: Posterior reversible encephalopathy syndrome (PRES) is a clinicoradiological entity that was well described by Hinchey in 1996. PRES is a neurotoxic state that occurs secondary to the inability of the posterior circulation to autoregulate in response to acute changes in blood pressure. Hyperperfusion with resultant disruption of the blood brain barrier results in vasogenic oedema, but not infarction, most commonly in the parieto-occipital regions. PRES has been reported in patients aged 4 to 90 years, although most cases occur in young to middle-aged adults and predominance in females. Many patients with PRES have comorbidities, which may be severe conditions, such as bone marrow or solid organ transplantation and chronic hypertension.

Case Report: A 4-year-old girl with acute myelogenous leukaemia (AML) who undergone chemotherapy had a magnetic resonance (MRI) scan of the brain. MRI showed regions of high signal in T2-weighted sequences, symmetrically in both hemispheres, in white matter of temporal, parietal, occipital, frontal lobes and in the corpus callosum. These regions were normal in diffusion-weighted imaging (DWI) and there was no enhancement (after iv paramagnetic contrast agent CA) of these regions. Moreover, in the eyeballs in T2-weighted sequences irregular, 2 mm flat regions with concretions of hemosiderin were found. That retinal and subretinal haemorrhage most likely indicate for retinal infiltration caused by main disease (AML). In a head MRI performed 3 months later there was total regression of high signal regions. Only thin layers of hemosiderin concretions were observed, condition after microhaemorrhages. Changes in vitreous body in T1 and Fluid-attenuated inversion recovery (FLAIR) sequences showed thrombus.

Conclusions: Cerebral MRI is the key investigation for the diagnosis of PRES. Proton-density and T2-weighted images show regions of high signal indicating oedema. FLAIR sequences also visualize the lesions. The use of FLAIR has been shown to improve the diagnosis of PRES and the detection of subcortical and cortical lesions in PRES. T1-weighted images show low-intensity foci. Diffusion-weighted imaging (DWI) is normal but the apparent diffusion coefficient is increased. Finally, CA enhancement is seen in about half the cases.

Keywords: MRI, PRES, Posterior Reversible Encephalopathy Syndrome, AML, Head MRI.

TOTAL AORTIC REPLACEMENT IN A 59 YEARS OLD WOMAN

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Background: Aortic dissection is a serious condition treated by open or endovascular surgery associated with high risk of morbidity and mortality. Acute aortic dissection occurs in about 3 person per 100,000 per year. Surgical management of acute aortic dissection is connected with high mortality rate.

Case Report: A 59 years old female with moderate hypertension presented in March 2010 to the cardiac surgery department for replacement of ascending aorta due to aortic dissection type A. In May 2010 CT showed persistent distal dissection . The aortic arch has been replaced. Five months later main branches of abdominal aorta were supplied using bypass from left external iliac artery called octopus procedure. Next stage of treatment was endovascular stent-graft implantation to descending thoracic and abdominal aorta. One month later there was another endovascular procedure performed - an implantation of bifurcated stent-graft to abdominal aorta below renal arteries and both common iliac arteries. Patient had no postoperative complications. Post operational imagining studies indicated good perfusion of internal organs and CNS without endoleaks.

Conclusions: Treatment of aortic dissection spreading to whole length of artery is possible with step-by-step procedures. Combination of open and endovascular operations helps to minimize the risk of complications.

Keywords: aortic, dissection, repair, vascular, surgery

TESTICULAR NECROSIS AS A RARE COMPLICATION OF INCARCERATED INGUINAL HERNIA IN BOYS

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Background: Inguinal hernia is one of the most common congenital anomaly in children. It occurs due to unclosed vaginal process that is why 98-99% inguinal hernias in children are indirect. Also, the IH is 8-10 more common in boys than girls because of descent of testes during embryonic development. The most serious complication of IH is intestinal incarceration which predominantly occurs in children younger than 1 year (70% of cases), especially in first six months of life. Intestinal necrosis requiring resection happens in about 0-1.4% cases. Incarcerated bowel loop constricting the blood vessels can lead to testicular atrophy (2.6-5%) or even necrosis (1%).

Case Report: In 2016 four boys in age of 3, 4, 5 and 10 weeks were diagnosed with incarcerated hernia qualified for urgent surgery. Ultrasound revealed bowel loops in the inguinal canal. Moreover in two cases echogenicity changes and enlargement of the testicle were recognized. All patients were diagnosed intraoperatively with testicular necrosis. As the attempts of revascularization of testes by warming and lidocaine injection were ineffective, orchiectomy was performed in all cases. Histopathological examination of each specimen revealed haemorrhagic infarct of the testis. Time between first signs of incarcerated IH and beginning of the procedure ranged from 4 to 6 hours. There were no post operational complications and patients were discharged 3 to 6 days after surgery.

Conclusions: Testicular necrosis is rare but important complication of incarcerated IH. There are some changes in ultrasound examination of groin, but they are not pathognomonic for the necrosis. Every case of incarcerated hernia in boys requires rapid diagnosis and proper intervention.

Keywords: inguinal, hernia, testicle, necrosis, pediatric, surgery

SYNCHRONOUS ENDOMETRIAL AND OVARIAN CANCER (SEOC)

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Background: Synchronous cancer is called a second cancer occurring almost the same time as a primary lesion. However, it progresses independently. It is supposed that the period between getting both cancers shouldn't be longer than one year. Synchronous cancer is a rare instance. It accounts for approximately 2% of all female genital tract tumors. Among them the most common is synchronous ovarian and endometrial cancer which involves 40-53%. [1,4] We present the case of a 56-year-old woman who was admitted to the 2nd Department of Operational Gynecology Unit in Independent Public Teaching Hospital No 4 in Lublin with synchronous ovarian and endometrial cancer.

Case Report: In March 2017, the patient arrived at the Emergency Unit with increasing shortness of breath at rest. After getting necessary laboratory tests, medical procedures and specialist consultations the patient was referred to the 2nd Department of Operational Gynecology Unit in order to undergo cytoreductive surgery.

Conclusions: The final histological report confirmed an endometrioid adenocarcinoma of the endometrium (G2) polyp-limited and a synchronous, bilateral endometrioid carcinoma of the ovaries (G3). In addition, cancer cells in fluid from the peritoneal cavity, greater omentum and left parametrium, were found. Adjuvant radiochemotherapy and a regular follow-up was administered.

Keywords: Synchronous primary malignancies, Endometrial cancer, Ovarian cancer, Synchronous cancer, , Carcinoma, Endometrial carcinoma, Epithelial ovarian cancer, Gynecological cancer, Neoplasm, Ovarian carcinoma

CYSTIC FIBROSIS COMPLICATED BY ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS – A CASE REPORT WITH AN OVERVIEW OF LITERATURE

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Background: Among Caucasians, cystic fibrosis (CF) is the most commonly occurring genetic disease with a recessive pattern of inheritance. In Poland, the prevalence is estimated to be at 1/5000. Statistically, in around 15 % of patients, the course of CF is complicated by allergic bronchopulmonary aspergillosis. The aim of this paper is to present a case of CF complicated by allergic bronchopulmonary aspergillosis and also an overview of the subject-related literature indicating its risk factors.

Case Report: An 11-year-old boy with a case of CF diagnosed in his infancy was admitted to the Pediatric Pulmonology and Rheumatology Department. The patient's chief complaints were dyspnea and pain over his sternum and left shoulder blade that intensified upon respiration and had lasted for a week. Based on the clinical symptoms, X-ray and CT scan results the patient was diagnosed with the exacerbation of CF complicated by allergic bronchopulmonary aspergillosis. Antibiotics, systemic glucocorticosteroids, antifungals and adjunct drugs were administered. After a 3-week hospital stay, the boy was discharged home in a good condition. The patient was instructed to continue receiving the treatment in an outpatient clinic. In this paper we present a research study that attempts to establish a connection between the increased density of mucous in patients with bronchiectases and the occurrence of the aforementioned complication of CF.

Conclusions: A consistent measurement of mucous density in patients with bronchiectases can improve this already challenging diagnostic process of allergic bronchopulmonary aspergillosis.

Keywords: cystic fibrosis, allergic bronchopulmonary aspergillosis

TAKOTSUBO CARDIOMYOPATHY AS ONE OF POSSIBLE CAUSES OF AN ISCHEMIC STROKE IN A 50-YEAR-OLD PATIENT.

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Background: According to WHO, stroke is defined as a complex of neurological symptom that, not having led to death first, persists for at least 24 hours and has no other cause than vascular. Most of strokes have ischemic etiology. Strokes in young people account for 10-15 % of all cases. Potential risk factors among young adults are: smoking, migraine, contraception, arteriopathies, cardiac and haematological disorders, monogenetic syndroms as well as dyslipidemia, hypertension, diabetes, which are also the most common risk factors for the elderly. In about 30% of cases the etiology of an ischemic stroke remains unexplained, especially in young patients. Tako-tsubo cardiomyopathy is a rare cardiac disease that imitates myocardial infarction. It is characterized by the absence of haemodynamically significant changes in coronary vessels and reversible hypokinesia or akinesia of myocardium.

Case Report: We report a case of a 50-year-old female who underwent the fifth ischemic stroke. The first stroke occurred when she was 42. Later, at the age of 45, as a result of carbon monoxide intoxication, she was in a toxic coma and had myocardial infarction and ischemic stroke. Later she had three more strokes and one myocardial infarction. She has been also treated because of sarcoidosis. On admission she presented with newly onset pseudobulbar syndrome and a previously known left-sided hemiparesis, more prominent in the upper limb. Doppler ultrasonography of intracerebral arteries showed stenosis and occlusion of a few arteries. Echocardiography showed dyskinesia of the apex of the left cardiac ventricle. Takotsubo cardiomyopathy was suspected. Because of ineffectiveness of a previous treatment (ASA and clopidogrel), a treatment with dabigatran was introduced.

Conclusions: Taking into consideration their complications – disability and death – strokes are a serious health problem. Disability significantly decreases the quality of life of patients and their relatives. That is why thorough diagnostics, prompt implementation of treatment and prophylaxis for young adults from risk group is essential.

Keywords: takotsubo cardiomyopathy, stroke

FOURNIER'S GANGRENE, PRESENTING IN A FEMALE PATIENT: A CASE REPORT.

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Background: Fournier's Gangrene (FG) is a fulminant necrotizing fasciitis of the perineal area, first described in 1883 by a French dermatologist Jean-Alfred Fournier, who published a review of five cases of an idiopathic gangrene of the scrotum in otherwise healthy young men. Taking into account the anatomical specifics of the disease, it was considered to affect only males. Nevertheless, since the end of the XX century, FG had begun to be described in medical literature as a rapidly progressive necrotizing fasciitis of the perineal area, occurring in patients of all ages and genders. Considering its pathogenesis being based on the development of an anaerobic necrotizing process in the deep layers of soft tissue, keeping the genitals and other organs intact, the assumption that the occurrence of FG is limited to only males would not be conclusive with the definition of this disease. Therefore, we present our case report of FG, occurring in a female patient.

Case Report: A 65-year old female with a medical history of diabetes mellitus presented with general fatigue, nausea and dispnoe. The symptoms emerged 78 hours prior to presentation. Patient was admitted to the ICU with a diagnosis of Diabetes with ketoacidosis, type II, uncontrolled. On the third day, patient began to experience pain in the left labium majus. Physical examination revealed diffuse oedema and hyperaemia of the perineum, with small focuses of necrosis. Simultaneously, signs of intoxication, such as hyperthermia, hypotension and leukocytosis had been progressively increasing. A bedside ultrasound was performed, which revealed the presence of air in deep layers of soft tissue. On the fourth day, patient underwent extensive debridement of necrotized tissue, and was transferred into the ICU of the post-operative period. Within the next 24 hours, signs of intoxication have not decreased. A subsequent physical exam revealed necrosis spreading to the anterior abdominal wall and the internal surface of the thigh. As a result, on the fifth day patient underwent a second debridement of necrotized tissue of the perineum, thigh and abdominal wall. Antibacterial therapy included meropenem and clindamycin. Two courses of hyperbaric oxygenation and seven subsequent necrectomies were performed. Surgical specimens had shown diffuse inflammation and lesions of necrosis with minor haemorrhages. Tissue cultures were obtained and subsequently E. Coli and St. Aureus were isolated from the wound. Anaerobic bacteria were not identified, due to technical difficulties. On the 19-th day, due to stabilization of the main vital signs, patient was transferred from the ICU to the surgical department for further treatment. Post-operative wounds had shown a tendency of granulation and no subsequent spreading of the necrosis was found. On the 48-th day, surgical reconstruction was performed. Patient was discharged on the 55-th day after presentation with a favorable prognosis.

Conclusions: FG is a life-threatening disease, which despite low incidence has a high mortality rate, caused by clinical variability and complicated diagnostics. A series of prognostic factors, such as septic shock at presentation have proven to increase the incidence of mortality, however timely diagnostics and radical treatment had shown great effect in achieving full recovery of the patient, who was discharged with a favorable prognosis.

Keywords: fasciitis, Fournier, gangrene, necrotizing, surgery, urology

EXAMINATION IN STAGING OF RECTAL CANCER

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Background: Rectal cancer occurs mostly in 50-60-years old patients, more often in men than women. It represents 25% of colorectal cancer. Rectal cancer is in Poland in 7th place of all cancers in men and in 8th place in women. Mortality is in 8th place in men and in 10th place in women of all cancers. In early stage of the disease there are no specific signs and symptoms. Patients report to the physician usually in advanced stages of rectal cancer with symptoms such as constipation, diarrhea, change in the rhythm of bowel movements, narrow stools, stools with mucus and blood.

Case Report: 60-years old woman was admitted to the hospital, presenting symptoms which suggested gastrointestinal disorder. Colonoscopy revealed circular infiltration. Macroscopic image of the colon suggested non-neoplastic findings. The patient was qualified for magnetic resonance imaging (MRI) of rectum. Examination was performed by use of 1,5-Tesla MR with rectum imaging protocol. MRI showed circular infiltration of entire rectum with penetration to mesorectal fat tissue and entire presacral space. There were also an enlargement and infiltration to the stem and cervix of uterus observed. Pelvic lymph nodes were enlarged and had metastatic changes on both sides. Metastatic changes were also revealed in bones. Staging in TNM was classified as T4, N2, M1.

Conclusions: Magnetic resonance imaging in rectal cancer shall be a first choice diagnostic method as it is the most accurate tool for the local staging of rectal cancer. Detailed information provided by this examination are very helpful in TNM classification and they enable to select the appropriate treatment strategy.

Keywords: Rectal cancer, MRI, staging

INNOVATIVE ENDOVASCULAR METHOD OF REMOVING CENTRAL VEIN CATHETER EMBOLISATION FROM RIGHT VENTRICLE OF THE HEART - CASE REPORT

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Background: Central veins catheters placement is indicated for various reasons: fluids, drugs or chemotherapy administration and parenteral nutrition. Although first intravascular catheter fragments embolization was described in 1954, reports in world literature on this subject are rare, based mainly on case series and case reports with the average rate of catheter dislocation estimated for 0-3,1%.

Case Report: A 67-year-old man suffering from short bowel syndrome (SBS) and atrial fibrillation (AF) was referred to our hospital from General Surgery Ward in other healthcare center where he had Hickman's catheter exchange. During the routine exchange of the catheter its distal part of approx. 15 cm remained in the venous system. A 10F introducer was inserted in the right common femoral vein. After that 7F guiding catheter was advanced inside the 10F introducer using glide wire through the inferior vena cava and the right atrium to the right ventricle of the heart. The remaining fragment was captured at first attempt. It was easily and quickly retrieved from the ventricle through the inferior vena cava.

Conclusions: Central vein catheter embolisation is a serious condition that should be diagnosed and treated. The endovascular technique with use of Atrieve Vascular Snare™ can be successfully performed in order to retrieve catheter embolisation fragments.

Keywords: central vein catheter, embolisation, Atrieve Vascular Snare™

FREE FIBULA FLAP RECONSTRUCTION IN MANDIBULAR NECROSIS IN THE COURSE OF BISPHOSPHONATE TREATMENT OF BREAST CANCER BONE METASTASES.

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Background: Bisphosphonate-related osteonecrosis of the jaw (BONJ) is a relatively uncommon disorder in which patients treated with bisphosphonates (BPs) develop exposed necrotic bone in the oral cavity. Bisphosphonates are used to strengthen bone tissue in various metabolic bone diseases such as osteoporosis, for multiple myeloma and bone metastases, most often in breast cancer. Important risk factors are poor oral hygiene, recent invasive dental treatment and use of intravenous BPs. Etiology is not yet quite clear but trauma to dentoalveolar structures with limited capacity for bone healing in the course of bisphosphonate therapy is one of the explanations. Symptoms include pain, tooth mobility, gingival swelling, and eventually development of fistulae and osteomyelitis. There is currently no gold standard for the treatment of BONJ and each case should be discussed by a multidisciplinary team. Depending on the case, conservative management, minor surgical procedures and reconstructive surgery may be applicable.

Case Report: A 59-year-old female presented with pain, redness and swelling of the mandibular region. Past medical history included right side mastectomy for breast cancer, followed by radiotherapy, chemotherapy and intravenous bisphosphonates for bone metastases. She was diagnosed with bisphosphonate-related osteonecrosis of the mandible and in June 2017 underwent a resection and reconstruction with free fibula flap. Postoperative course was uneventful. In September 2017 the fibula flap skin monitor was resected from the floor of the mouth.

Conclusions: BONJ should be taken into account in all patients treated with BPs, especially those with bone metastases and receiving intravenous therapy. Regular comprehensive dental examination and treatment is advised. In advanced cases of jaw necrosis a free fibular flap reconstruction offers a functionally and aesthetically satisfactory solution.

Keywords: osteonecrosis, bisphosphonates, reconstructive surgery

LIP RECONSTRUCTION USING THE PECTORALIS MAJOR MYOCUTANEOUS FLAP IN PATIENT WITH EXTENSIVE ATHEROSCLEROSIS

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Background: Lips are structures that play an essential role in aesthetics and in different functions such as nutrition and speech. The complex anatomy of the lips makes surgical management of this area a therapeutic challenge. Nowadays reconstructive surgery became a part of primary cancer treatment. Unfortunately patients with severe atherosclerosis of lower limbs and skin atrophy have an impede of using most popular free flaps. The pectoralis major myocutaneous flap (PMMF) can be used to cover large tissue defects in such cases.

Case Report: We present a case of a 69-year-old man who has underwent radiation therapy of lower lip as a primary treatment of this cancer. In 2015 the patient was admitted to the Department of Otolaryngology of Medical University in Lublin to have a tumor resection carried out. For many years he has been suffering from massive atherosclerosis with ischemia and skin atrophy of lower limbs. In 2015 surgical team from the Department of Otolaryngology of Medical University in Lublin carried out a resection of the lower lip, chin, jawbone, floor of the mouth and the skin of the neck. Reconstruction using the Superficial Circumflex Iliac Artery (Groin) Flap and Vascularized Fibula Flap was impossible because of massive atherosclerosis of the lower limbs. Surgeons decided to carry out reconstruction in two parts using two PMMF. Second flap used for the reconstruction of the lower lip was setteled on fascia lata grafts to prevent its drooping.

Conclusions: The pectoralis major myocutaneous flap can be an option to cover large tissue defects for patients with massive lower limbs' atherosclerosis after resection of lower part of the face.

Keywords: PMMF, lip reconstruction, atherosclerosis

MANDIBLE'S RECONSTRUCTION USING THE FREE FLAP FROM THE HIP IN PATIENT WITH FIBROSARCOMA.

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Background: Fibrosarcoma is a rare malignant mesenchymal neoplasm of fibroblasts. The most common location of tumour are the deep tissues of thigh, knee, retroperitoneal space and rarely affects oral cavity. After local excision in half of the cases fibrosarcoma is a recurrent tumour.

Case Report: We report a case of a fibrosarcoma of the oral cavity's atrium in a 30-year-old female. The patient was performed the operation of excision the floor of the mouth, both salivary glands, mandibulectomy and supply with free flap of the hip. Postsurgery period was complicated by necrosis of transplated skin, wound was healed succesfully by granulation. In order to accelerate the healing of the wound, a reoperation was performed to cover the exposed plate with a free flap from the left forearm. We present a detailed report of patient's clinical data as well as surgery treatment options.

Conclusions: Fibrosarcoma can grow rapidly and spread on the other tissues. In many cases tumour is so extensive, that after removing it, reconstruction with free flap is needed.

Keywords: fibrosarcoma, mandibulectomy, reconstruction, free flap

METAL NAIL ASPIRATED THROUGH TRACHEOSTOMY

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Background: Aspiration of foreign body through tracheostomy is more rare than through the mouth or nose. Patients with tracheostomies do not have defensive instinct cough as a protection before aspiration. Only small objects can be evacuated with a sudden expectoration.

Case Report: A 64-year-old man, with tracheostomy after laryngectomy because of laryngeal cancer, was admitted to Thoracic Surgery Unit after foreign body aspiration. Metal nail was used by patient to clean tracheostomy entrance with accidental aspiration of nail into airways. Patient called ambulance and was admitted to ER Department with symptoms of haemoptysis and dyspnea. An X-ray confirmed presence of the foreign body located in the distal 1/3 of the trachea and right principal bronchus, with head of the nail reaching right middle lobe bronchus. The nail was successfully evacuated during classic bronchoscopy in general anesthesia. Patient was discharged from hospital on next day after procedure.

Conclusions: There is a significant risk of inflammatory process around a foreign body. Diagnosis should be confirmed with any imaging (CT scan/RTG) as soon as its possible. Bronchoscopy is the first-choice procedure to evacuate any object from bronchi

Keywords: Key words: foreign body, aspiration, tracheostomy, bronchoscopy

PANDAS AS A RARE AND DIFFICULT TO DIAGNOSE DISEASE

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Background: Pediatric autoimmune neuropsychiatric disorder associated with streptococcal infection (PANDAS) is defined by an acute prepubertal onset of tics or OCD (obsessive compulsive disorder) symptoms associated with group A Streptococcus (GAS) infection and specific neuropsychiatric symptoms. It is a subset of pediatric acute neuropsychiatric syndrome (PANS). PANS is a “diagnosis of exclusion” and that other known medical diseases must be ruled out before a diagnosis of PANS is assigned.

Case Report: This work includes description of two cases of PANDAS. 5-year-old girl was admitted to the Rheumatology Department with suspected PANDAS. Patient has suffered recurrent infections of upper airways and multiple otitis media. Physical examination revealed enlargement of submandibular lymph nodes. A half year before the hospitalization girl had otitis media with tympanic membrane perforation. Bacteriological ear examination revealed the presence of GAS. After this infection, patient's behaviour had changed - she had become aggressive, felt anxious, experienced mood changes and obsessions and sensory abnormalities. Immunodeficiency was excluded. Girl was consulted with neurologist - neurological diseases had been excluded and with psychologist - diagnosed with OCD. Treatment with phenoxymethylpenicillin was highly effective and led to regression of nearly all symptoms. The therapy discontinuation caused recurrence all symptoms. 8-year-old girl suspected with PANDAS was admitted to the Rheumatology Department. Physical examination revealed enlargement of the palatine tonsils. Laboratory tests demonstrated increased ASO titer. At the age of 6 years (2015) escalating symptoms of neurological and psychiatric abnormalities: anxiety, irritability, aggression, sensory abnormalities, sleep disturbances were observed. In July 2015 patient was diagnosed with Asperger's Syndrome. Symptoms aggravation was observed after respiratory system infection in February 2016. Bacteriological examination revealed the presence of GAS. In April 2016, after 10 days of treatment with phenoxymethylpenicillin, her behaviour, general condition and sleep quality improved. Nowadays patient is still treating under neurological and rheumatological observation.

Conclusions: There are many difficulties to diagnose PANDAS and it is diagnosis of exclusion, while the neuropsychiatric symptoms could be nonspecific. Proper diagnosis and treatment with antibiotics could be beneficial for patients.

Keywords: pediatric autoimmune neuropsychiatric syndrome associated with streptococcal infection, PANDAS, treatment with antibiotics, pediatrics

AUTOLOGUS STEM CELL TRANSPLANT IN MANTLE CELL LYMPHOMA TREATMENT

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Background: Mantle cell lymphoma(MCL) is a relatively rare type of lymphoma. It is derived from mature peripheral blood B lymphocytes. It consists of cells with irregular nuclei and it infiltrates the mantle zone surrounding the germinal centers. In 95% of cases CCND1 gene translocation is present which leads to overexpression of cyclin D1 and its continuous production which results in the disturbance of cell cycle in G1-S phase. The majority of patients are diagnosed with stage III or IV MCL according to Ann Arbor staging system for lymphomas. The course of the disease involves the spread of MCL to the lymph nodes, spleen, liver, bone marrow, lungs, and CNS. A diagnosis of MCL is based on a histopathological as well as immunohistochemical examination of a lymph node biopsy.

Case Report: Currently, there is no known effective treatment for MCL and the type of treatment depends on the patient's condition, comorbid conditions, the intended intensity of the chosen treatment option, the possibility to collect stem cells and to use high-dose chemotherapy with autologous stem cell transplant. The paper aims at presenting the case history of a patient with MCL treated with chemotherapy courses combined with rituximab immunotherapy followed by myeloablation with stem cell transplant.

Conclusions: Autologous stem cell transplant is an effective treatment in mantle cell lymphoma.

Keywords: mantle cell lymphoma, autologous stem cell transplant

IMAGINING FINDINGS IN FEVER DIAGNOSTICS / FROM FEVER TO THE DIAGNOSIS

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Background: The aim of this paper is to present diagnostic possibilities of radiology technologies to improve diagnostics of diseases of unknown etiology and origin.

Case Report: 40-year-old patient reported to the ER with fever since 5 days and impaired consciousness. The patient received ambulatory antibiotic treatment. However, after 3 days he was referred to the hospital with persistent symptoms. Head CT showed numerous intracerebral haematomas. Patient was admitted to SPSK nr 4 in Lublin. He obtained neurological, nephrological, neurosurgical, anaesthesiological and cardiological consultation. There were several laboratory tests conducted. They disclosed pathologies in kidneys, heart and brain tissue and led to the diagnosis of infective endocarditis.

Conclusions: The use of radiologic technologies such as computer tomography, magnetic resonance imaging and echocardiography for diagnostics of systemic disorders such as fever of unknown origin, enables to take a proper diagnostic path and led specialists to determine cause of organs failure. Finally, in the presented case, informations provided by radiological imaging turned out to be a key diagnostic tool and led to the proper treatment strategy.

Keywords: radiology, diagnostics, fever, endocarditis

GASTRIC PERFORATION IN A PREMATURE NEONATE – CLINICAL CASE

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Background: Gastric perforation (GP) in neonates is a rare and life-threatening problem with unknown etiology. It usually occurs within first week of newborn's life. The mortality rate of this condition is up to 58%. Apart from spontaneous cases there are also some known risk factors of the GP such as corticosteroid administration, asphyxia or iatrogenic trauma (nasogastric or orogastric tube placement). The aim of this paper is to present the course of this severe condition based on the medical history of the clinical case and to point out its risk factors.

Case Report: A male newborn born in 35 weeks of gestational age by C-section because of a vaginal bleeding due to placental abruption, with birth weight of 1750g and Apgar score of 9-10 points. During the perinatal period the neonate suffered from a respiratory failure due to congenital pneumonia. From the 2nd day after birth a respiratory support, first n-CPAP, then SIMV and NIV, was necessary. On the 3rd day after birth the chest x-ray was taken again in order to verify inflammatory changes in lungs and it also revealed large amount of gas in the stomach. Due to appearance of new clinical symptoms (respiratory effort, abdominal distention) the chest and abdominal x-ray was also performed on the 5th day after birth. It revealed pneumothorax on the right side and gas within peritoneal cavity - the emergence of the perforation. The same day the patient underwent urgent laparotomy. During surgery a 2,5 cm perforation was revealed on the front wall of the stomach. Subsequently in the Intensive Care Unit (ICU) the patient was treated with broad-spectrum antibiotics because of staphylococcal sepsis. Within three weeks with vital signs stabilized, he was transmitted from Intensive Care Unit to the Department of Neonate and Infant Pathology for further treatment. At the age of 6 weeks, patient's general state was defined as good and he was discharged home.

Conclusions: The existence of gastric perforation is rare. In order to save newborn's life it requires prompt diagnosis and immediate surgical intervention.

Keywords: gastric perforation, neonates, life-threatening condition

MINIMALLY INVASIVE MITRAL VALVE REPAIR WITH FIBRILLATORY ARREST IN PATIENT WITH PRIOR CORONARY ARTERY BYPASS GRAFTING - CASE REPORT.

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Background: With development of cardiac surgery and elongation of life expectancy, number of patients requiring multiple cardiac procedures is growing. Redo procedures are always challenging and sometimes conventional techniques are insufficient. Application of standard cardioprotection with aortic clamping and cardioplegic arrest may not always be feasible due to adhesions and postoperative anatomy. Patients with patent coronary grafts providing coronary circulation are particularly challenging. A combination of minimally invasive cardiac surgery with fibrillatory arrest as an alternative way of cardioprotection although technically demanding opens up new possibilities in planning and performing procedures in complex cases.

Case Report: We describe a case of 70 year-old male who underwent minimally invasive mitral valve repair (MVR). He had a history of an off-pump coronary artery bypass grafting 11 years earlier (5:1: left internal mammary artery- left coronary artery (LCA) diagonal branch- left anterior descending proximal (LAD) branch- LAD distal branch, “retroAortic”:right internal mammary artery-LCA marginal branch, vein graft: Aorta- right coronary artery ramus descendens posterior). All five grafts were patent at the time of presentation and qualification for MVR. ECHO findings showed a severe mitral regurgitation with vena contracta 9 mm, a ruptured chordae tendineae, restricted posterior leaflet and moderately impaired LV function. MVR was performed via right anterolateral mini-thoracotomy with femoral vessels cannulation for cardiopulmonary bypass. Right lung was deflated using double-lumen intubation tube. Cardioprotection was accomplished by hypothermia-induced fibrillatory arrest without aortic cross clamping. Successful Gore-Tex artificial chordae implantation with additional edge-to-edge and mitral annuloplasty with rigid ring were performed. At six months follow-up the patient is well and ECHO findings shows good result of mitral valve repair.

Conclusions: We consider MVR with application of right anterolateral mini-thoracotomy and fibrillatory arrest as a good and safe alternative in redo cases especially in post CABG cases with patent grafts where proper myocardial protection is challenging and the risk of damaging the coronary grafts is high.

Keywords: mitral valve repair, reoperation, fibrillatory arrest, right anterolateral mini-thoracotomy, prior CABG

LATE RECCURENCE OF UROGENITAL CHLAMYDIA TRACHOMATIS INFECTION AS A RARE CAUSE OF SEPSIS AND FOLLOWING REACTIVE ARTHRITIS (REITER'S SYNDROME) BY AN ADOLESCENT.

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Background: Reiter's syndrome (RS) is an uncommon complication of urogenital Chlamydia trachomatis infection, which manifests as the classic triad of symptoms: conjunctivitis, nongonococcal urethritis and asymmetric oligoarthritis. RS is unlikely to manifest after 4 months of the initial symptoms of the urogenital infection as the recurrence of once treated Chlamydia infection. In the scientific publications there is no such a case reported. This case is to reveal how diversified image of the urogenital infections can be and how difficult it can to treat them especially nowadays in the era of rising antibiotic resistance.

Case Report: 18 years old patient was admitted to the Department of Surgical Oncology as a result of cervical and inguinal enlargement of lymph nodes. The diameter of group IIa of the cervical nodes was 1.5cm, the left inguinal lymph node of 2cm and right inguinal node of 1.5cm which were measured by ultrasonography. The possibility of lymphoma was ejected and finally excluded by biopsy of the left inguinal node and histopatological examination (immunochemistry). Any other proliferative proces was excluded by MRI. Infection of T. pallidum was excluded by VDRL and RPR tests. The HIV infection was excluded by ELISA. 2 weeks after the biopsy of the node the patient has presented sepsis and following reactive arthritis for which he was treated in the Department of Rheumatology.

Conclusions: Rarely infection of Chlamydia trachomatis is reported as relapsed. According to the scientific literature RS may appear in aproximately 0.5% of all cases of chlamydia trachomatis infections. The only symptom of the recurrence of Chlamydia trachomatis infection were swollen lymphatic nodes which were manifested after 4 months of the primal infection.

Keywords: antibiotic. resistance. chlamydia. trachomatis.

LONG-TERM TREATMENT OF PATIENT DIAGNOSED WITH METASTATIC MELANOMA: A CASE REPORT

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Background: Malignant melanoma is a cutaneous neoplasm deriving from melanocytes. Radical surgery with adequate margins is the recommended treatment for early-stage melanoma. However, in patients with metastatic disease systemic therapy should be included. Historically dacarbazine-based chemotherapy was the only treatment option, recently though due to the targeted therapy and immunotherapy the survival rates of patients with metastatic melanoma significantly increased.

Case Report: Patient presented to the Department of Soft Tissue/Bone Sarcoma and Melanoma, Institute of Oncology in Warsaw in July 2011 with melanoma of the lower limb developed in congenital nevus. Sentinel lymph node biopsy was positive and inguinal-ilio-obturator lymphadenectomy was performed. The grade of the disease was described as pT3bN1. Year later gastroscopy revealed isolated metastases in esophagus. Patient started treatment with BRAF inhibitor vemurafenib. Double reduction of dose was necessary due to rash and prolonged QT interval. Gastroscopy revealed almost complete regression of the metastasis. Patient continued treatment for 3 years. Because of the progression of the disease, he started second line treatment with ipilimumab. He received 4 full doses with no toxicity. Objective response to therapy was achieved. After 3 months the progression was found due to pulmonary metastases. Patient began pembrolizumab treatment. CT scans revealed long-term stabilization of the disease. Patient received 20 cycles without any toxicity. The treatment was stopped in October 2016 due to massive progression in bones and right adrenal gland. Until the occurrence of bone metastases, patient was in a good condition (asymptomatic, WHO 1). He underwent radiotherapy for metastatic lesions in the lumbar spine and pelvis. Patient started 4th line of treatment – dacarbazine-based chemotherapy. After 3 months of therapy, CT scan showed partial regression of metastatic lesions and decreased level of LDH. The therapy ended in February 2017 because of the progression to the brain. Patient died in March 2017 after 5 years of treatment.

Conclusions: Diagnosis of metastatic melanoma historically was associated with unfavorable outcome and 5-year survival at 5-10%. Due to implementation of targeted and immunomodulating therapies, the survival time of patients with metastatic melanoma significantly increased. The most appropriate treatment of disseminated melanoma are modern therapies as a part of clinical trials.

Keywords: melanoma, targeted therapy, immunotherapy

POST-TRAUMATIC CERVICAL SPINE INJURY- IMAGING DIAGNOSTICS

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Background: Spine injuries occur mostly as a result of a traffic accident, a fall from the height and sport activities. These injuries are often the cause of vertebrae dislocation and spinal cord injury. Spine injuries rate estimation is 15-35 in a 1 milion people in a year, while 80-85% occur in male population. Over half (61%)of the cases include people at the age of 16-30. When a spine injury happens, we should always be aware of the risk of spinal cord injury. Because of that, imaginig diagnostics is number one priority action in these cases.

Case Report: 23-year- old patient after a jump on a head to the water was admitted to the ER under the urgency procedure. He was diagnosed with tetraparesis. Imaging diagnostics were conducted. Firstly, computer tomography in a politrauma protocol showed C5 and C6 vertebral fracture with invagination into the spinal canal. The patient was qulified to magnetic resonance imagining which revealed injury of nervous tissue in a place of spine fracture. MRI showed invagination of the fracrured vertebarae to the spinal canal compressing edematous spinal cord.

Conclusions: Computer tomography is a study of choice for assessment of bone structures. Magnetic resonance imagining is a key diagnostic tool for the assessment of soft tissue and spinal cord.

Keywords: spine injury, tetraparesis, mri, computer tomography

EXTREMELY RARE SLEEVE GASTRECTOMY COMPLICATION TREATED IN AN UNCLASSICAL WAY REVEALS THE BEAUTY OF CLASSICAL IMAGING

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Background: Obesity is a major issue, both social and medical in Poland as well as in other developed countries. The WHO estimates that by 2030 28% of men will be obese, as well as 18% of women. Surgery is one of the methods of treatment and sleeve gastrectomy with duodenal switch is one of the recommended procedures. It involves resection of the stomach along greater curve, reducing its volume by 80%, it is effective and has low percentage of complications. If any, the most common are bleeding (0,9%) and leakage (0,7%). In case of complications, there are no guidelines concerning diagnostics. Contrast radiography of upper gastrointestinal tract is a widely-available method of imaging its functionality, wall- lining and patency, and is being used in medicine since 1910's.

Case Report: The patient diagnosed with severe obesity underwent sleeve gastrectomy with duodenal switch. After the surgery, patient complained about supra-abdominal pain and dyspnea, which later appeared to be a symptoms of anastomosis leakage. Despite relaparotomy, a patient's condition didn't improve. As a result, a stent had been applied to the esophagus to seal the anastomosis, and patient was admitted to Intensive Care Unit, and spent there over a month. A stent location was controlled by following imaging, from which only the contrast radiography of gastrointestinal tract could unmistakably reveal further leakage due to stent dislocation. The stent had been repositioned, and after three months it was removed.

Conclusions: Laparoscopic sleeve gastrectomy, despite being known for its low complication rate, as every invasive procedure needs to be carefully observed after the surgery to avoid any short and long term consequences. Furthermore, modern surgery allows the rediscovery of classical imaging.

Keywords: obesity, gastrectomy, LGS, classical imaging, radiography

THUMBTACK EVACUATION AFTER SIX YEARS SINCE ITS ASPIRATION.

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Background: 80-90 % of aspirated objects get stuck in the right bronchus because of anatomical differences between left and right bronchial entrances. In general, aspirated foreign body perform 3 phases: initial phase, asymptomatic and the last one - complication phase. Typically, patient presents cough, unilateral wheezing and decreased breath sounds.

Case Report: We present a case of thumbtack aspiration by a 21-year-old woman. Pin was aspirated around 6 years ago, patient didn't report to hospital because of no clinical symptoms except periodic cough. After admission bronchoscopy and CT scan were performed. Presence of foreign body in the right lower lobar bronchus was confirmed. The thumbtack was successfully removed during classic bronchoscopy in general anesthesia. Removal was hindered because of fragility of rusted metal part of the thumbtack and heavy inflammation around the alien body. She was discharged home on 2nd day after the bronchoscopy.

Conclusions: It is very important to remove foreign body as soon as it is possible to prevent the inflammatory. The longer it takes, the higher is probability of damages of tissue around, which can cause dangerous complication. First choice method to evacuate object located in bronchus is classic bronchoscopy.

Keywords: foreign body, aspiration, bronchoscopy

EXACERBATION OF HEART FAILURE DUE TO DUAL CHAMBER ICD'S ATRIAL LEAD DAMAGE

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Background: The role of implantable cardioverter defibrillators (ICDs) is widely recognized in cardiology. The device enables detection of rapid ventricular rhythms - ventricular tachycardia or fibrillation and application of antitachyarrhythmia pacing or defibrillation. Furthermore, generating low energy impulses also allows dual chamber stimulation. The properly functioning device is the requirement for safeguarding the patient.

Case Report: The 68-year-old patient reported to Emergency Unit because of severe dyspnoea lasting for 3 days and the sound alarm emitted by the ICD. Two years before, the patient had had implanted a single-chamber ICD, which had been expanded into a dual chamber ICD a year later because of sinus bradycardia . Interrogation with programmer revealed significant disruption of atrial lead coexisting with noise signals and high percentage of right ventricular (VVI) pacing. Disturbances increased during the patient's movement, especially when touching the area of the implantation of the device. On this basis, the fracture of the atrial lead was suspected. 7 months earlier, the patient had undergone ablation of left ventricular tachycardia substrate. Despite the primary suspicion, ablation did not cause the damage of the atrial electrode. X-ray imaging revealed damage of the lead conductor at the segment adjacent to the generator. The breakage was the result of direct contact between these two elements. The atrial lead was replaced with a new one. It allowed proper reading of atrial potentials and atrial pacing with normal AV conduction. Symptoms of dyspnoea subsided.

Conclusions: Damage to the atrial lead resulted in abnormalities in potentials reading and atrial pacing, as well as secondary right ventricular stimulation. Replacing the electrode restored proper functioning of the device and improved patient's condition.

Keywords: ICD, implantable cardioverter defibrillator, electrotherapy, pacer

RETROBULBAR NEURITIS AS A FIRST MANIFESTATION OF NEUROPSYCHIATRIC SYSTEMIC LUPUS ERYTHEMATOSUS IN 55-YEAR-OLD FEMALE PATIENT

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Background: Retrobulbar neuritis is a variant of optic neuritis with demyelinating inflammation of posterior part of the optic nerve without involvement of its head. It typically affects young adults with a mean age of 30-35 with a strong female predominance. Clinical presentation usually consists of sudden partial or complete loss of vision, blurred vision and pain on eye movements. Most common causes comprise neurological demyelinating disorders such as multiple sclerosis or neuromyelitis optica, but rarely it can occur in autoimmune disorders, such as systemic lupus erythematosus (SLE). Among systemic connective tissue disorders SLE is unusual, as it commonly affects central nervous system. Thus, neuropsychiatric form of SLE (NPSLE) was distinguished.

Case Report: This paper presents a case of 55-year-old female who was admitted in 2016 to Rheumatology and Osteoporosis Department with symptoms of arthritis, fatigue, headaches, light hypersensitivity, Raynaud phenomenon, hair loss and limited thickening and hardening of skin on head and vulva. The patient suffered from vision impairment with blurry vision in the right eye with pain on its movements. Recent medical history an episode of retrobulbar neuritis in 2015 with demyelinating lesions in right optic nerve in MRI. Laboratory tests presented positive anti-RNP, anti-nucleosomes and anti-Ro52 antibodies and lowered C3 component. Neuropsychologic examination indicated memory impairment. Ophthalmic examination excluded papillitis. On the basis of abovementioned, neuropsychiatric systemic lupus erythematosus was diagnosed. Activity of disease was estimated high - 18 points in SLEDAI scale. Patient was treated with intravenous methylprednisolone, cyclophosphamide followed by mycophenolate mofetil administered orally with good response, but the vision remained impaired partially.

Conclusions: Neuropsychiatric symptoms can affect up to 80% of patients with SLE, but the exact prevalence is hard to be estimated due to the profusion of clinical symptomatology. Cognitive disorders such as memory impairment are quite common among patients with NPSLE, but optic neuritis affects less than 1% of them. Moreover, neuropsychiatric changes can be the only manifestation of SLE. Thus, NPSLE should be taken into consideration in differential diagnosis of many neurological, psychiatric or ophthalmological disorders.

Keywords: systemic lupus erythematosus, neuropsychiatric systemic lupus erythematosus, retrobulbar neuritis, optic neuritis

SIMULTANEOUS VENTRICULAR SEPTAL RUPTURE (VSR) AND CARDIAC FREE WALL RUPTURE FOLLOWING ACUTE MYOCARDIAL INFARCTION TREATED WITH RESCUE BALLOON CLOSURE.

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Background: A 66 year-old woman suffered from the anterior wall myocardial infarction (MI) and was admitted to the hospital.

Case Report: Chest pain was the first manifestation of coronary artery disease (CAD). In past medical history patient suffered from hypertension and diabetes. Before coronary angiography she had cardiac arrest in the mechanism of pulseless electrical activity. Resuscitation procedure was promptly implemented successfully. Then an urgent transthoracic echocardiogram was performed and it showed pericardial effusion. Despite successful pericardiocentesis persistent cardiogenic shock occurred. Left ventricular (LV) angiography revealed rupture of the free wall (FWR) and interventricular septum (VSR) near the LV apex. Under the control of transesophageal echocardiography, over the wire conducted from the left to right ventricle a trans-catheter Baloon Osypka VACSII was inflated in the septum and closed the VSR. The balloon inflation allowed one to stabilize the patient's hemodynamics with low dose of epinephrine. Cardiac surgery was performed and the rupture of septum and the free wall were sutured. Two days later a sudden deterioration in the patient's health occurred with symptoms of a recurrent cardiogenic shock, followed by cardiac arrest in the mechanism of brady-asystole. The patient died. In the autopsy recanalization of VSR was found.

Conclusions: The hemodynamic and clinical effects of the emergency balloon closure and the subsequent cardiac surgery indicated that it was good therapeutic option. Innovative and effective solutions are expected to be improved.

Keywords: rescue ballon closure, acute myocardial infarction, heart wall rupture

TAKAYASU ARTERITIS IN 25-YEAR-OLD CAUCASIAN WOMAN

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Background: Takayasu arteritis (TA), also known as the "pulseless disease", is a rare granulomatous vasculitis of unknown etiology predominantly occurring among women younger than 40 years of age. The incidence of TA varies geographically and is highest in Asia, while in Europe the disease is considered a rarity with 2.6-6.4 cases per million. The inflammation is characterized by stenosis, thrombosis, aneurysms and occlusion of large elastic arteries, mainly aorta and its main branches. Symptoms are highly variable and depend on affected vessels - from limb claudications, through abdominal pain to sudden death.

Case Report: This paper presents a case of 25-year-old patient who presented fever, fatigability and weight loss followed by pain and paresthesia of left upper limb.

Ultrasonography of upper limbs vessels revealed thrombotic changes in brachial artery and patient was referred to rheumatology ward with suspicion of vasculitis. Clinical features during submission comprised pain of both upper grids, claudication, absent pulse and reduced temperature of the arms. Laboratory findings included elevated ESR and CRP, mild anaemia and hypergammaglobulinemia. Angio-MR showed local inflammation with stenosis of both left and right subclavian arteries. Clinical and radiological features matched the American College of Rheumatology criteria and diagnosis of Takayasu arteritis was made. Treatment with intravenous methylprednisolone and oral methotrexate was instituted. The therapy was successful and well tolerated, the patient achieved clinical and laboratory remission.

Conclusions: Early diagnosis of Takayasu arteritis and anti-inflammatory treatment are of greatest importance in order to avoid complications of the disease which are potentially life-threatening. Thus, it is crucial to consider TA it in differential diagnosis of many rheumatic, gastrointestinal, cardiovascular or neurological disorders, as symptoms of TA can mimic many other and more frequent conditions.

Keywords: Takayasu arteritis, vasculitis

IODINE CONTRAST ALLERGIES.

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Background: The use of iodinated contrast agents for angiography dates to the 1920s. With over 75 million contrast-requiring procedures performed annually worldwide, it is important to understand the risk factors, pathogenesis, diagnosis, prevention, and treatment of adverse reactions caused by iodinated contrast media (ICM). The most common clinical manifestations of adverse reactions are dermatologic. Pruritus and urticaria occur in approximately 70% of adverse reactions. Flushing has also been observed in the acute setting. An even wider variety of delayed manifestations exist including exanthema, erythema multiforme, vasculitis, Stevens-Johnson syndrome, toxic epidermal necrolysis, and graft versus host reaction. Cardiac manifestations have also been known to occur. Immediate cardiac findings include cardiovascular shock, cardiac arrhythmia, and cardiac arrest. Debate currently exists as to whether these cardiac manifestations are a secondary result of homeostatic dysfunction (i.e., vasodilation), reduced venous return and volume loss, or due to a more direct cardiac mechanism (i.e. Kounis syndrome).

Case Report: Patient (female, 85 years) admitted to the Vascular Department with symptomatic, non-ruptured abdominal aortic aneurysm (71mm). She also had brain stroke, diabetes, permanent atrial fibrillation and a history of iodine contrast allergy. Nevertheless, the allergy life-saving angiography and stentgraft implantation was performed. Before examination patient was given steroids to minimise the allergic reaction. Unfortunately, after successful procedure toxic epidermal necrolysis was observed. She was treated with Clemastin and Dexaven administered intravenously. Cardiovascular shock also occurred and it was treated pharmacologically with Levonor, Dopamine and fluids. Topical steroids were administered after dermatological consultation. Patient was discharged with minimal skin lesions after 20 days of hospitalisation.

Conclusions: The development of nonionic low-osmolar ICM has greatly reduced the incidence of adverse reactions to contrast media, however, adverse reactions still occur. Premedication with steroids is only recommended for individuals identified as high risk of an adverse reaction to ICM. Life-threatening reactions occur in up to 0.2% of individuals depending on the type of ICM used. Physicians performing diagnostic or therapeutic procedures using contrast dye must be aware of the potential for these reactions and be prepared to efficiently treat patients suffering from severe adverse reactions.

Keywords: iodine contrast, allergy, angiography, epidermal necrolysis, contrast media

LOWER LIMB FRACTURES WITH VASCULAR INJURY.

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Background: The combination of soft tissue, osseous and vascular, complex extremity trauma requires prompt and precise evaluation and management to attain optimal outcome. Patients sustaining these unique injuries are at high risk for ischemia, wound infection, delayed union or nonunion, and chronic pain, not only owing to the anatomy of their injuries, but also the prevalence of associated multisystem trauma and systemic problems related to the mechanism of injury. While the treatment goal remains extremity salvage, these injuries carry a high potential for morbidity and amputation.

Case Report: Patient (male, 22 years) admitted to the hospital after motorcycle accident with lower limb compound, comminuted fracture and acute ischemia of the extremity. Trauma scan protocol CT with iodine contrast was made. After the examination, orthopaedics and vascular consultation patient was transferred to the operating suite. Vascular surgeon evaluated the extensivity of the vascular damage, performed proximal and distal thrombectomy using Fogarty's catheter and adequate vein graft to posterior tibial artery was stabilized and inter-positioned by end-to-end. After the vascular intervention pulse was palpated on the dorsalis pedis artery. Furthermore, the limb fracture was stabilised with external fixation.

Conclusions: Vascular injury in orthopedic trauma is challenging to manage. The risk to life and limb can be high. Clinical signs can be subtle initially. In the absence of clear signs of vascular compromise, these injuries can easily be missed, with potentially devastating consequences. Tertiary trauma centers ideally should have a clear protocol of activation of the appropriate trauma team including vascular and orthopedic; colleagues should establish priorities, discuss the appropriate sequencing, communicate management decisions with the operating room personnel and anesthesiologists, and perform the repairs. The key factors in successful management are optimal sequence of the repair, adequate exposure and vascular control, debridement of the injured vessel wall, proximal and distal balloon catheter thrombectomy, tension-free end-to-end repair or appropriately sized interposition graft, good soft tissue coverage, stable but expeditious fracture fixation.

Keywords: injury, limb fractures, vascular repair, graft, trauma.

HIT IS IT EASY TO TREAT?

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Background: Heparin-induced thrombocytopenia (HIT) is the development of thrombocytopenia (a low platelet count), due to the administration of various forms of heparin, an anticoagulant. HIT predisposes to thrombosis (the abnormal formation of blood clots inside a blood vessel) because platelets release microparticles that activate thrombin, thereby leading to thrombosis.

Case Report: Patient (female, 85 years) admitted to the Vascular Department with symptomatic, non-ruptured abdominal aortic aneurysm (71mm). She also had brain stroke, diabetes, permanent atrial fibrillation and a history of iodine contrast allergy. Nevertheless, the allergy life-saving angiography and stentgraft implantation was performed. Before examination patient was given steroids to minimise the allergic reaction. Unfortunately, after successful procedure skin exfoliation and hypotension was observed. After dermatological consultation, she was treated with Clemastin and Dexaven. The general condition of the patient was getting better. After 7 days of antithrombotic curation the platelet number decreased from 207 to 74 x10⁹. Because of that massive downfall of platelet number heparin was changed to fondaparinux. A week later platelet level was even higher than primarily – 224x10⁹.

Conclusions: Given the fact that HIT predisposes strongly to new episodes of thrombosis, it is not sufficient to simply discontinue the heparin administration. The other most commonly used anticoagulant, warfarin, should not be used in HIT until the platelet count is at least 150 x 10⁹/L because there is a very high risk of warfarin necrosis in people with HIT who have low platelet counts. Warfarin necrosis is the development of skin gangrene in those receiving warfarin or a similar vitamin K inhibitor. Various non-heparin agents are used to provide anticoagulation in those with strongly suspected or proven HIT: danaparoid, fondaparinux, bivalirudin and argatroban. These are alternatives to heparin therapy.

Keywords: HIT, heparin, fondaparinux, thrombocytopenia, anticoagulant.

SEVERE MALNUTRITION SYNDROME WITH CHRONIC KIDNEY FAILURE IN A PATIENT WITH CROHN'S DISEASE - CASE REPORT

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Background: Crohn disease is a non-specific inflammation of the full length and wall thickness of gastrointestinal tract of unknown etiology. Approximately 10% of cases are complicated with formation of fistula, intra-abdominal abscesses and rarely intestinal perforation. Apart from that, involvement of other systems may be present.

Case Report: A 60-year-old male with chronic renal failure of unknown cause, presented with recurrent abdominal pain with nausea and fatigue for 2 weeks. The patient was emaciated with sarcopenia and skin desquamation. He lost 12kg in 6 months. The laboratory tests showed severe hyponatremia, hypokalemia, anemia and markers of inflammation, kidney injury and malnutrition. He had a history of myocardial infarction 6 years ago, right iliac artery angioplasty, left carotid artery embolization and a nodule in the right lung found in Positron Emission Tomography a year ago. The patient also suffered from pancreatitis and depression. The cause of abdominal pain was not found, despite previous hospitalizations. After initial treatment, chest and abdominal computed tomography (CT) and gastroscopy were performed. The previously found nodule in the lungs was not confirmed, though pleural effusion was found. Abdominal CT showed thickening of jejunal wall and there was gastritis and ulceration in gastroscopy. Diagnosis towards tuberculosis was suggested, however Quantiferon Test and cultures from thoracentesis were negative for mycobacterium. Screening towards systemic diseases: amyloidosis, microscopic polyangitis and granulomatosis was also negative. The patient had hypotension and developed fever and chills. Blood cultures detected *Enterobacter cloacae* and *Enterococcus faecium*. An episode of seizure occurred, but neither head CT nor electroencephalography found its cause, hence it was assumed that it had been sepsis. Abdominal CT was repeated where an abscess was discovered. Jejunal thickening was reassessed as Crohn disease and colonoscopy confirmed the diagnosis. Mesalazine was administered, resulting in patient's spectacular improvement.

Conclusions: The patient's manifestations resulted from underlying Crohn disease and abscess was its complication. Despite being rare, renal failure may be one of its symptoms and exacerbate its course. In every case, an early and detailed diagnostic process is essential.

Keywords: Crohn's disease, malnutrition, renal failure, anemia, sepsis

Doctoral students` session

ARE MYELOID-DERIVED SUPPRESSOR CELLS SPECIFIC FOR CANCER?

Izabela Górska

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Introduction: Selective IgA deficiency (SIgAD) is one of the most common types of Primary Immunodeficiency Diseases (PIDs). The individuals suffering from SIgAD have lack of immunoglobulin A (IgA), usually with normal level of other immunoglobulin. B cells are responsible for immunoglobulin production, and this can be inhibited by T regulatory cells (Tregs). Additionally, Tregs can be regulated by another cell population like myeloid-derived suppressor cells (MDSCs). MDSCs population was described in cancer, infection, inflammation and autoimmunity disorders where as immature cells are able to suppress immune response revealed of T cells and induction of Tregs. However, till now no studies have been performed in the context of the role of MDSCs population in SIgAD.

Methods: Flow cytometric analysis of peripheral blood mononuclear cells isolated by density gradient centrifugation of peripheral blood from 5 SIgAD children and 9 children healthy control was performed. Immunophenotyping of MDSCs was performed with the following monoclonal antibodies: anti-CD11b, anti-CD14, anti-CD15, anti LIN, anti-HLA-DR, antiCD124 (IL-4R?). Population of MDSCs was characterized as LIN- HLA-DR-, CD11b+, CD15+ or CD14+, describing granulocytic and monocytic MDSCs, respectively.

Results: The level of Gr-MDSCs and Mo-MDSCs were significantly higher in patients with SIgAD in comparison to controls. Moreover the level of Mo-MDSCs positively correlated with Tregs number, whereas Gr-MDSCs express IL-4R? which is responsible for MDSCs suppression.

Conclusions: This finding may confirm suppressive activity of MDSCs in SIgAD which could be mediated by various mechanisms, by Mo-MDSCs through Tregs induction whereas in Gr-MDSCs through IL-4R? expression. It is hard to describe the role of MDSCs in this disease, however the same mechanism as in cancer, confirm that MDSCs are a factor of innate immune response.

Keywords: myeloid-derived suppressor cells (MDSCs). Selective IgA deficiency (SIgAD). flow cytometry

IS THERE ANYTHING NEW WE CAN LEARN ABOUT UROMODULIN? - IN SEARCH FOR RENAL FUNCTION AND BLADDER MAINTENANCE BIOMARKERS IN PEDIATRIC NEUROGENIC BLADDER

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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 recurrent urinary tract infections (rUTIs), lack of voluntary voiding and urinary retention as well as other effects of myelomeningocele itself. In order to monitor and adjust proper therapy markers for urinary tract function are still being searched. One of the first and most known of numerous renal function biomarkers is uromodulin (also called Tamm-Horsfall protein)- a glycoprotein exclusively originating from epithelial cells of the thick ascending limb of the loop of Henle and the early distal convoluted tubule in the human kidney. As a renal defensin, it protects against UTIs by clotting fibrillary adhesins of bacteria and prevents renal stone formation.

Methods: 120 urine samples collected from 35 pediatric patients with mean age of 10.4 years and urodynamic diagnosis of neurogenic bladder were estimated for urinary uromodulin concentration (uUmod/creat ratio). During annual examinations all the patients provided us with consecutive samples. ELISA kit for uromodulin was used in the laboratory assessment. Patient's anamnesis information including level of spinal lesion, Hoffer scale motor activity, serum 25(OH)D and Calcium excretion, recurrent UTIs, undergoing clean intermittent catheterization (CIC), urodynamic parameters and neurogenic type diagnosis were taken into consideration.

Results: Our analysis revealed significant differences between neurogenic type bladder diagnosis. In the patient's consecutive samples assessment we noticed changes in uUmod/creat ratio values. Additionally, children undergoing CIC presented significantly higher uUmod/creat values in comparison to non-CIC individuals with 24.8mg/g vs 10.1mg/g respectively. There were also correlations of uUmod/creat with rUTIs, urinary Calcium excretion and bladder parameters (cystometric capacity and detrusor pressure at urgency).

Conclusions: 1. Urinary uromodulin as a biomarker of tubular function and rUTIs defensin seems to be a good marker of lower urinary tract management in NB patients. 2. Uromodulin correlates with urodynamic diagnosis and parameters therefore it may be reflecting the bladder function. 3. Clean intermittent catheterization is one of the most important aspects of neurogenic bladder management and UTIs prevention thus correct urodynamic diagnosis is required.

Keywords: uromodulin, neurogenic bladder, children, urodynamics

LIVING WITH MYELOMENINGOCELE (MMC) – CLOSER LOOK AT FAMILY, PSYCHOLOGICAL AND SOCIAL BACKGROUND OF MMC CHILDREN AND THEIR CAREGIVERS.

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Introduction: Myelomeningocele (MMC) remains the most severe form of neural tube defects, involving dysfunctions of many organs and structures. The estimated prevalence is one in 1000 live births in Poland with a more numerous group of patients from Białystok district in The Podlasie Province. Individuals with MMC have life-long disabilities and require complex treatment what undoubtedly impact quality of their life. They are at risk of psychosocial maladjustment what can manifest in social and family burdens. Parents are confronted with the lifelong emotional and financial challenges of caring for a MMC child. The aim of our study was to explore impact of MMC on psychological, social and family aspects of MMC children and their caregivers' lives and compare it with healthy children and children with enuresis.

Methods: The studied group consisted of 43 children with MMC treated at Białystok Children's Clinical Hospital. As a research tool we used detailed questionnaire with questions grouped into several categories: family characteristic including i.a: socioeconomic status, place of living, parents attitude to life, their work status, mothers' behavior during pregnancy and child characteristic including perinatal period, psychosomatic development, school life and social skills. We compared our results with control groups: 60 children with enuresis and 29 healthy children.

Results: Of 131 children enrolled into the study the median age was 8.5 years. There were statistically significant differences between groups enrolled in the study including socioeconomic status, place of living, social skills and psychosomatic development. Healthy and enuretic children were more often breastfed in comparison to MMC patients. Socioeconomic status and contacts with peers were strongly associated with MMC diagnosis. 26% of MMC children were never seen by psychologist.

Conclusions: 1. MMC has adversely impact on quality of life, which can manifest in extensive psychosocial burden of children and their caregivers. 2. Children with MMC are fearful and less likely to have social contacts with peers. Additionally they do not grow and develop at a normal rate and tend to be more dependent on adults. 3. Caring for patients with MMC may have exert social and emotional burden on caregivers. 4. Psychological care and support to individuals with MMC children and their caregivers may be considered as a part of holistic approach.

Keywords: myelomeningocele, enuresis, family

ESOPHAGEAL ATRESIA - THORACOSCOPY OR THORACOTOMY?

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Introducion: Esophageal atresia is a congenital medical condition associated with the disorder of the alimentary tract. It is usually associated with one or more fistulas to the trachea. Esophageal atresia is often associated with other congenital defects. The most frequent anomalies with atresia of the esophagus are those that occur in the VACTERL association. The incidence of oesophageal atresia mention in the literature varies 0.7-4.55/10000, because of the different percentage of defects other than esophageal atresia and associated with esophageal atresia changes. The etiology of esophageal atresia is mainly unknown, but it is considered multifactorial, including genetic and environmental factors. Indeed, 6-10% of cases of esophageal atresia have been diagnosed with a chromosomal abnormality or syndrome.

Methods: For the purpose of this study, we analyzed the current papers on esophageal atresia found in the PubMed database.

Results: Traditionally, the esophageal atresia has been operated by the right posterior thoracotomy. The first thoracoscopic repair of classic esophageal atresia was performed in 1999, and the first successful thoracoscopy of the tracheo-oesophageal fistula a year later. Together with these milestones, numerous health centers have begun adapting this surgical technique. Although thoracoscopic surgery in the case of esophageal atresia in patients with tracheo-bronchial fistula was conducted in many highly developed children's surgery centers, the safety and efficacy of this method remained controversial. The benefits of thoracoscopic surgery are obvious, including excellent visualization, less use of post-operative drugs and cosmetic effects. Jaureguiza et al. described the "scaly scapula", chest wall deformity, scoliosis and the development of the bad nipple in patients who underwent open surgery due to esophageal atresia with the accompanying tacha-oesophageal fistula. In the case of open thoracotomy, it was necessary to withdraw the lungs to expose the posterior mediastinum, resulting in lung damage and respiratory complications.

Conclusions: Compared to the open surgery, thoracoscopy significantly reduced the time of hospital stay and the moment of the first oral meal. However, thoracoscopy was associated with a longer time of surgery. The incidence of leaks, narrowings, pulmonary complications, and blood loss were similar in both surgical technique. It seems that the benefits of thoracoscopy are significant.

Keywords: Esophageal atresia, thoracoscopy, thoracotomy

CHRONIC EXPOSURE TO INDOXYL SULFATE ACCELERATES THROMBOTIC PROCESS.

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Introduction: Chronic kidney disease (CKD) patients are at high risk for thrombotic events. Indoxyl sulfate (IS) is one of the most potent uremic toxins that accumulates during CKD. Even though IS is associated with an increased risk for cardiovascular disease, its impact on thrombotic events still remains not fully understood. Presented study is a continuation of our research, which purpose is to evaluate the effect of IS on thrombotic process. After confirmation that acute exposure to IS accelerates thrombotic response after vascular injury, we decided to assess chronic exposure to IS on thrombus generation.

Methods: 48 male Wistar Crl:WI (cmdb) rats weighting 180 – 210 g were divided into three groups: control group and two experimental groups, which were exposed to 100 mg/kg of b.w./day or 200 mg/kg of b.w./day of IS in drinking water during 28 days. After this time, we evaluated impact of chronic exposure to IS on thrombus formation in electric current induced thrombosis, and clot formation and stability using rotational thromboelastometry (roTEM). Additionally, we assessed IS influence on blood morphology parameters.

Results: Chronic exposure to IS doses: 100 and 200 mg/kg b.w./day increased weight of arterial thrombus induced by direct electric current ($p=0.05$; $p<0.01$). Furthermore, data obtained due to roTEM showed that chronic exposure to IS decreased clotting time (CT) ($p<0.05$) and increased maximum clot firmness (MCF) ($p<0.05$). In addition, chronic exposure to IS in dose of 200 mg/kg of b.w./day contributed to decreased red blood cells ($p<0.05$) and increased parameters like mean corpuscular volume, mean corpuscular hemoglobin (both $p<0.001$) and white blood cells ($p<0.05$).

Conclusions: Obtained data indicate that chronic exposure to IS contributes to increase the thrombus weight and augment dynamics of formation and stability of clots. Thus, we concluded that IS may be one of crucial uremic factors promoting thrombotic events in CKD patients. Therefore, developing methods for its effective removal may result in a better prevention of thrombotic events in CKD patients. This work was supported by Grant No. N/ST/MN/17/003/2211.

Keywords: thrombosis; prothrombotic state; uremic toxins, indoxyl sulfate, tryptophan derivative;

THE EXPRESSION OF SLAN ON THE SUBPOPULATIONS OF NONCLASSICAL MONOCYTES IN CHRONIC LYMPHOCYTIC LEUKEMIA (CLL)

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Introduction: It is assumed that the correct identification of subpopulation of CD16-positive monocytes, without evaluating the expression of additional surface markers, is very difficult. It is believed that SLAN is one of the markers that will facilitate the differentiation of subpopulations of monocytes with the expression of the CD16 molecule. SLAN (6-sulfo LacNAc) is a carbohydrate modification of P-selectin 1 (PSGL-1) glycoprotein ligand. The aim of the study was to assess the expression of surface marker SLAN among monocytes CD16-positive in patients with CLL.

Methods: The study included peripheral blood (collected into tubes Heparin) were obtained from a group of 20 patients with CLL and 10 healthy volunteers. The monocytes CD14+CD16++ were marked with monoclonal antibodies anti-CD14 FITC, anti-CD16 PE (BD Pharmingen) and anti-SLAN APC (Miltenyi Biotec) and then analyzed by flow cytometry (FACS Canto, BD).

Results: The results of the study showed that the median percentage of CD14+CD16++SLAN+ monocytes (10.65%) was significantly higher in peripheral blood of patients with CLL than in healthy subjects (4.75%) from control group ($p < 0.05$). Additionally, the percentage of CD14+CD16++SLAN+ monocytes in CLL patients varied in patients with different Rai stages. The percentage of CD14+CD16++SLAN+ cells was significantly higher in ZAP-70-positive patients compared with ZAP-70-negative ones ($p < 0.01$). We also observed a significantly lower percentage of CD14+CD16++SLAN+ monocytes in CD38-negative patients than in CD38-positive ones ($p < 0.01$).

Conclusions: The elevated frequency of CD14+CD16++ SLAN+ cells in CLL patient may suggest an important role of this subpopulation of monocytes in the pathogenesis of CLL. Monocytes with defective SLAN expression probably can induce immunosuppression.

Keywords: chronic lymphocytic leukemia, SLAN, subpopulations of monocytes

General Surgery

INFLUENCE OF DUODENO-JEJUNAL OMEGA SWITCH ON BODY MASS AND LIPID ACCUMULATION IN THE LIVER IN REGARD WITH TYPE OF DIET IN SPRAGUE-DAWLEY RATS

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Introduction: The liver is one of the most important organs in fat metabolism. A high fat diet can contribute to non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steatohepatitis (NASH) because of the negative impact on GLP1-r expression. After bariatric surgery GLP-1 levels increase. Due to presence of GLP-1 receptors on rats' hepatocytes, this phenomenon leads to activation of genes involved in insulin sensitivity and fatty acid beta-oxidation, which has a direct effect on hepatocytes.

Methods: 48 seven-week old male SD rats were randomly assigned to 2 groups. The first one (n=24) was on a high fat diet (HFD) for one month, while the other (n=24) was fed a normal chow diet (CD) for that time. During the surgery a transection was conducted distally to the duodenal bulb and the distal part of the transected duodenum was closed. A second incision was performed in the first half of total small intestine length. An isoperistaltic end-to-end anastomosis was performed between the duodenal bulb and the selected loop. Liver tissues were analysed by TEM. In order to indirectly quantify fat content, obtained images were analysed statistically. From each photograph total surface of all fat droplets was calculated from each photograph, with respect to the whole tissue area. Body weight was measured before and after surgery.

Results: Liver samples from both HFD/HFD groups were analyzed in TEM, and for statistical analysis the surface of lipid droplets on pictures was calculated. Samples from the DJOS group presented with single small lipid droplets in hepatocytes, while liver tissue from SHAM animals had many droplets of various sizes. Statistically significant differences were observed for HFD/HFD and HFD/CD groups ($p < 0,001$). Differences in CD/HFD and CD/CD groups were not significant. Before surgery, within the two diet groups, body weight was similar in animals undergoing both procedures.

Conclusions: In the short term DJOS surgery was found not to reduce body weight in the studied groups. However, this type of surgery prevents lipid accumulation in the liver for HFD/HFD groups without any changes in hepatic tissue ultrastructure. Therefore, DJOS surgery seems to lead to improvement of lipid homeostasis.

Keywords: DJOS, obesity, lipid homeostasis

THE IMPACT OF STANDARD AND LOW-PRESSURE PNEUMOPERITONEUM ON HYDRATION IN OBESE FEMALES UNDERGOING LAPAROSCOPIC CHOLECYSTECTOMY.

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Introduction: Obesity is considered to be a pandemic of the 21st century. An excessive amount of adipose tissue can be the cause of disturbances in hydration status and consequently lead to increased frequency of PONV, complicated wound healing and thus increase the period of hospitalization. The aim of the study was to assess the impact of standard and low- pressure pneumoperitoneum on hydration status in the early postoperative period of obese female patients undergoing laparoscopic cholecystectomy.

Methods: The study included 52 female patients with asymptomatic cholelithiasis treated with laparoscopic cholecystectomy. Patients were divided into three groups according to the body mass index and value of intra-abdominal pressure. The hydration status was estimated in three time points – before the surgery, 24 and 48 hours after the surgery.

Results: Higher TBW and dehydration was observed in obese compared to normal weight patients in the time points 24 and 48. ECW was significantly higher in obese compared to normal weight patients in all three studied time points. ICW and ECW/ICW did not differ significantly between the groups and studied time points. There were no significant differences in any of measured parameters of hydration status among obese patients who underwent laparoscopic procedures with different pneumoperitoneum pressures.

Conclusions: Obesity modifies the hydration status. Values of carbon-dioxide pneumoperitoneum pressure used during short duration laparoscopic surgery did not influence the hydration status of obese female patients. Low-pressure pneumoperitoneum does not seem to offer advantages over standard-pressure pneumoperitoneum in measured parameters of hydration status.

Keywords: obesity, pneumoperitoneum, hydration status, laparoscopy, cholecystectomy

INFLUENCE OF LAPAROSCOPY ON PERIPHERAL BLOOD DENDRITIC CELLS.

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Introduction: In recent years, the number of obese people in society has increased. Impact of surgeries on endocrine and immune function of adipose tissue is proven is more prominent in the obese group. Laparoscopy also affects the function of adipose tissue, but consequences of this treatment are still unclear. We can distinguish two main subsets of dendritic cells (DCs), which take a significant part in the immune response: myeloid and lymphoid and their quantity change due to laparoscopy. The study aims to evaluate the percentage and changes of the myeloid (BDCA-1+ and CD19-), lymphoid (BDCA-2+ and CD123+) cells and the myeloid to lymphoid cells ratio in normal weight and obese patients undergoing laparoscopy.

Methods: The study enrolled 60 patients with cholelithiasis planned for laparoscopic cholecystectomy. Patients were assigned to two groups according to BMI: group N (n = 29, BMI \leq 25 kg/m²) and group O (n = 31, BMI \geq 30 kg/m²). Blood samples were obtained before the surgery, 24 and 48 hours after the surgery. DCs were analyzed using flow cytometry.

Results: There were no statistically significant differences between obese and normal-weighted patients before, 24 and 48 hours after the surgery, except the myeloid to lymphoid cells ratio assessed in the 48-postoperative hour. The myeloid DCs percentage increased significantly at post-OP 48h compared to post-OP 24h and pre-OP baseline in both studied groups. The percentage of lymphoid DCs increased significantly in group O in all time periods, while in group N the only one significant change was observed at post-OP 24h. In group N, the myeloid DCs to lymphoid DCs ratio was significantly increased at post-OP 48h compared to post-OP 24h. In group O, the myeloid DCs to lymphoid DCs ratio decreased significantly at post-OP 24h compared to pre-OP baseline levels.

Conclusions: Laparoscopy influences on the percentage of DCs in peripheral blood in the early postoperative period. These changes are brighter in obese patients, what is caused by larger amount of adipose tissue, which is immunologically active.

Keywords: Laparoscopy, dendritic cells, obesity

ENDOVASCULAR TREATMENT OF LOWER LIMB ISCHEMIA IN DIABETIC PATIENTS – CASE SERIES ANALYSIS

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Introduction: Lower limb ischemia in diabetic patients is result of macro- and microangiopathic changes and without treatment can result in infections and necrosis of lower extremities, which might require amputations. In order to prevent this, macroangiopathic changes can be treated using Percutaneous Transluminal Angioplasty – PTA. Aim of study was to analyze the effectiveness of treatment of lower limb ischemia below the knee in patients with diabetes mellitus type 2 – DMT II.

Methods: It was the analysis of medical documentations of 25 patients (age median 69 years, 19 men, 6 women) having lower limb ischemia. In this group there were 11 patients with diagnosed type 2. All of them were treated using PTA. Failure was defined as necessity to performing amputation after endovascular procedure. We also analyzed necessity of reperforming PTA or thrombolysis and occurrence of complications after procedure.

Results: Two patients with diabetes underwent amputation after endovascular treatment (8% of whole group, 18% of patients with diabetes). One of them died after amputation due to cardiac arrest. Two patients without diabetes needed revision procedure. There were no post-operational complications.

Conclusions: PTA is a safe procedure (no complications found in group) and an effective method of treatment of lower limb ischemia. It treats macroangiopathic changes thus it lowers risk of leg amputation. The effectiveness of the treatment seems to be lower in DMII patients, however diabetes-associated complications and a small number of patients in this study should be taken into consideration.

Keywords: diabetes melitus, diabetic foot, vascular surgery, endovascular, pta

THE ORIGINAL CLASSIFICATION OF THE FURNIE GANGRENE

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Introduction: Furnie Gangrene (FG) is a polymicrobial necrotizing fasciitis of the perineal, urogenital and perianal regions. Furthermore, it is the one of few purulent and necrotic diseases, which, despite a relatively small incidence, is characterized by extremely high mortality rang (from 30 to 90%). An important factor of contribution to such high mortality rate is the unsystematic, and sometimes chaotic, approach to the diagnostic and treatment of FG. This necessitates a classification, which meets the requirements of practitioner and helps to improve the quality of diagnostic and treatment of this pathology.

Methods: Retrospective and prospective analysis of clinical cases and modern literature.

Results: Despite the high relevance of the subject, while analyzing the literature devoted to this problem, we found only two attempts to classify the FG, which belonged to the native and soviet scientists. There are no similar references in foreign literature. The first attempt to classify the FG belongs to T.D. Datuashvili and A.Ya.Pylypenko (1988), who proposed to classify the disease by the stages of necrotic dissemination. The systematization of the FG D.A. Kharchenko, N.V. Dubynsky and their co-authors (2009) is broader, more practical and classifies the disease according to the following parameters: the entrance gate, the stage of the disease, the predominant localization of the necrosis, the area of dissemination of necrosis and the stage of compensation, if occurrence on the background of chronic diseases. Those classifications refer only to individual clinical and morphological manifestations of FG and don't fully characterize the disease. Taking into account both this references and our own experience of treatment, we offer the following variant of classification of FG. Classification by originally: • Urogenital • Anorectal • Dermatological • Gynecologic • Idiopathic
Classification by prevalence: • Local (within one anatomical segment) • Spilled (within two adjacent segments) • Common (outside the perineal region) According to the forecast: • Favorable (FDI <9) • Unfavorable (FDI > 9) Classification by stage: • Latent (without local changes) • Primary (swelling and hyperemia of the wickets) • Clinical manifestations (necrosis of the perineum tissues) • Progression (dissemination of necrosis beyond the perineum) • Convalescence
Classification by the nature of the disease course: • Lightweight (up to 2 hours) • Fast-moving (up to 24 hours) • Fluffy (from 24 hours) Classification by according to the predominant form of inflammation: • Purulent • Crimson • Necrotic • Hemorrhagic
Complication: • Respiratory distress syndrome • Acute renal failure • Pneumonia • Sepsis • Polyorganic insufficiency • DIC (and other coagulopathies)

Conclusions: The proposed classification allows a clearly identified diagnosis of FG with consideration of the main clinical and morphological manifestations of the disease, which in turn will allow you to choose the best treatment tactics.

Keywords: Furnie Gangrene, original classification

THE MALLORY-WEISS SYNDROM IN THE GENERAL SURGERY CLINIC

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Introducion: The Mallory-Weiss syndrome (MWS) is a very actual problem in the emergency surgery nowadays. It is a surface gap of mucous membrane in abdominal part of esophagus and cardiac part of stomach usually during severe vomiting reflexes which are accompanied with hemorrhage.

Methods: Analysis of the treatment results of patients with MWS in Grodno Regional clinic hospital No4 in a period from 2013 to 2017.

Results: There were treated 26 patients with this pathology in the center of gastroduodenal bleedings in Grodno Regional clinic hospital No4. There were 21(81%) men and 5(19%) women. The average age of patients was 44.8 ± 1.6 years. When patients had admitted to the clinic they noticed blood impurity after intensive abundant vomiting. Before entrance to the hospital 23(88%) patients abused alcohol and they had alcohol intoxication. During endoscopic test all patients had the fractures of mucous at the place where esophagus continues to stomach. The sizes of defects were varied from 0.2 cm to 1.1 cm in length. The evidence of active bleeding was not found in 12(46%) cases at the moment of endoscopic examination, so no attempts were undertaken for its arrest. Clipping of bleeding vessels in the place of the mucous gap was made in 8(31%) patients and 6(23%) of them were subjected of injectable endohemostasis. Patients were hospitalized for conservative therapy and dynamic observation. The hemostatic therapy, infusion therapy, antiemetics, antacids, enveloping drugs were prescribed. Relapse of bleeding was not detected. The average period of hospitalization was 5.6 days. Endoscopic control was not conducted because of the high rebleeding risk after conservative treatment.

Conclusions: The main reason of MWS is the intensive vomiting because of alcohol abuse. Endoscopic examination is the most important method for diagnostic and minimally invasive treatment of this pathology.

Keywords: Mallory-Weiss syndrome, gastroduodenal bleeding, alcohol intoxication, endohemostasis, clipping

SURGICAL INTERVENTIONS IN POSTOPERATIVE VENTRAL HERNIAS

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Introduction: The question about selection of adequate surgical repair way and decreasing of relapses in postoperative ventral hernias (POVH) surgery is one of the most important in herniology at the present time.

Methods: Analysis of the results of POVH treatment in Grodno Regional clinical hospital No4 in a period from 2013 to 2017.

Results: There were 118 patients with POVH who were operated by different variants of surgical treatment. There were 81(69%) women, 37(31%) men. The mean age of patients was 57.7 ± 1.6 years. 9% patients were operated due to emergency indications and 91% in a planned order. The methods of operation included the dissection of skin and subcutaneous tissues above the place of hernias protrusion with the further identification and dissection of hernial sac. Then there was made an assessment of content of hernia sac with the further dissection to aponeurosis of anterior abdominal wall. There were detected neither necrotic nor gangrenous changes in intestine in all strangulated POVH. Viscerolysis was made due to clear adhesive process in 13% patients. The surgical repair by Sapezhko was made in 28(24%), by Mayo – in 27(23%), by Barodin – in 4(3%) patients. We prefer to use the “sublay” method in surgical repair of POVH using synthetic polypropylene mesh. It was made in 59(50%) patients. The mean duration of operation was 114 ± 1.8 min. The presence of seromas and haematomas was noticed in 14(12%) patients in postoperative period in postoperative injury area.

Conclusions: “Sublay” method with polypropylene synthetic mesh for surgical repair of POVH is the primary nowadays. But anatomical features and reaction of graft rejection which happened in the past don't exclude the usage of another methods of surgical repair if there is any presence of indications and possibilities of its performance.

Keywords: ventral hernia, postoperative, Sapezhko, Mayo, Barodin, sublay

EXPERIENCE OF USING OF COMBINED ALLOHERNIOPLASTY WITH OPERATION BY POSTEMPSKI

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Introducion: 5-7% of men suffer from inguinal hernias (IH) all over the world. 65% of IH are observed in people older than 50 years. Relapses after surgical treatment of IH are diagnosed in 15-35% patients. One of the causes of relapses is an inadequate assessment of local tissues consistency, a significant defibration of posterior wall of inguinal canal, which often found in the older age patients. Therefore, the search for new methods of hernioplasty is a priority in surgery.

Methods: We conducted the retrospective analysis of 114 patients case histories with IH who were operated in Grodno Hospital No1134 between 2014 and 2016. The laparoscopic hernioplasty, open mesh repair (Lichtenstein) in own modification and combined allohernioplasty with operation by Postempski were used. During combined allohernioplasty, the mesh was placed on posterior wall. The spermatic cord was prepared in the lateral side, the inner ring was sutured from the medial side. The formed "inguinal canal" with spermatic cord passed through the muscular aponeurotic layer and foramen in mesh. Difibrated aponeurosis was sutured over the mesh and spermatic cord was laid over it.

Results: All patients were male. The laparoscopic hernioplasty was used in 40 patients (35%), open mesh repair in own modification – in 47 patients (41%) and combined allohernioplasty with operation by Postempski – in 27 cases (24%). The age of patients was 55-82 years. The combined allohernioplasty with operation by Postempski was used in all patients with significant defibration of posterior wall of inguinal canal. Postoperative complications and relapses were not observed in all cases.

Conclusions: In elderly patients with a significant defibration of the posterior wall of inguinal canal, the combined method of allohernioplasty with operation by Postempski is optimal. But young and middle age patients should be operated using the hernia repair by Lichtenstein.

Keywords: inguinal hernia, hernioplasty, Postempski, Lichtenstein, defibration

KNOWLEDGE ON SURGICAL CHECKLIST AMONG SURGICAL UNDERGRADUATE ENTHUSIASTS

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Introducion: Patient safety is the biggest challenge of healthcare, who for ages has been striving to save lives and health of the humanity, with the most important principle in mind - first, do no harm. However, despite the newest technology, and overcoming plenty of surgical and anaesthesiological challenges throughout the 2 centuries of modern surgery, the mortality rate after major surgeries is still high, up to 5% in developing populations, and the occurrence of adverse surgical events up to 8%, where at least half of them could be preventable. That is why the WHO Surgical Checklist, a tool created for the surgical, anaesthesiological and nursing teams was implemented in order to unify the process of tracking the correctness of the procedures and avoid the human error at all costs. The aim of this study is to present the state of knowledge about surgical checklist and surgical safety procedures among international medical students of Medical University of Lublin, students with particular interest in surgery-attendees of basic and advanced surgical suturing training.

Methods: The survey on the basic understanding of surgical checklist and patient safety within surgical procedures was distributed during surgical workshops both basic and advanced skills in years 2015-2016 for 115 students. Respondents age, country of origin, year of study, previous attendance to surgical procedures information was also obtained.

Results: 85% of students didn't know the meaning of the term surgical checklist as well as basic terms associated with it. Among all parts of the questionnaire, the questions about sign out procedures were the ones with best performance rate (74%).

Conclusions: Surgical checklist is an essential tool in assuring that healthcare did the uttermost efforts in providing the best quality of surgical care. Despite nearly 15 years of successful implementation, the knowledge about this topic is still spread not widely enough among future medical professionals.

Keywords: surgical checklist, surgery, patient safety

SURGICAL SKILLS WITHIN PEER-TO-PEER EDUCATION - BASIC SUTURING TRAINING EXPERIENCE

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Introducion: Surgery is considered one of the hardest subjects to learn within medical education, especially in the practical aspect. Students who enter the medical world for the first time often dream about becoming surgeon as their first specialization of choice. Despite the passion for education in surgical fields, the lack of space for practical training in medical education is observed. Students participate in surgeries as observers very frequently, but they don't practice the surgical skills very often. Therefore, as to fully understand and experience surgical reality, English Division Lublin of Medical University of Lublin allows more than 50 students every year to participate in surgical suturing skills workshops, where more experienced seniors teach the surgical principles within peer-to-peer education. The aim of this study is to present the effectiveness of basic suturing training within peer-to-peer education during basic surgical suturing workshops, held for 145 international students of Medical University of Lublin.

Methods: The basic surgical suturing workshops was created for students who didn't have any surgical experience. The study group included 145 international students, who attended workshops in 15-participant groups in years 2014-2016. Both knowledge and technical performance were rated before and after conduction of the workshops.

Results: Within pre- and post-questionnaire regarding surgical procedures, 84% increase of knowledge was observed. As for the technical performance, 71% of participants decreased their time of performing the basic and continuous sutures by at least 50%. Small groups, sufficient amount of time as well as the presence of peers- educators was essential to the great conduction and significant results of the workshop.

Conclusions: Basic surgical skills is a great example of peer-to-peer training which supports not only the practical qualities improvement, but also the didactic skills and teamwork experience among future physicians.

Keywords: surgery, surgical skills, peer-to-peer training

Gynaecology and Obstetrics

PRIMARY AUTOIMMUNE THROMBOCYTOPENIA IN PREGNANCY.

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Introduction: Thrombocytopenia in adults could have many reasons. One of this is autoimmune reaction directed to glycoprotein localized in platelets membrane. Pathogenesis of primary autoimmune thrombocytopenia (ITP), also called autoimmune thrombocytopenic purpura, is not clear. Drugs, viral infections, pregnancy, abnormalities in T lymphocyte or natural killer cell functions may have some role in this reaction.

Methods: Author of this work analyzed articles available in PubMed database.

Results: Frequency of primary autoimmune thrombocytopenia is about 3 – 4 per 1000 deliveries. Patients could have not important symptoms, such as gingival or nasal bleedings, petechiae, or potential fatal intracranial hemorrhage. Mother's anti – platelets antibodies in IgG class have opportunity to cross by the placenta. This situation causes clinical consequences in newborn infant, including premature delivery, low birthweight or massive hemorrhage. Risk of stillbirth is also higher when women suffer from ITP in pregnancy. Glucocorticosteroides and intravenous immunoglobulin are therapeutic options in mother and infant. In case of refractory immune thrombocytopenic purpura in pregnancy splenectomy is allowed.

Conclusions: Pregnant patient and newborn infant with ITP need special attention. Another causes of thrombocytopenia in pregnancy, including preeclampsia or disseminated intravascular coagulation should be considered.

Keywords: autoimmune thrombocytopenic purpura, ITP, pregnancy.

PECULIARITIES OF THE PREGNANCY COURSE IN WOMEN WITH A VERIFIED ANTIPHOSPHOLIPID SYNDROME

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Introducion: Antiphospholipid syndrome (APS) is a heterogeneous autoimmune disease that is based on the formation of autoantibodies to phospholipids of cell membranes, which is accompanied by hypercoagulation with the formation of arterial and venous (micro) blood clots. In case of treatment absence, microthrombosis provokes the development of placental dysfunction, which can lead to such complications of pregnancy as miscarriage, fetal growth retardation syndrome, preeclampsia, heart attacks and premature placental abnormalities. Among patients with a common pregnancy miscarriage, APS is diagnosed in 27-42% of cases. Our aim was to investigate the course of pregnancy in women with a verified antiphospholipid syndrome.

Methods: a retrospective analysis of patients' stories of the obstetric's department of 3th Clinical Hospital's in Lviv, scientific literature sources processing.

Results: The diagnostic criteria for APS were: reproductive losses in anamnesis, detection of lupus anticoagulant in plasma in 2 or more researches with an interval of at least 6 weeks, anticardiolipin antibodies IgG, IgM in the middle or high titers in 2 or more researches in interval of at least 6 weeks, thrombocytopenia. As a result of the patients' histories processing, an obstetric anamnesis, laden with miscarriages in the early term (85.8%), an antenatal death of the fetus in the full term (7.1%), preterm labor (7.1%) were found. The AFS diagnosis was determined among 35.7% of women before pregnancy, during pregnancy – in 64.3% of cases. According to the results of laboratory tests, lupus anticoagulant, which was determined twice in a 6-week interval by a standardized method, in high titers among all women was found. The major changes in the blood coagulation system were found. All women had a discrepancy of placental echostructure with a gestational term. After conduction and verification of the diagnosis, all the women received treatment. A childbirth occurred through the birth canal in the period of 37-39 weeks, (85.7% of cases), in 14.3% of cases caesarean section on obstetrical conditions was conducted. Children were born alive at a full term, weighing 2800 (\pm 58 g).

Conclusions: timely detection and a comprehensive approach to the antiphospholipid syndrome treatment is essential to perinatal losses reducing. Special attention should be paid to the early diagnosis, which becomes possible by properly collected anamnestic data and proper laboratory testing methods.

Keywords: pregnancy, antiphospholipid syndrome, lupus anticoagulant, perinatal losses

CESAREAN SECTION IN THE SECOND AND THE THIRD LEVELS PERINATAL CENTERS

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Introducion: Nowadays the frequency of Cesarean section (C-section) is increasing all over the world. But C-section is a major surgical operation with significant risks of postoperative infectious and thromboembolic complications, maternal bleeding and respiratory disorders in newborns. Therefore this operation should be carried out at the presence of strictly defined indications.

Methods: We conducted the retrospective analysis of medical records of women who underwent C-section in perinatal center of 2 level (group 1 – 102 persons) and in 3 level (group 2 – 120 persons) from August 2016 to January 2017 in Grodno, Republic of Belarus.

Results: The mean age of women was 29.5 ± 5.4 years. Most of the births were term. But in group 1 premature labors were observed in 2% cases, in group 2 – in 12%, that was statistically significantly higher than in group 1 ($p < 0.05$). The rate of planned operations in group 2 was 72%, that was statistically significantly lower than in group 1 (81%) ($p < 0.05$). The main indication for planned operation was a uterine scar (52% and 44% in 1 and 2 groups, respectively). Placenta previa was diagnosed in 5% cases in group 2 and was absent in group 1. Among the emergency operations, the weakness of tribal forces was an indication in 64% of women in group 2, that was statistically significantly higher than in patients of group 1 (26%) ($p < 0.05$). Pre-eclampsia occurred in 12% of women of group 2 and was not observed in group 1. At the same time, 99% of newborns had a high Apgar score (7 or more points), in 1% of cases a score was low.

Conclusions: A uterine scar is the most common indication for Cesarean delivery in 2 and 3 level perinatal centers. Emergency C-section is observed more often in 3 level perinatal center mainly due to the management of high-risk births. However, a high Apgar score indicates on timely Cesarean birth.

Keywords: Cesarean section, perinatal center, uterine scar, indication

WHAT DO POLISH MOTHERS KNOW ABOUT BREASTFEEDING?

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Introduction: Breastfeeding up to 6th month of child's life is a „gold standard” recommended by World Health Organisation. According to the Main Statistic Office in 2014 more than 90% of women breastfed their children during the first days after delivery, but only 46% continued it beyond the 6th week postpartum. Discontinuation of breastfeeding may be caused by insufficient knowledge about the benefits of the process. The aim of the study was to assess the knowledge of Polish women about breastfeeding .

Methods: A prospective cross-sectional study was performed among Polish women aged 18 to 45, who were breastfeeding at present. The self-composed questionnaire consisting of 23 questions, regarding demographic data and knowledge about lactation, was distributed via internet between February and March 2017. Statistical analysis was performed with Mann-Whitney U-test for continuous variables and chi-squared test for categorical variables. P value <0.05 was considered significant.

Results: 768 women participated in the study. Mothers at the age of 26-30 were the largest group – 44% of all (n=335). 34% of respondents lived in cities with more than 500 000 inhabitants, 32% in cities with 50-500 000 citizens, 12% in cities with less than 50 000 of inhabitants, 22% in the countryside. 77% of women have learned about lactation from Internet. Only 8% indicated the doctors' consultations. The question about the impact of used medicines on lactation was answered correctly by most of the respondents (97%). On the other hand the question concerning supplementation the mother's diet with iod was the most difficult for women (78% of incorrect answers). The most variable answers were given to the questions about supplementation the mother's diet with vitamin D3 and folic acid (49% of incorrect answers). Giving correct answers was correlated with parity (multiparas significantly more often answered the questions correctly), but not with place of living or age.

Conclusions: The knowledge about lactation among the Polish women is not satisfactory. We should focus on well-maintained education guided by doctors, midwives and also media.

Keywords: lactation, breastfeeding, diet, supplementation

Head and Neck Diseases, Dentistry

NATAL AND NEONATAL TEETH- TRUTHS AND MYTHS- CASES REPORTED TO THE DEPARTMENT OF PEDIATRIC DENTISTRY IN ZABRZE IN 2012-2017”

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Introducion: Natal teeth are present in the oral cavity at the moment of birth, neonatal teeth emerge through the gingiva during the first 30 days of life. The prevalence of this phenomenon ranges from 1:2000 to 1:4000 births. There are many contributory factors, such as infections, fever, trauma, hormonal stimulation, vitamin deficiencies or maternal malnutrition during pregnancy. A major role is attributed to superficial position of a germ.

Methods: In the years 2012-2017 23 patients were diagnosed with the presence of natal or neonatal teeth. We conducted a survey with parents. The survey consists of 43 questions about aspects: social, diagnosis, treatment and child's development. 15 people answered the questionnaire . It was not possible to contact the parents of 6 children, 2 parents did not agree to participate in the study.

Results: Among the patients were 6 women and 9 men. 13 patients were diagnosed with natal teeth and 2 patients with neonatal teeth. Among 8 cases were found single tooth. 7 patients were diagnosed with 2 teeth. The teeth were extracted among 9 children.

Conclusions: Natal and neonatal are not common disorders, however the exact reasons requires further research. Moreover, the proper diagnosis and clinical management is crucial in that cases.

Keywords: Natal teeth, neonatal teeth, premature teeth eruption

INFLUENCE OF THE CHEWING GUM ON TEMPOROMANDIBULAR JOINT?

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Introducion: Temporomandibular joint (TMJ) vibration analysis (JVA) is the electronic recording of TMJ sounds, or, more accurately, vibrations which occure in the joint. Utilizing vibration transducers called accelerometers, a characteristic wave pattern is created for the various types of internal joint vibrations. Whereas the human ear cannot hear many of the frequencies that occur in the TMJ's, the accelerometers record all frequencies with equal efficiency. The aim of the study was the evaluation the impact of chewing gum on auscultatory changes in the temporomandibular joint

Methods: Clinical examination involved a group of 60 dental students with complete dental arches in age from 23 to 27 years. The clinical examination were performed among the group of patient and included a detailed questionnaire providing information on the patient's general health status and functional examination of the stomatognathic system including assessment of the presence of an asymmetric trajectory of the mandible during mouth opening/closure, lateral movement of the mandible and muscle tension. Helkimo anamnestic index (Ai) and clinical dysfunction index (Di) were used to determine symptoms and signs respectively. The examination of TMJ vibration were performed with BioJVA (BioResearch System, USA) in each student. The outcomes were compared and various statistical tests were used.

Results: Over 63% of patients suffer from headaches. 77.5% of patients chew gum over 5 minutes, moreover 60,3 % feel pain after or during chewing gum. The examination of TMJ vibration showed auscultatory changes in the TMJ after chewing gum.

Conclusions: 1. In patients with known auscultatory changes is not recommended to use chewing gum 2. Helkimo index is a well-founded index to assess TMD in a specified population.

Keywords: BioJVA, joint vibration analysis, gum chewing

NEOVASCULAR GLAUCOMA – A MASQUERADE SYNDROME OF INTRAOCULAR TUMORS.

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Introduction: Neovascular glaucoma (NVG) is a kind of secondary glaucoma and is caused by severe retinal ischemia. It is a refractory condition with both difficult management and usually poor prognosis. Diabetic proliferative retinopathy and retinopathy after ischemic veins occlusion are the main underlying diseases. But neovascular glaucoma may also appear as a complication of other, more serious in prognosis conditions. Unfortunately the accurate diagnosis of the initiating disease may be difficult because of the haziness of refractive media. The aim of this study is to present two cases of neovascular glaucoma caused by the presence of advanced, undiagnosed earlier, intraocular tumors.

Methods: We performed a retrospective study of clinical data obtained from medical records two patient's referred to the Department of Diagnostics and Microsurgery Medical University of Lublin, because of neovascular glaucoma. After detailed ophthalmological examination the evaluation of these patients was extended with ultrasound testing and magnetic resonance testing.

Results: Extended diagnostics showed large intraocular tumors as a cause of nonvascular glaucoma. Patient were treated with enucleation. The detailed assessment of the general condition because of malignant nature of diagnosed tumors was also done.

Conclusions: Intraocular tumors are one of the less common causes of neovascular glaucoma. Because they are a life threatening conditions, one should always take them into account in a differential diagnosis of NVG, especially when the detailed eye fundus assessment is not possible. In such a cases it is mandatory to perform additional imaging with ultrasound, computed tomography or magnetic resonance testing.

Keywords: neovascular glaucoma

XEN GEL IMPLANT – A NOVEL PROCEDURE IN THE SURGICAL TREATMENT OF GLAUCOMA

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Introduction: Glaucoma is a complex eye disease which results in the optic nerve damage and progressive visual field loss. Treatment is implemented to avoid continuous optic nerve damage and simultaneously to preserve vision. Minimally invasive glaucoma surgery (MIGS) includes a novel procedure called Xen Gel Implant. The aim of the implant is to create a permanent drainage between the anterior chamber of the eye and the subconjunctival space by causing less trauma comparing to standard procedures in glaucoma treatment.

Methods: Short-term observation of the outcome of Xen implantation performed on seven patients with glaucoma: six patients with open-angle glaucoma and one patient with angle-closure glaucoma. Phakic (N=5), aphakic (N=1) and pseudophakic (N=1) patients underwent either Xen implantation (N=2) or Xen implantation + phacoemulsification with intraocular lens implantation (N=5).

Results: First day after the surgery, 100% of patients (N=7) achieved a completely successful outcome defined as intraocular pressure (IOP) ≤ 5 mmHg and ≤ 21 mmHg without any drugs intake. At day 7, 85,71% of patients (N=6) achieved an outcome classified as complete success and 14,3 % (N=1) achieved an incomplete success (IOP ≤ 5 mmHg, ≤ 21 mmHg achieved with administration of 2 drugs). After one month, complete success was observed in 71,43% of patients (N=5) and incomplete success was observed in one patient (14,3%). IOP ≤ 21 mmHg (23 mmHg) was detected in one patient. After 2 months, 57,14% of patients (N=4) achieved a complete success and 28,57% of patients (N=2) achieved an incomplete success. The number of drugs to achieve appropriate IOP was diminished in 100% (N=7) of patients in 1 day after the surgery, 85,71% (N=6) after one week, 71,43% (N=5) after 1 month and 57,14% (N=4) after 2 months.

Conclusions: Xen Gel Implant is a promising device in the surgical treatment of glaucoma. It gives the high possibility to achieve a successful outcome after the surgery and to diminish the intake of the drugs. The literature review presents that there are still few studies on the use of Xen Gel Implant.

Keywords: glaucoma, Xen Gel Implant

TOOTH MIGRATION - LITERATURE REVIEW AND CLINICAL CASES.

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Introducion: Transmigration is defined as the pre-eruptive migration of a tooth across the midline. This phenomenon mainly affects the mandibular canines and it occurs with a frequency of 0.1-0.18%. The purpose of this study is to explore the literature on tooth migration and the presentation of the cases of the transmigration of the mandibular canines in patients of developmental age.

Methods: The scientific bases were reviewed using keywords: transmigration of teeth, lower canine impaction. Pantomographic images of the patients, who were applying for the treatment of the transmigration of the mandibular canines at the Dentistry Department of the Medical University of Lublin, were used in the study.

Results: According to the Mupparap classification, the most commonly occurring position of the transmigrated canine is the mesial inclination, on the labial or lingual side in relation to mandibular incisors, crown part crosses the midline. The reason for crossing the midline by the mandibular canines is not clearly defined. It is presumed that this may be caused by many factors such as: heredity, disturbance of position of dental lamina, persistent milk canines, premature loss of milk teeth, supernumerary teeth, crowded teeth, lack of space, follicular cyst, mechanical traumatic factors, excessive size of the crown of mandibular canines, resorption and bone apposition disorders, metabolic activation of another area of the dental sac of canine. Clinical extrusion of the transmigrated canines can be observed as a tangential position of two canines or the arrangement of the canine between the middle incisors of the mandible. In order to diagnose the process of crossing the midline of the mandible canines, pantomographic images are performed. Methods of treatment with impacted and displaced canines include autotransplantation or surgical removal.

Conclusions: The process of transmigration is a relatively rare phenomenon. An early detection is extremely important; it can help preserving these canines by orthodontic intervention or by surgical transplantation. Correct diagnosis leading to effective treatment is also very important.

Keywords: teeth migration, lower canine impaction

THE ROLE OF DIET IN MÉNIERE'S DISEASE

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Introduction: Ménière's disease is an illness of unknown etiology, affecting the inner ear. The onset of the disorder is most common between the ages of 40 to 50. It is usually unilateral, but can progress to being bilateral. The mechanism of the disease has not been completely elucidated. However, it is speculated that the overproduction or impaired absorption of endolymph may be involved. The main symptoms include episodes of vertigo lasting at least 20 minutes, neurosensory hearing loss, tinnitus and a feeling of fullness in the affected ear. Possible treatment options are dietary modifications, pharmacotherapy with diuretics or betahistine and surgical methods reserved for patients in which other options are unsuccessful. Benzodiazepines, antiemetics, antihistamines and anticholinergics can be used to manage the symptoms if needed.

Methods: Studies and articles regarding dietary considerations in Ménière's disease were searched for in PubMed and Medline databases. Our work is an overview of the available literature as of November 2017.

Results: Beneficial effects of low-salt diet have been backed by many studies. Lower dietary salt intake increases aldosterone levels leading to greater endolymph absorption, which may be a possible explanation for the effectiveness of this dietary modification claimed by some researchers and clinicians. It must be ensured that the salt intake is evenly spread throughout the day and that it ranges from 2 to 3 g per day. Caffeine and nicotine are widely believed to be another triggering factors, possibly due to their vasoconstrictive properties. Eliminating dietary allergens, according to some studies, is of clear clinical benefit in some patients. One study comparing the effects of a conventional, drug-based versus the water intake therapy found that long-term additional water intake improves hearing loss and prevents its worsening better than the conventional one. There is also some evidence, mainly anecdotal, that recognizes alcohol, tyramine and simple sugars intake as other triggering agents.

Conclusions: Dietary adjustments play a significant role in the management of Ménière's disease and should be recognized as a first-line treatment.

Keywords: Ménière's disease, dietary considerations, low-salt diet

MYOFASCIAL PAIN OF DIGASTRIC MUSCLE, WITH REFERRED PAIN PATTERN IN TMD PATIENT OR MISDIAGNOSED INCISAL TOOTH ODONTAGIA?

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Background: Myofascial pain is a common disease that can significantly reduce the quality of life of patients and create many diagnostic difficulties. The radiation pattern of pain from a particular muscle or even a particular part of it is always predictable and recurrent. Professor Janet Travell described the mechanism of trigger points, their localization and radiation pattern of pain, based on which we can find the muscle that causes referred pain.

Case Report: The patient, aged 20, was reported to the Clinic of the Department of Temporomandibular Disorders because of the pain of the facial muscles and the area of lower incisors. The patient was not given general medical conditions. During anamnesis, the patient reported bilateral pain in the areas temporal, occipital, and lower incisors pain. She complained about the evening stiffness of the muscles. The patient reported an episode of severe pain of the lower incisors 5 years ago. The patient went to a dental emergency office where the trepanation and devitalization of the central incisors were performed. Endodontic treatment was continued in another office. In spite of the treatment, the pain continued to occur sporadically. In the extraoral examination, palpation pain of both temporomandibular joints was found. Moreover, the bilateral palpatory tenderness of muscles were found - muscles of mastication, suprahyoid and neck muscles, with particular tenderness of masseters, lateral pterygoids and digastric muscles. The computer analysis of occlusal registration with T-Scan III was performed, which showed premature contacts on incisor teeth. Based on the performed studies, the patient was diagnosed with centric and eccentric frontal bruxism and myofascial pain with trigger points located in the digastric muscle and masseter.

Conclusions: Spontaneous toothaches without major hard tissue lesions, especially central lower incisors or molars, are not always painful due to irreversible pulpitis and require careful differential diagnosis with heterotopic pain. Such situations may occur among patients with bruxism, premature occlusal contacts, orthodontic patients with non-balanced occlusion. In the case of spontaneous pain caused by overload, proper treatment is to eliminate the cause - muscle relaxation, bruxism treatment, restoration of balanced occlusion, elimination of premature contacts.

Keywords: Myofascial pain, bruxism, referred pain, trigger points, digastric muscle

COMPARISON OF THE EFFICACY OF TWO METHODS OF INTRAOCULAR ANAESTHESIA DURING A CATARACT SURGERY AND EVALUATION OF THEIR INFLUENCE ON POST-OPERATIVE RESULTS.

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Introduction: The aim of the study is assessment and comparison of analgesic effects of two methods of intraocular anaesthesia during a cataract surgery and assessment of their influence on post-operative results. Determination of factors influencing on the experience of pain during the surgery.

Methods: In this prospective, randomised study a group of 62 patients undergoing cataract surgery received Mydrane (study group) or a typical combination of lignocaine and adrenalin (reference group) as an intraocular anaesthetic. The analgesic effect of these two methods was evaluated using psychological tools - Visual Analog Scale for Pain (VAS Pain) before and after the surgery; and Brief Pain Inventory - short form (BPI) 24h after the surgery. The patients didn't receive any other anaesthetics until they filled out the BPI. A full ophthalmological examination was carried out before and 7 days after the surgery. BCVA, anterior segment of the eye and eye fundus were examined. Intraocular tension was also measured. Coexisting eye diseases and post-operative complications were noted.

Results: There were no statistically significant differences between the two anaesthesia methods when comparing the intensity of the pain during the surgery and the influence of said pain during last 24h on activity, mood, social contacts, sleep and the joy of life. Whereas there was a statistically significant difference when evaluating the influence of the pain on the ability to walk and on everyday duties. There was no statistically significant influence of age, sex, lateralisation, order of the surgeries, co-existing ophthalmological diseases, post-operative complications on the experience of pain measured with VAS Pain during the surgery and on the strongest pain present in the last 24h measured with BPI. In the Mydrane group there was a significant dependence between post-operative BCVA and co-existing diseases of the eye, while in the reference group – between BCVA and the appearance of post-operative complications.

Conclusions: Intraocular anaesthesia during the cataract surgery using Mydrane is as effective as a solution of lignocaine and adrenalin, which was used until now.

Keywords: cataract, pain, ophthalmology, Mydrane, intraocular anaesthesia

Internal Medicine

TIME TO CONSIDER NONSURGICAL THERAPY OF NON-TOXIC GOITRE.

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Introducion: There is no consensus regarding the optimum treatment of benign non-toxic goitre. Levothyroxine and surgery are still basic and the most popular methods. The therapeutic effect of radioactive iodine I131 on non-toxic goitre consists of the emission of tissue-destructive beta-radiation. In presented study we evaluated the effect of I131 to non-toxic goitre.

Methods: Our study included 75 patients, aged 30–62 years; 88% female, 12% male; initial RAIU after 24 h was ranged between 22 and 44% and thyroid volume ranged between 49 and 145 ml. Qualifications of these patients were based on normal levels of serum TSH, fT3 and fT4 and characteristic appearance on thyroid scans and ultrasound. Some of the patients complained of compressive symptoms (55 patients). Malignant changes were excluded in all nodules by fine needle aspiration biopsy. The therapeutic radioactivity was calculated by the use of Marinelli's formula and ranged between 400 and 800 MBq. The absorbed dose (Gy) ranged between 180 and 300, and was proportional to thyroid volume. Follow up control was done every 6 weeks.

Results: After 12 months of radioiodine therapy a mean thyroid volume reduction of 46% was achieved in all the patients, euthyroidism in 93% of patients, and hypothyroidism developed in 7%. All patients were highly satisfied; the compressive symptoms relieved and exercise tolerance improved.

Conclusions: Radioiodine is non-invasive, safe and cost effective method of therapy for goitre reduction and should be used as first choice in every patient with non-toxic nodular goitre (>40 ml) especially in patients with special professions (singer, teacher) or in patients who wish a non-invasive treatment modality. The reduction of thyroid volume with low percent of hypothyroidism was due to accurate measurement of administered activity, relatively high effective half-life and well-organised follow up. Randomised studies have shown that levothyroxine has poor evidence of efficacy and is inferior to radioiodine therapy regarding goitre reduction.

Keywords: non-toxic goitre, radioactive iodine, non-invasive, nonsurgical.

PROGNOSTIC ROLE OF ECG PATTERNS OF RIGHT VENTRICULAR HYPERTROPHY IN PATIENTS WITH PULMONARY HYPERTENSION.

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Introduction: Several diagnostic tests have been recommended for risk assessment in pulmonary hypertension (PH), but still the role of electrocardiography (ECG) in monitoring PH patients has not been established. Therefore the aim of the study was to evaluate what ECG patterns characteristic of pulmonary hypertension can predict hemodynamic improvement in patients treated with targeted therapies.

Methods: Consecutive patients with pulmonary arterial hypertension (PAH) or chronic thromboembolic pulmonary hypertension (CTEPH) were eligible to be included if they had had performed two consecutive right heart catheterization (RHC) before and after starting of targeted therapies. Patients were followed from June 2009 until July 2017. ECG patterns of right ventricular hypertrophy according to American College of Cardiology Foundation were assessed.

Results: We enrolled 80 patients with PAH and 11 patients with inoperable CTEPH. The follow-up RHC was performed within 12.6 ± 10.0 months after starting therapy. Based on median change of pulmonary vascular resistance, we divided our patients into two subgroups: with and without significant hemodynamic improvement. RV1, maxRV1,2 +max SI,aVL – SV1 and PII improved along with the improvement of hemodynamic parameters including PVR. They predicted hemodynamic improvement with similarly good accuracy as shown in ROC analysis: RV1 (AUC: 0.75; 95%CI: 0.63-0.84), PII (AUC: 0.67, 95%CI: 0.56-0.77) and maxRV1,2 +max SI,aVL – SV1 (0.73; 95%CI: 0.63-0.82). In Cox regression only change in RV1 remained significant mortality predictor (HR: 1.12, 95% CI: 1.01-1.24).

Conclusions: Electrocardiogram may be useful in predicting hemodynamic effects of targeted therapy in precapillary pulmonary hypertension. Decrease of RV1, max RV1,2 +max SI,aVL –SV1 and PII correspond with hemodynamic improvement after treatment. Of these changes a decrease of R wave amplitude in V1 is associated with better survival.

Keywords: ECG, pulmonary hypertension,

RANDOMIZED STUDY TO COMPARE TWO METHODS OF E-LEARNING OF ECG INTERPRETATION AMONG MEDICAL STUDENTS.

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Introduction: Interpretation of electrocardiogram (ECG) is an essential skill in cardiology, family, internal, and emergency medicine. Several studies have highlighted deficiencies in ECG interpretation among medical students and residents from different countries and the best method of ECG education has not been determined.

Methods: A group of sixty 5th-year medical students from the Jagiellonian University Medical College were randomly assigned in a 1:1 ratio to the C-eL and I-eL groups. C-eL group students were further randomly divided into 6 subgroups of 5 students. Students from the I-eL group received by e-mail an ECG recording with comprehensive description every second day; at that time students from the C-eL group received the ECG recording without any description. C-eL students were encouraged to cooperate in analyzing the ECG in subgroups using internet platform and were expected to submit interpretation of the ECG recording to study coordinator after 48 hours. Afterwards they received comprehensive description of the ECG. Before starting the study all students participated in a pretest assessing their basic theoretic knowledge about ECG interpretation and received an ECG interpretation guidebook. The effects of e-learning were assessed at a final e-test at which participants were asked to answer 10 theoretical questions (max. score 10 points) and to interpret 10 ECG recordings (max. score 10 points). All questions were multiple-choice and closed-ended. The main endpoint of the study was the number of students who passed the final e-test (answered correctly to at least 56% of questions).

Results: Basic theoretical knowledge about ECG interpretation was similar in both study groups as shown by the results of the pretest. Students from the I-eL group answered correctly to 9.0 ± 1.0 ($90 \pm 10\%$) questions and from the C-eL group to 9.5 ± 0.6 ($95 \pm 6\%$) questions, $p = 0.07$. Out of 60 students enrolled, 55 (92%) completed the final e-test in similar proportion in the I-eL (28; 51%) and the C-eL group (27; 49%). The main endpoint of the study was achieved more frequently in the C-eL than in the I-eL group: 17 (63%) vs 10 (35.7%) students respectively, $p = 0.045$. C-eL group students, as compared to I-eL group students, achieved more points in the final e-test (12.3 vs 11.0 points respectively, $p = 0.036$) and also better results in ECG interpretation (4.1 vs 3.4; $p = 0.03$). In all study participants the results of the final e-test correlated with the results of the pretest ($r = 0.03$; $p = 0.03$).

Conclusions: Collaborative e-learning of electrocardiography in 5th year medical students is superior to individual e-learning.

Keywords: ECG, EKG, electrocardiography, e-learning

THE COMPARISON OF MEAN PLATELET VOLUME AND CT-DERIVED PARAMETERS IN TWO AGE GROUPS OF PATIENTS WITH PULMONARY EMBOLISM.

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Introduction: The clinical course of pulmonary embolism (PE) in group of elderly patients who frequently suffer from comorbidities is still related with difficult therapeutic decisions and high mortality of patients despite the better availability of computed tomography pulmonary angiography (CTPA) and more advanced laboratory diagnostic methods. Research on thromboembolism performed over the last few years indicates on platelet parameters (for example MPV) as an important indicator of thrombotic activity what gives a chance to find the new factors helpful in diagnostics and treatment of PE.

Methods: To the retrospective analysis included results of CTPA and laboratory tests from 150 patients with confirmed pulmonary embolism. The patients have been divided into 2 groups according to the histogram of age distribution, and then the comparison of data from younger (Group A) and older group (Group B) has been performed. In both groups the severity of pulmonary embolism has been assessed based on Qanadli score and RV/LV short axis ratio as well as PA have been measured. MPV has been evaluated within 24 hours from the PE diagnosis.

Results: According to the statistical analysis, the significant differences of MPV and CT-derived parameter in group of elderly patient have been revealed, even if the severity of PE has been assessed as the same. The significant differences of sex distribution, time since the symptoms occurrence, as well as d-dimer result have not been observed between groups.

Conclusions: Results of the performed analysis indicate that the MPV as well as PA (derived from CTPA), seem to be promising factors to identify patients among elderly age group who require more attentive diagnostics and aggressive treatment.

Keywords: Pulmonary embolism, Thromboembolism, Mean platelet volume, CTPA, Elderly patients

SHORT-TERM IMPACT OF E-CIGARETTES ON OUR HEALTH – ARE THEY SAFER THAN TRADITIONAL CIGARETTES?

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Introducion: Increasing number of e-smokers creates new challenge for public health. E-cigarettes have been available for approximately 10 years. The long-term health effects of e-cigarette usage are still unknown. The aim of the study was to assess the influence of cigarette and e-cigarette smoking on human health, with special emphasis on respiratory system symptoms.

Methods: A population based survey was performed, in a group of 3986 students from three faculties from two Universities in Katowice, Poland. Previously validated, self-prepared questionnaire includes questions on cigarette and e-cigarette smoking habits.

Results: The data were obtained from 3002 students (29.4% males and 70.6% females) aged 21.7 ± 2.1 y-rs with the response rate 75.3%. Traditional tobacco cigarette (T) smoked regularly 14.4% of respondents, 1.3% of them declared e-cigarette (E) smoking and 1.8% smoked both types of cigarettes (“Dual Users”; D-U). As the most common immediate short-term effects of e-cigarette smoking respondents indicated: sore throat – 32.4% (T: 34.1%; $p=0.8$), cough – 21.6% (T: 32.7%; $p=0.1$). Tobacco smokers more often observed dizziness – 38% (E:13.5%; $p=0.002$), nausea – 22.6% (E: 8.1%; $p=0.03$), weakness – 20.4% (E:5.4%; $p=0.02$) and bad taste in mouth – 55.5% (E: 5.4%; $p=0.0001$). Among 54 D-U – e-cigarette more often caused breathlessness (E: 16.6%, T 3.7%; $p=0.02$) and sore throat (E: 29.6%, T: 18.5%; $p=0.2$) than tobacco cigarette.

Conclusions: Due to the high frequency of cough and breathlessness after use of e-cigarette, there is a need to further research to investigate the potentially influence of e-smoking on development of lung disease.

Keywords: e-cigarette, smoking, nicotine, lung disease

DIABETES AND MALE SEX INCREASE VISUAL-FUNCTIONAL MISMATCH BETWEEN OPERATOR AND FFR-BASED DECISION ON REVASCULARIZATION

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Introduction: Intermediate coronary artery stenosis are frequently found in patients diagnosed for angina pectoris. Functional assessment like fractional flow reserve measurement (FFR) is convenient and well standardized method to confirm indication for revascularization. FFR utilization is low in Poland due to its cost. The aim of our study was to find and explore possible factors influencing the level of concordance between operators visual estimation and invasive functional assessment (FFR).

Methods: We investigated 262 consecutive patients, who had undergone functional invasive assessment of stenosis significance with fractional flow reserve in 356 coronary vessels. FFR measurements were made with PressureWire (St Jude Medical, US) during continuous intravenous infusion of adenosine. FFR value of 0,80 was used a cut-off point for revascularization. Visual-functional concordance was measured with Cohens kappa coefficient.

Results: Mean age of patients was 67,1 years (SD=10,7), 69,8% were men. Main indication for coronary angiography was stabile coronary artery disease (60,7% of cases). Measurements were predominantly performed in left anterior descending artery (57,9% of vessels), right coronary artery (17,1%), left circumflex branch (15,7%). Median stenosis of vessels was 60% (IQR 50%;70%). Median FFR value was 0,83 (IQR: 0,74;0.89). Subgroups analysis showed no significant differences between patients with significant levels and those without stenosis in terms of demographics and CAD risk factors profile. Visual-functional concordance was fair. Cohens kappa for 3 operators ranged from 0.297 in less experienced to 0.394 in the most experienced, and varied according to vessel. Logistic regression model revealed increased risk of mismatch in case of poor angiography quality (Odds ratio 1,97 [95% CI: 1,34;2,17]), male sex (OR=1,70 [95% CI: 1,38; 2,80]) and presence of diabetes (OR=1,38 [95% CI: 1,05;1,82]). Prior myocardial infarction was not-significant risk factor of mismatch with OR=0,76 (95%CI: 0,56;1,03).

Conclusions: The compatibility between visual and functional estimation of stenosis significance is fair and depends on operator's experience. Patients with functionally significant lesions did not differ from a group without significant stenosis. Poor quality angiogram, presence of diabetes and male sex were significant factors associated with increased risk of visual-functional mismatch.

Keywords: FFR, visual-functional discrepancy, Cohens kappa

ARE THERE ANY SEX-RELATED DIFFERENCES IN CARDIAC ARRHYTHMIAS AND CONDUCTION DISORDERS AMONG PATIENTS WITH STABLE CORONARY ARTERY DISEASE?

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Introduction: Stable coronary artery disease (SCAD) predisposes to cardiac arrhythmias. According to many studies in global population women have less tendency to suffer from cardiac arrhythmias and are predisposed to have higher heart rate at rest. This study aimed to describe the differences in heart arrhythmias and conduction disorders as a clinical manifestation of SCAD.

Methods: Retrospective analysis of 3291 patients (mean age 66.71 ± 10.05 years; Men: 68.125%) with stable coronary artery disease admitted into Department of Invasive Cardiology in Białystok for invasive diagnosis or treatment had been performed. Sex-related differences in prevalence of arrhythmia and conduction disorders had been investigated. $P < 0.05$ was considered statistically significant.

Results: There was no difference in heart rate (male: 66.53 vs. female: 66.95; $p = 0.359$). The main arrhythmia in SCAD was atrial fibrillation, with similar prevalence in both sexes (male: 8.79%, female 8.29%; $p = 0.639$). The atrioventricular block was observed in 6.78% men and in 5.34% women patients ($p = 0.113$). The premature extrasystoles was similarly present in both sexes (male: 3.03% vs. female: 2.56%; $p = 0.542$). Among intraventricular blocks there was significant difference in RBBB, which was presented by 6.24% of men and 3.62% of women ($p = 0.002$). There was slight trend towards higher prevalence of LBBB in women (male: 4.46% vs. female: 6.01%; $p = 0.057$), but statistical significance was not reached. Cardiac stimulation device was present in 2.41% men and 3.24% women cases ($p = 0.168$).

Conclusions: In the previous studies, heart arrhythmias and conduction disorders in global population, were more common in male patients. In our studied males with CAD had equal to woman with CAD prevalence of cardiac arrhythmias, beside from RBBB. In addition, the difference in heart rate was not significant in our study. Future studies should continue to explore the probability of heart arrhythmias in CAD and its correlation with risk factors of stable coronary disease.

Keywords: Myocardial Ischemia, Angina, Stable, ECG, Gender, Sex

SEX-RELATED VARIATION OF ISCHEMIC HEART DISEASE RISK FACTORS IN POPULATION OF PATIENTS WITH STABLE CORONARY ARTERY DISEASE

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Introduction: The Ischemic heart disease (IHD) remains the main cause of death in men and women. There are many classical IHD risk factors, some experts proposed that there are some other factors and comorbidities connected with this illness and they are considered to be non-classical. Many studies suggested that there are differences in occurrence of risk factors between genders and it was the subject of our study.

Methods: The study consisted of retrospective analysis of 3291 patients (mean age 66.71 ± 10.05 years; men: 68.125%) with stable coronary artery disease (SCAD) admitted into Department of Invasive Cardiology in Białystok for invasive diagnosis or treatment. Frequency of IHD risk factors were assessed and compared between genders. In our study, laboratory tests and blood pressure measurement were performed. $P < 0.05$ was considered statistically significant.

Results: Female patients were dealing with IHD in more senior age (men vs. women) (65.35 vs. 69.62 years; $p < 0.0001$). BMI was equal in both genders (28.56 vs. 28.84; $p = 0.1012$). In particular body weight categories according to WHO being overweight was more frequent in men (45.50% vs. 41.85%; $p = 0.050$) and being underweight in women (0.09% vs. 0.86%; $p = 0.0004$). Severely obesity was more frequent in women (6.42% vs. 9.06%; $p = 0.007$). Women were more often presented with hypertension (77.16% vs. 84.56%, $p < 0.0001$), diabetes mellitus (28.85% vs. 32.41% $p = 0.0010$) and dyslipidemia (62.49% vs. 69.02%; $p = 0.0003$). Past history of myocardial infarction was more frequent in men (48.17% vs. 36.99%; $p < 0.0001$). Regarding non-classical factors chronic renal disease was more frequent in women (11.24% vs 14.30%; $p = 0.0125$), asthma in women (0.76% vs. 2.96%; $p < 0.0001$), chronic obstructive pulmonary disease in men (5.84% vs. 3.81%; $p = 0.014$), peripheral artery disease also in men (10.75% vs. 8.48%; $p = 0.044$). Among patient's medical history no significant differences in occurrence of stroke were found (5.53% vs. 5.34% $p = 0.8213$).

Conclusions: In our study women had more risk factors. It may cause increase in cardiovascular deaths. Our study shows that asthma may be a significant risk factor in women. There is a need to improve primary and secondary prevention in women.

Keywords: coronary artery disease, risk factors, gender

SEX-RELATED DIFFERENCES IN BASIC ECHOCARDIOGRAPHIC ASSESSMENT IN PATIENTS WITH STABLE CORONARY ARTERY DISEASE ADMITTED TO INVASIVE CARDIOLOGY DEPARTMENT.

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Introduction: Echocardiography diameters depend on many factors, in healthy subjects mainly from gender, weight and height. That is why nowadays in cardiology the interest in using BSA to limit impact of these factors is constantly growing.

Methods: The study consisted of retrospective analysis of 3291 patients (mean age 66.71 ± 10.05 years; men: 68.125%) with stable coronary artery disease (SCAD) admitted to Department of Invasive Cardiology in Białystok for invasive diagnostics or treatment. Echocardiography results concerning basic heart dimensions, left ventricular ejection fraction (LVEF) and valve function had been assessed. $P < 0.05$ was considered statistically significant.

Results: History of myocardial infarction was more frequent in men (48.17 vs. 36.99%; $p < 0.0001$). Women were more often presented with higher values of left ventricle ejection fraction (LVEF): (52.16 vs. 48.03; $p < 0.00001$). The valvular defects such as an aortic stenosis (1.83% vs. 3.43%; $p = 0.0046$), mitral insufficiency (10.88% vs. 14.49%; $p = 0.0030$), tricuspid insufficiency (2.01% vs. 4.29%; $p = 0.0002$) and combined mitral defect (0.13% vs. 1.33%; $p < 0.0001$) were present more often in women. Before indexing all dimensions (counted in mm) were higher in men. Respectively, left ventricular end-diastolic dimension (LVEDD): (52.66 vs. 47.78; $p < 0.001$), right ventricular end-diastolic dimension (RVEDD): (30.61 vs. 28.47; $p < 0.001$), intraventricular septum thickness (IVST): (11.70 vs. 11.04; $p < 0.001$), posterior wall in diastole (PWD): (11.00 vs. 10.63; $p = 0.0028$), left atrium (LA): (41.02 vs. 39.19; $p = 0.0027$) and aorta (AO): (36.4 vs. 33.38798; $p < 0.001$). After indexing, the values were higher in women: LVEDD: (26.09 vs. 26.74; $p = 0.0250$), RVEDD: (15.15 vs. 15.95; $p < 0.001$), IVST: (5.80 vs. 6.20; $p < 0.001$), PWD (5.45 vs. 5.98; $p < 0.001$), LA (20.30 vs. 21.98; $p < 0.001$) and AO (17.95 vs. 18.68; $p = 0.0007$).

Conclusions: The analysis presented above shows that after indexing to BSA basic echocardiography diameters were higher in women with SCAD. That state may be caused by higher prevalence of valvular heart diseases or other comorbidities (hypertension). There is need of conducting further studies to prove usefulness of BSA in eliminating sex-related variation in echocardiographic especially in patients with SCAD.

Keywords: BSA, coronary artery disease, SCAD, echocardiography, gender

HYPERREACTIVITY OF THE BRONCHI AS EARLY CRITERIA OF DIAGNOSTICS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD).

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Introduction: Chronic Obstructive Pulmonary Disease (COPD) is a slowly progressing airway disease that causes a significant deterioration of the lung function. This disease imposes significant restrictions on the lives of patients. According to the latest data from the World Health Organization (WHO), about 210 million people are currently suffering from COPD, and each year about 3 million people die. So, the disease is becoming the 4th leading cause of death worldwide along with HIV / AIDS. WHO predicts that by 2030 COPD will be the third most common cause of death. That is why our research is aimed at the early verification of COPD, which is necessary nowadays.

Methods: The research was conducted on the basis of the communal 5th clinical hospital in Lviv and the city diagnostic and treatment office "Pulmis". We also used the questionnaire developed by us, a computer spiograph and a non-specific provocative inhalation test with aerosol of distilled water.

Results: According to the data of the bronchoprovocation test, GRB has been verified functionally in all four groups that were selected by our questionnaire (4 positive answers): women with a short history of smoking (first group) reduction of FEV1 by 20% arises after 4 inhalations (TD20 = $16,07 \pm 0,24$??? tg? = $0,09 \pm 0,003$); men of the second group, who smoke during 1-5 years, TD20 = $3,92 \pm 0,09$ *, and FEV1 decreases by 20% after 2 inhalations (tg? $0,63 \pm 0,008$ *); in the third group, which included women who smoke for 5-20 years - after 3 inhalations (TD20 = $8,31 \pm 0,15$ *** with tg? = $0,33 \pm 0,01$ ***); in the fourth group, which included men with a long history of smoking, a threshold dose of aqueous aerosol, causes 20% drop of FEV1, corresponds to a dose of 1 inhalation. Threshold dose (TD20), which achieves the reduction of FEV1 by 20% of the baseline level, characterizes the sensitivity of the bronchi. It was calculated by interpolating the graph "dose - reaction". Reactivity of the bronchi was estimated by tangentangle ? of the slope of the "dose-reaction" curve to the axis abscissa.

Conclusions: As the duration of smoking progresses, the degree of bronchial hyperreactivity in both women and men is likely to increase, but in men it is significantly higher. The positive answer to the 4 questions we asked in the questionnaire can be considered as the clinical equivalent of HRB, which was found functionally in the bronchoprovocation test with the hyposomal stimulus; The high informativeness of the questionnaire as a screening method for identifying persons with HRB and its expediency for the purpose of early diagnosis of COPD has been proved.

Keywords: Hyperreactivity of the bronchi(HRB),Chronic Obstructive Pulmonary Disease, COPD risk factors,screening questionnaire, diagnostic of HRB,non-specific provocative inhalation test with aerosol of distilled water.

BONE MARROW HARVEST IN DONORS WITH ANEMIA

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Introduction: Bone marrow harvest (BMH) for hematopoietic stem cell transplantation is a well-established procedure. The guidelines of World Marrow Donor Association provide precise information on many aspects of donor selection. However, some of the guidelines, regarding donors with anemia prior to harvest, lack in supporting data from clinical studies. With this study we provide additional data concerning this group of donors.

Methods: In this retrospective, single center-study we analyzed the interplay between hemoglobin levels and BMH and BMH impact on hemoglobin levels in a cohort of 149 unrelated BM donors, including 13 subjects with mild anemia.

Results: The BMH led to significantly lower decrease of hemoglobin levels in donors with anemia than in control group (1.79 g/dl vs 2.56 g/dl, $p < 0.0001$). The following parameters: BMH volume (ml), BMH volume/donor body weight (ml/kg), total nucleated cells (TNC) in product ($\times 10^8$) and TNC/kg recipient body weight in product ($\times 10^8/\text{kg}$) did not differ significantly between those two analyzed groups ($p > 0.05$). Median BM volume harvested from anemic donors was 16.34 ml/kg; none of them required blood transfusion after BMH.

Conclusions: Mild anemia prior to BMH does not significantly impact the results of the collection. Decrease in hemoglobin levels after BMH in anemic donors is lower than in non-anemic donors with similar volumes of harvested BM. Donors with mild anemia do not become anemic to the extent requiring blood transfusion. We conclude that the bone marrow harvest is safe and feasible in donors with mild anemia.

Keywords: unrelated donors, anemia prior to procedure

PCR-MONITORING OF NON-INFLUENZA VIRUS AGENTS OF ARVI IN GRODNO HOSPITAL OF INFECTIOUS DISEASES

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Introduction: In the ARVI structure molecular genetic screening allows to monitor in dynamic the place of non-influenza virus agents: respiratory syncytial virus (hRSV), rhinovirus (hRV), parainfluenza virus (hPiV 1-4), adenovirus (hAdV), metapneumovirus (hMPV), bocavirus (hBoV), coronavirus (hCoV). In a wide range of viruses hRSV is leading, causing 3.4 million episodes of severe lower respiratory tract infection, which require hospitalization.

Methods: 76 positive results of naso- and oropharyngeal swabs taken from children and adults in Grodno Hospital of Infectious Diseases with clinical symptoms of ARVI in 2014-2017 seasons were assessed by method of real-time PCR using AmpliSens diagnostic kit. The data was statistically analyzed with Statistica 6.0.

Results: In total during 2014-2017 there were observed 223 patients. Etiological verification of ARVI by PCR was performed in 76(34.1%) patients. Distribution by sex had the same frequency. Children dominated in the age structure (96.2%). The prevalence of mono-infection (75%) over co-infection was established. In the structure of mono-infection hRSV (56.1%) was leading, hRV (21.6%) took the 2nd place. Among the mixed forms co-infection of hRSV+hRV prevailed as well as the presence of each of them in combination with other viral agents. 2 cases were characterized by co-infection of 3 viral agents (hRSV+hAdV+hBoV and hRV+hBoV+hPiV) and caused the moderate severe pneumonia. In ICU patients hRSV was diagnosed in 8(61.5%) of 13 cases in the form of both mono- and mixed infections.

Conclusions: Carrying out of constant virological PCR-monitoring allows to identify leading agents of ARVI, to verify variants of infection (mono-, mixed), to estimate a proportion of certain agents in the structure of ARVI. hRSV and hRV lead in cases of mono-ARVI. Among mixed forms, hRSV+hRV co-infection dominates as well as their combination with other viruses.

Keywords: ARVI, PCR-monitoring, respiratory syncytial virus, rhinovirus

CONTINUOUS COLLECTION PROTOCOL (cMNC) OVERCOMES NEGATIVE COLLECTION PREDICTORS IN HEALTHY UNRELATED DONORS.

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Introduction: Recently, novel protocols utilizing continuous collection flow for leukapheresis (cMNC) have been introduced. We compared the efficiency of cMNC with an older protocol (MNC) for CD34+ cell collection in unrelated donors in clinical scenarios where lower yields were expected (such as a weight disproportion between the donor and recipient and low number of circulating stem cells).

Methods: Retrospective data from a series of 258 consecutive unrelated hematopoietic stem cell donors was included in this single-center study (80 donors collected with cMNC and 178 with MNC).

Results: The cMNC protocol yielded a higher number of CD34+ cells per donor body weight ($7.63 \times 10^6/\text{kg}$ vs $6.82 \times 10^6/\text{kg}$, $p=0.027$). One apheresis was sufficient for collection of target cell number in 89% individuals from both groups despite negative predictors in the cMNC group (lower circulating CD34+ count and weight disproportion). Platelet loss ratio was significantly lower in cMNC protocol ($30.9 \pm 8.6\%$ vs $34.3 \pm 10.7\%$, $p=0.016$). In donors with CD34+ cell count $<100/\mu\text{L}$ and a body weight disproportion between donor and recipient, cMNC showed higher CD34+ cell concentration in apheresis product. In donors with lower anticipated overall yield of stem cells, one apheresis was sufficient in 83% in cMNC group and in 58% in MNC group ($p=0.029$).

Conclusions: cMNC protocol is significantly more efficient in donors with low pre-apheresis CD34+ cell count and in cases of weight disproportion between donor and recipient. This suggests that the use of cMNC in all unrelated donors could possibly further improve the results of HSC collections.

Keywords: apheresis, allogeneic hematopoietic stem cells transplantation, Spectra Optia

MOLECULAR PROGNOSTIC FACTORS IN CHRONIC LYMPHOCYTIC LEUKEMIA

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Introduction: Chronic lymphocytic leukemia (CLL) is the most common leukemia in Europe and North America. The most characteristic feature of the disease is its highly heterogeneous clinical course. Rai's and Binet's classifications, although widely used in clinical routine, are not sufficient to determine if the patient will present a rapidly-progressive disease or an indolent one. Thus, finding the factors that can be used to predict the outcome in order to choose the accurate therapy and its onset time seems to be of great importance.

Methods: We performed analysis of Pubmed and other databases, looking for recently published scientific literature. In this review we present the data on molecular prognostic factors in CLL and we make an attempt to answer the question which of them can be used as prognostic tool for CLL patients in routine clinical practice.

Results: Approximately 80% of CLL patients present recurrent chromosomal abnormalities, the most common of which is 13q14 deletion. This aberration is associated with even more favorable prognosis, than in case of patients with no abnormalities found. Del (11q) or del (17p) are considered to be connected with poor prognosis. Along with 17p deletion, the presence of the unmutated immunoglobulin heavy-chain (IGHV) genes is the most important single factor of poor outcome. High expression of ZAP-70, CD-38, CD49d are well-known adverse prognostic factors. In recent years some new markers have been identified, including mutations in: NOTCH1, SF3B1 and BIRC3. They seem to be associated with unfavorable outcome.

Conclusions: The knowledge about molecular prognostic factors in CLL still need to be improved. The clear clinical practice guidelines on management of the patients in different prognostic subgroups should be provided. It would allow a more targeted treatment of CLL patients, which surely will result in better outcomes.

Keywords: Chronic Lymphocytic Leukemia, prognostic factors, genetic alterations, 17p deletion, Immunoglobulin Heavy Chain Variable Mutation

RELATIONS OF FAT-FREE BODY MASS, CENTRAL HEMODYNAMICS, ARTERIAL STIFFNESS AND LEFT VENTRICLE GEOMETRY IN FRAIL ELDERLY PATIENTS WITH SYMPTOMATIC CORONARY HEART DISEASE.

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Introducion: Frailty is a biological syndrome that reflects a state of decreased physiological reserve and vulnerability to different stressors. Major feature of frailty is muscle loss. It is associated with many co-morbidities, which increase mortality further. Increased arterial stiffness, expressed as carotid femoral pulse wave velocity, is regarded as a hallmark of organ damage in arterial hypertension.

Methods: The aim of the study was to assess whether muscle loss in frailty is associated with left ventricle mass decline and changes in its structure. We have enrolled 94 patients aged ≥ 65 years, in whom coronary artery disease was confirmed angiographically. Frailty was assessed according to Fried frailty scale. Fat-free body mass was assessed with Harpenden's skinfold caliper and body assessment software. Arterial stiffness was measured as carotid femoral pulse wave velocity (cfPWV) with applanation tonometry (Complior, Alam Medical, France), central blood pressure was recalculated from the carotid pressure tracing by the integrated software. Left ventricle mass was assessed using ASE formula from integrated echocardiography software. It was also indexed for body surface area. We have measured also relative wall thickness as a measure of concentric hypertrophy.

Results: 22 patients presented at least three out of five Fried traits and were considered as frail. The results are presented in the table below. Frail (n=22) Non-frail (n=72) P

	Men	Women	Age, years, X \pm SD	75,0 \pm 10,2	74,5 \pm 7,1	71,7 \pm 4,8	72,3 \pm 4,9	NS																																																															
cfPWV, m/s, X \pm SD	8,7 \pm 2,1	9,4 \pm 3,3	10,0 \pm 2,2	9,4 \pm 2,7	NS	Per BP sys, mmHg, X \pm SD	135,1 \pm 19,1	135,0 \pm 18,1	133,1 \pm 16,2	138,3 \pm 24,7	NS	Per BP dia, mmHg, X \pm SD	80,4 \pm 8,7	77,8 \pm 12,7	79,9 \pm 9,5	77,0 \pm 10,7	NS	Per PP, mmHg, X \pm SD	54,7 \pm 11,6	57,2 \pm 12,7	53,2 \pm 12,3	61,3 \pm 18,3	NS	Cen BP sys, mmHg, X \pm SD	130,7 \pm 18,5	133,2 \pm 19,4	127,8 \pm 17,1	131,5 \pm 25,3	NS	Cen BP dia, mmHg, X \pm SD	80,4 \pm 8,7	77,7 \pm 12,7	79,9 \pm 9,5	77,0 \pm 10,7	NS	Cen PP, mmHg, X \pm SD	50,2 \pm 12,4	56,1 \pm 18,9	47,9 \pm 14,5	54,5 \pm 19,0	NS	LVM, g, X \pm SD	244,3 \pm 94,9	198,2 \pm 51,8	237,7 \pm 59,8	191,9 \pm 46,6	0,031	LVMi, g/m ² , X \pm SD	137,3 \pm 64,5	109,4 \pm 28,3	120,4 \pm 31,7	108,5 \pm 24,5	NS	RWT, %, X \pm SD	0,41 \pm 0,05	0,49 \pm 0,07	0,40 \pm 0,08	0,45 \pm 0,06	0,001	FFM, kg, X \pm SD	55,9 \pm 10,5	48,0 \pm 5,9	59,7 \pm 9,1	46,8 \pm 6,1	0,000	Body mass, kg, X \pm SD	75,6 \pm 16,1	74,6 \pm 13,9	85,8 \pm 12,7	75,3 \pm 14,7	0,004

Per BP – peripheral blood pressure, cen BP – central blood pressure, PP – pulse pressure, LVM – left ventricle mass, RWT – relative wall thickness, FFM – fat-free mass

Conclusions: Frail elderly patients with symptomatic coronary heart disease, despite lower body weight have increased percentage of fat-free mass, that is accompanied by increased left ventricle mass and increased relative wall thickness. There is no relation of left ventricle geometry and arterial stiffness or central hemodynamics. Concentric hypertrophy might be responsible for higher oxygen demand and exacerbations of ischemic symptoms.

Keywords: Left ventricular geometry, central blood pressure, concentric hypertrophy, frailty syndrome

ARTERIAL STIFFNESS AND CENTRAL BLOOD PRESSURE IN FRAIL ELDERLY PATIENTS WITH SYMPTOMATIC CORONARY HEART DISEASE.

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Introducion: Frailty is a biological syndrome that reflects a state of decreased physiological reserve and vulnerability to different stressors. When exposed to, frail patients are at risk for disproportionate decompensation, adverse events, procedural complications, prolonged recovery, functional decline, disability, and eventually increased mortality. Increased arterial stiffness, expressed as carotid femoral pulse wave velocity, is regarded as a hallmark of organ damage in arterial hypertension and is associated with increased risk of mortality.

Methods: The aim of the study was to assess arterial stiffness and central blood pressure in frail elderly patients with symptomatic coronary heart disease. We have enrolled 94 patients aged ≥ 65 years, in whom coronary artery disease was confirmed angiographically. Frailty was assessed according to Fried frailty scale. Arterial stiffness was measured as carotid femoral pulse wave velocity (cfPWV) with applanation tonometry (Complior, Alam Medical, France), central blood pressure was recalculated from the carotid pressure tracing by the integrated software.

Results: 22 patients presented at least three out of five Fried traits and were considered as frail. The results are presented in the table below.

	Frail (n=22)	Non-frail (n=72)	Significance
Proportion M/F	7/15	46/26	0,016 (Chi2)
Age, years, X \pm SD	74,6 \pm 7,9	72,0 \pm 4,8	0,056
cfPWV, m/s, X \pm SD	9,2 \pm 2,9	9,8 \pm 2,4	NS
Per BP sys, mmHg, X \pm SD	135,0 \pm 18,5	135,0 \pm 19,7	NS
Per BP dia, mmHg, X \pm SD	78,6 \pm 11,5	78,9 \pm 10,0	NS
Per PP, mmHg, X \pm SD	56,4 \pm 12,5	56,1 \pm 15,2	NS
Cen BP sys, mmHg, X \pm SD	132,4 \pm 18,7	129,1 \pm 20,4	NS
Cen BP dia, mmHg, X \pm SD	78,6 \pm 11,5	78,9 \pm 10,0	NS
Cen PP, mmHg, X \pm SD	54,2 \pm 17,4	50,3 \pm 16,4	NS

per BP – peripheral blood pressure, cen BP – central blood pressure, PP – pulse pressure

Conclusions: Women form majority of the frail elderly population which tends to be slightly older. Frail patients with coronary heart disease have comparable arterial stiffness, slightly, yet insignificantly higher central systolic blood pressure and central pulse pressure. Relatively small number of frail patients and inclusion of patients with coronary heart disease are limitations of the study. Further studies including more participants from healthy community-dwelling population are required for extensive assessment of this research topic.

Keywords: Frailty syndrome, pulse wave velocity, arterial stiffness, coronary artery disease, central blood pressure

COMPARISON BETWEEN ANTHROPOMETRIC METHODS AND BIOELECTRICAL IMPEDANCE ANALYSIS IN HYPERTENSIVE PATIENTS

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Introduction: Obesity is a key risk factor for developing metabolic and cardiovascular diseases, which constitute one of the most common causes of morbidity and mortality worldwide. Thus, adipose tissue, both its content and distribution, is a significant health indicator. Regarding limitations of widely used anthropometric measurements, assessment of body adipose tissue maintains difficult in clinical practice. The potential solution is bioelectrical impedance analysis (BIA). The aim of this study was to evaluate relations between anthropometric methods and BIA in patients with uncomplicated arterial hypertension.

Methods: The study was carried out on 137 patients (94 men, 43 women, 45 ± 10 years) hospitalized in the Department of Cardiology and Internal Diseases, Military Institute of Medicine. The correlations between fat mass (absolute (FM) and relative (%FM)) and anthropometric parameters (body mass index (BMI), Waist Circumference (WC), Waist-to-Hip Ratio (WHR), Waist-to-Height Ratio (WHtR), Body Adiposity Index (BAI), Visceral Adiposity Index (VAI)) were analyzed in the whole study group and subgroups according to gender.

Results: In the whole group statistically significant correlations were as follows: %FM vs. BAI ($R=0,77$; $p=0,000$), %FM vs. WHtR ($R=-0,54$; $p=0,000$), %FM vs. BMI ($R=0,52$; $p=0,000$), %FM vs. WC ($R=0,29$; $p=0,000$); FM vs. BMI ($R=0,82$; $p=0,000$), FM vs. WC ($R=0,66$; $p=0,000$), FM vs. BAI ($R=0,58$; $p=0,000$), FM vs. VAI ($R=0,26$; $p=0,002$), FM vs. WHtR ($R=0,23$; $p=0,007$); FM vs. WHR ($R=0,19$; $p=0,031$). Substantial differences between men and women were found in all analysed parameters. In females BMI, WC and BAI presented stronger correlations with adiposity measured by BIA than other indices. In males they were WHtR and WC.

Conclusions: Classic anthropometrics rest in agreement with bioimpedance indices of adipose tissue content. However, there are some differences in their usefulness in women and men. In hypertensive females BMI and WC seem to be the most precise in the assessment of fat mass, while in males WHtR and WC, respectively.

Keywords: Bioelectrical impedancy analysis, anthropometric, hypertension, obesity, cardiovascular risk

Neurology and Neurosurgery

ADDICTIVE POTENTIAL OF THE MEDIUM-LONG ACTIVE BENZODIAZEPINES – ALPRAZOLAM, BROMAZEPAM, LORAZEPAM, AND LORMETAZEPAM.

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Introduction: Benzodiazepines (BDZ) nowadays are used in many types of therapy, mostly in neurological diseases. They are available in treatment of acute anxiety, insomnia, as well as for premedication in diagnostic and surgical procedures.[1] BDZ are also used with other anticonvulsant drugs in all seizure treatment.[2] One of the mechanism by which BDZ affect the central nervous system is binding the GABA-A receptors which generates the opening frequency for chloride ions.[3] Alprazolam and lorazepam are a high-potency and short half-life drugs, as for that, dependence in patients taking them will develop sooner than in low-potency agents such as chlordiazepoxide.[4] Furthermore, these substances have a very high reinforcing potential, associated with abuse symptom.[5] Interesting case presented by Bastide et al. shows that high doses of benzodiazepines, such as bromazepam could bring a possibility to develop a high degree tolerance.[6] Lormetazepam is a drug commonly used in treatment of sleeping disorders and medical premedication. It potentiates the inhibitory effect of GABA-ergic receptor-mediated events in central nervous system, and increases the affinity of this receptors to GABA.[7]

Methods: Drugs chosen to this review, according to the latest publications, have the most addictive potential. All of them are available in Poland.[8] Consequently, direct comparison of these drugs is necessary to prevent addiction. The study is based on the articles written in English and present in the medical databases.

Results: Using a double-blind procedure Murphy et al. compared the addictive potential of lorazepam and bromazepam in patients with benzodiazepine dependence. The data indicate that dropout symptoms were inexplicably less marked in lorazepam group.[9] On the other hand, experiment performed by Busto et al. proved that alprazolam, bromazepam and lorazepam have the same abuse potential.[10] As for lormetazepam, Faccini et al. showed that it had two times bigger addictive potential than lorazepam.[11]

Conclusions: The comparison shows that the most addictive potential in sequence have: lormetazepam, lorazepam, bromazepam, alprazolam; lorazepam presenting only slightly greater addictive potential than bromazepam.

Keywords: addictive potential, benzodiazepines, lormetazepam, lorazepam, alprazolam, bromazepam

INFLUENCE OF THE COMBINATION OF CARBENOXOLONE AND CLONAZEPAM ON THE MOTOR COORDINATION IN MICE.

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Introduction: Clonazepam (CLZ) is a benzodiazepine derivative. It is used as an anticonvulsant in several types of seizures: myotonic or atonic seizures, photosensitive epilepsy, and absence seizures. Unfortunately, tolerance to this drug may develop, reducing its effectiveness. Carbenoxolone (CBX) is a blocker of gap junctions. Clinically, CBX had been used to treat gastric ulcers, however, it caused electrolyte imbalance as a serious side effect when given systemically. Currently, data are available that CBX also blocks postsynaptic NMDA receptors and inhibits postsynaptic activity of GABA. Since about 30% of epilepsy cases is drug-resistant, there is a need for new methods of treatment and/or novel antiepileptic drugs. Because the combination of CLZ and CBX against pentylenetetrazol-induced seizures in mice turned out as statistically significant, there is a need to evaluate its neurotoxicity.

Methods: The experiment was carried out on adult Swiss male mice. The impairment of motor coordination (as a measure of neurotoxicity) was studied in the chimney test. The results were expressed as TD50s of CLZ (doses that cause neurotoxicity in 50% of tested mice) alone or combined with CBX. Mice were divided into 3 groups: a control group which received only CLZ + vehicle, the first experimental group which received CLZ in combination with CBX 75mg/kg, and the second experimental group which received CLZ combined with CBX 150 mg/kg. In the peak of activity of drugs against the seizure activity, the chimney test was held. Chimney test: A mouse is placed in a tube with rough inner walls, large enough for a mouse to fit inside comfortably. Then, the tube is positioned vertically. The animal slowly walks backwards to the top, to get out of the tube. This activity is time-limited – mice have 1 minute to get out.

Results: In the control group, the TD50 for CLZ was 0.749 ± 0.503 mg/kg. In the first experimental group (CBX 75mg/kg), the TD50 reached 0.700 ± 0.522 mg/kg. In the second experimental group TD50 was 0.664 ± 0.281 . Differences between the respective TD50 values were not statistically significant, so the combination of CLZ and CBX may be considered safe without any neurotoxicity.

Conclusions: Considering the enhanced anticonvulsant potential of the combined treatment of CLZ with CBX and no signs of neurotoxicity, this combination may be regarded as promising for the treatment of epilepsy from the preclinical point of view.

Keywords: seizures, epilepsy, carbenoxolone, clonazepam

INFLUENCE OF CARBENOXOLONE ON THE ANTICONVULSANT EFFECT OF CLONAZEPAM AGAINST PENTYLENETETRAZOL SEIZURE TEST IN MICE.

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Introduction: Antiepileptic drugs may cause numerous adverse effects. Regarding clonazepam, most commonly drowsiness, ataxia and behavioral changes (which are usually transient but can lead to dose reduction or even withdrawal of the drug) have been observed. Among 1% of the world's population suffers from epilepsy, 30% of patients with epilepsy being drug-resistant. The use of clonazepam in the long-term treatment of epilepsy is greatly inhibited by its capacity to induce tolerance and dependence. It means that preventing or minimizing the tolerance and dependence inducing properties is required. Clonazepam's primary mechanism of action is the modulation of GABA function in the brain, by the benzodiazepine receptor, located on GABA-A receptors. Carbenoxolone, being preferably the gap junction blocker, reduces excitatory synaptic currents through a presynaptic effect, blocks postsynaptic NMDA receptors and potentiates inhibitory synaptic currents through a direct effect on GABA-A receptors. It may also suppress action potentials, decrease input resistance and block calcium channels. Based on that mechanisms, combining those two drugs may open a novel possibility of an effective epilepsy treatment from the preclinical point of view.

Methods: The experiment was carried out on adult Swiss male mice receiving CBX in doses of 75 or 150 mg/kg in combinations with clonazepam. The effectiveness of these combinations was evaluated in the pentylenetetrazol-induced seizures. Briefly, pentylenetetrazol was given subcutaneously in a dose of 100 mg/kg (inducing clonic seizures in 97% of control mice). Each of mouse was observed for 30 minutes starting from the injection of the convulsant. Seizure activity was evident when a whole body clonus lasted for at least 3 seconds with concurrent loss of postural reflex.

Results: The ED₅₀ (a 50% effective dose against seizure activity) for clonazepam alone was 0.031 ± 0.03 mg/kg. Combinations with carbenoxolone (75 or 150 mg/kg) reduced the ED₅₀s of clonazepam to 0.0097 ± 0.03 and 0.004 ± 0.001 mg/kg, respectively which was highly significant ($p < 0.001$).

Conclusions: Evidently, carbenoxolone distinctly potentiated the anticonvulsant activity of clonazepam against pentylenetetrazol-induced convulsions in mice.

Keywords: epilepsy, antiepileptic drugs, seizures, carbenoxolone, clonazepam

TRENDS IN MORTALITY FROM ISCHEMIC STROKE IN THE POPULATION OF BELGRADE

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Introducion: Stroke is the second leading cause of death in the world. In Serbia it is the leading cause of death in female population, and second leading cause of death in male population. The aim of this research was to analyze mortality from ischemic stroke in the Belgrade population, during the period 1987-2013.

Methods: Mortality data (based on death records) for period observed, as well as population data, were obtained at the Municipal Institute of Statistics in Belgrade. Mortality rates were adjusted by direct method using the world population as a standard. Regression coefficient was determined by Fisher's test.

Results: During the period 1987-2013, in Belgrade, standardized mortality rates from ischemic stroke were 38.3/100,000 (95% CI 34.5-42.0) in males, 30.2 (95% CI 26.7-33.8) in females, and 34.1/100.000 (95% CI 30.4-37.8) for total population. The age-specific mortality rates increased with age, up to the age group 85+. Mortality rates from ischemic stroke in Belgrade have statistically insignificant decreasing tendency in men ($y=38.471-0.015x$, $p=0.951$), and women ($y=30.854-0.043x$, $p=0.848$), by linear model.

Conclusions: In Belgrade population, during the period 1987-2013, statistically insignificant decrease of mortality from ischemic stroke has been observed.

Keywords: ischemic stroke, mortality, Belgrade

EDUCATION ON PEDIATRIC EEG AMONG MEDICAL STUDENTS - LUBLIN EXPERIENCE

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Introducion: Electroencephalography is a study that records the electrical activity of the cerebral cortex. This is a record of neuronal communication, and neuronal communication is providing information through transmitting electrical impulses along dendrites and axons as well as chemical impulses using neurotransmitters in synaptic connections between the nerves. Electroencephalography is one of the most important studies in children neurology. It supports clinical diagnosis of epilepsy, helps in diagnosis of status epilepticus, classification of epilepsy and status epilepticus, localization of the epileptic locus, prediction of the recurrent epilepsy and the follow-up of the treatment. Due to the interest of medical students in field of neurological disciplines and broadening horizons in practical pediatric neurology, the Pediatric EEG Training was conducted and its efficacy was measured. The aim of this study is to present the effectiveness of Pediatric EEG training within non-formal education during basic pediatric EEG workshops, held for 53 international students of Medical University of Lublin.

Methods: The Basic EEG workshops was created for students who had particular interest in neurological procedures. The study group included 53 international students, who attended lectures in 10-15 participant groups in year 2014-2016. Both knowledge and students self-confidence were rated before and after conduction of the workshops.

Results: Within pre- and post-questionnaire regarding EEG procedure and indications, 83% increase of knowledge was observed. As for the self confidence performance, 92% of participants confirmed they are confident in reasonable ordering of the examination to their future patients, and 72% of participants feel confident in technical preparation of the examination. Small groups of participants and sufficient amount of time for both theoretical lecture and practical skills training were essential to the significant results and participants' satisfaction.

Conclusions: EEG workshops are a great example of combined theoretical lecture and practical training which supports not only the knowledge improvement, but also the practical skills and teamwork experience for future healthcare professionals.

Keywords: electroencephalography, neurology, medical education

Orthopaedics, Physical Therapy and Rehabilitation

REHABILITATION OF WOMEN AFTER UNILATERAL MASTECTOMY.

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Introduction: Breast cancer is one of the most popular cancer among women. According to the statistics in Poland every year about 10 thousand women and unfortunately nearly half of them die of it. The surgical treatment of this disease saves the patient's life, but leaves its negative effects on the body and psyche. The main aim of this publication is review of the literature and presentation a lot of effective physiotherapeutic methods in unilateral mastectomy.

Methods: The method used in this publication is a review of articles and analysis of available literature about rehabilitation of women after unilateral mastectomy.

Results: By properly selected physiotherapeutic methods we can reduce or avoid Lymphedema, improve mobility joints, muscle strength, body posture and the mental state of our patients. Improving self-esteem, reducing anxiety and better control of feelings leads to improved overall quality of life. Rehabilitation should be started before surgery and continue until the patient recovers. Rehabilitation should include sanatorium treatment. The publications demonstrate the beneficial effect of rehabilitation on patients' health after mastectomy.

Conclusions: Analyzed literature shows that patients who use physiotherapy are in better psychoactive condition than patients no-rehabilitation. What is more the patients have mild pain and their daily life is good. Generally, patients come back to work after treatment and find themselves in their environment. There are not problems with getting referrals for rehabilitation but sometimes the waiting time is too long.

Keywords: breast cancer, rehabilitation, physiotherapy, mastectomy

MEANING OF WEIGHT IN TERMS OF POSTOPERATIVE RESULTS IN TREATMENT OF COXOARTHROSIS

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Introducion: Obesity is worldwide problem and may lead to some serious postoperative complications. Since significant increase in mean-weight is observed in european well developed coutries, high dose of attention shuold be put in describing effects of body mass on patients' therapy

Methods: We examined 123 patients. 100 was finally qualified for the study due to incomplete data. There were divided onto two groups depending on BMI. Statistical analysis was performed using STATISTICA software

Results: There wes an increased risk of need of blood transfusion in group with BMI<25. Morover those patients usually stay longer in hospital. Both correlations had statistical significance ($p<0,05$)

Conclusions: Weight may be considered as an important factor, which shouldbe taken into account in perioperative period of coxoarthrosis treatment

Keywords: BMI, overweight, coxoarthrosis, blood loss, arthroplasty

WHAT CAN WE PREDICT FROM PREOPERATIVE BLOOD TEST IN HIP ARTHROPLASTY?

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Introducion: Preoperative blood tests are commonly used by surgeons and play essential for anaesthesiologists. They are widely spread, easy to perform, and give us quick results. We tried to find some new areas in which blood test could be used in case of hip replacement surgery

Methods: We analysed blood test from 220 patients, from which 193 could have been included into our study. All blood tests were taken from patients of our clinic in perioperative period

Results: We have found some interesting correlations between leukocyte levels and: infection rate, luxation of prothesis component rate, nerve damage and pain assesment. The latter had statistical signicance ($p < 0.05$)

Conclusions: Blood tests provide very wide range of information about patients. Results of our study show that they could have also some predictive value, which could be taken into account in postoperative therapy planning

Keywords: Blood, test, hip, arthroplasty

Paediatrics and Neonatology

IS THERE AN ASSOCIATION BETWEEN HYPOPLASTIC LEFT HEART SYNDROME AND IMPAIRED PRENATAL DEVELOPMENT?

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Introduction: Hypoplastic left heart syndrome (HLHS) is a rare, critical congenital heart disease, which is associated with risk of white matter injury during fetal period and it may cause development of further postnatal complications. Prenatal diagnostics makes it possible to prepare a multidisciplinary team that will take care of children postnatally. The aim of the study was to analyze the biometric profile of fetuses with HLHS (weight, head circumference) and to evaluate size of aortic valve ring. Additionally, early postnatal development of those neonates was analyzed.

Methods: Observational study was conducted, using data of 54 neonates with HLHS born in Department of Neonatology in Katowice from 2002 to 2017. The prenatal examination was conducted on different stages of pregnancy (22nd-39th week). Results of prenatal diagnostics of patients were analyzed retrospectively. The collected data of fetuses and neonates (head circumference and fetal weight) was referred to fetal-infant growth chart. Aortic valve ring diameter was compared to appropriate size of aortic root of healthy fetuses for corresponding gestational age.

Results: 11,11% of neonates (n=6) had appropriate diameter of aortic valve ring for corresponding gestational age. Those children did not develop hypotrophy. 88,89% of neonates (n=48) had decreased aortic valve ring diameter for corresponding gestational age. In this group, head circumference percentile below the 10th percentile was observed in 52,08% (n=25) prenatally and in 45,83% (n=22) postnatally.

Conclusions: Aortic stenosis developed by children with hypoplastic left heart syndrome is associated with lowered head circumference, prenatally as well as postnatally and early postnatal complications.

Keywords: HLHS, hypoplastic left heart syndrome, aortic stenosis, hypotrophy

OCCURRENCE OF ACUTE KIDNEY INJURY IN TERM NEONATES WITH SEVERE PERINATAL PATHOLOGY: ROLE OF THERAPEUTIC PROCEDURES

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Introduction: Term newborns with perinatal pathologies (asphyxia, hypoxic encephalopathy or hemolytic disease) have the kidneys as the most damaged organ. Hence, they are prime candidates for the development of acute kidney injury (AKI). With AKI affecting about 30% of hospitalized neonates, we aim to determine the association of therapeutic procedures with its occurrence

Methods: A comprehensive clinical-paraclinical examination of 95 term newborns with clinical signs of severe perinatal pathology was carried out; 65 of them having disorders of renal function, and 30 – with AKI. The connection between the character of therapeutic procedures and development of AKI was investigated using a logistic regression analysis by calculating the chance correlation (CC) and 95% confidence interval (95% CI).

Results: Postnatal factors increasing the risk of AKI formation and aggravating renal dysfunction in critically ill term babies have been found to be: the use of oxygen therapy with free flow (CC 3,13; 95% CI 1,059-9,225, $? < 0,05$), loop diuretics (CC 15,8; 95% C? 4,035-61,901, $? < 0,05$), medications with inotropic effect (CC 9,0; 95% C? 3,187-25,41, $? < 0,05$), antispasmodic drugs (CC 17,38; 95% C? 3,818-79,117, $? < 0,05$), fresh frozen plasma (CC 5,14; 95% C? 1,548-17,09) against a background of combined antibiotic therapy and application of ventilation support.

Conclusions: The use of therapeutic procedures aggravates unfavourable effects of hypoxic renal lesion and increases the risk of AKI formation in term newborns with severe perinatal pathology, which is associated with oxidative stress, disorders of central and peripheral hemodynamic mechanisms, direct cellular lesions of the glomerular membrane and canalicular nephrothelium.

Keywords: Acute kidney injury, term newborns, mechanical lung ventilation, oxygen therapy, inotrops

PREVALENCE AND HEMATOLOGICAL SYMPTOMS OF RARE CLOTTING FACTORS DEFICITS IN PEDIATRIC PATIENTS

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Introduction: Rare clotting factors deficits may cause clinical symptoms and laboratory abnormalities among patients. That can lead to changes in patient's therapeutic process. Nevertheless, very little scientific studies connected with this subject were performed.

Methods: The examination consisted of retrospective analysis of 172 children admitted to the Department of Pediatric Oncology and Hematology in Białystok for a diagnosis of unspecified coagulation defects (mean age $9,1 \pm 4,7$ years), hospitalized from February 2015 to February 2017. Deficiencies of VIII, IX, XI, XII and von Willebrand (vW) factors were included into the study. APTT, VIII, IX, XI, XII and von Willebrand's clotting factors activities were assessed.

Results: The symptoms were a reason of 104 hospitalizations (60.5%), followed by disqualification from a surgery (27.9%). Clotting factor deficiency appeared in 33.1% children. Among those children, 63.2% presented clinical symptoms, while 72.2% in the group without deficiencies ($p=0,19$). Epistaxis was most frequent clinical symptom of our patients and 119 (69.2%) manifested it. In 84 cases (70.6%) this problem was reported as recurrent. Prolonged APTT was observed among 40 patients (23.3%), out of whom 70.0% had a deficiency of at least one considered clotting factor. Patients with epistaxis had lower frequency of prolonged APTT (33; 33.7%) than without epistaxis (12; 16.2%), $p=0,009$. 22,0% of patients with normal values of APTT had insufficient clotting factors concentration ($p<0.01$). Factor XII decrease was the most common isolated deficiency (38/63 cases; 60,3%) with 48.5% of patients presenting elevated APTT and 54.6% showing clinical symptoms. Second most frequent disorder was factor XI deficiency (11/63 cases; 17.4%).

Conclusions: No significant differences in frequency of observed symptoms among the patients with and without coagulation factors disorders were showed in the research. There is a need to do an extended diagnosis of the symptomatic patient, because after the evaluation of only one factor such as normal APTT we cannot except coagulation disorder. Moreover, some asymptomatic patients with clotting factor deficit can have prolonged APTT and it can result in rescheduling laryngological or surgical procedures. Extending the hematological diagnostics could help avoid postponing medical procedures, additional costs and stress of the patient.

Keywords: rare coagulation disorder, prolonged APTT, XII factor deficiency

EVALUATION OF FREQUENCY OCCURRENCE OF LATENT TUBERCULOSIS IN CHILDREN FROM DEPARTMENT OF PEDIATRIC PSYCHIATRY MEASURED BY QUANTIFERON TB GOLD TEST

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Introduction: Tuberculosis (TB) is a contagious infection responsible for more deaths per year than any other infectious disease. TB can be divided into two groups: active and latent. Unlike to active TB, individuals with latent TB infection show no symptoms. According to WHO about one-quarter of the world's population has latent TB. It's thought that mental disorders and tuberculosis development share the same risk factors. The aim of this project was to establish the frequency of latent TB occurrence in children with a diagnosis of mental illness.

Methods: QuantiFERON-TB Gold (QFT) is a blood test that enable the detection of Mycobacterium tuberculosis. QFT is an interferon-gamma (IFN-gamma) release assay and a modern alternative to the tuberculin skin test (TST, PPD or Mantoux). The detection is based on the release of interferon-gamma (IFN-gamma) from patient T cells after stimulation of a whole blood sample with highly specific TB antigens. Samples were obtained by drawing the blood from a vein in the arm. Subsequently the test was performed according to the manufacturer instructions. In the study 142 children were enrolled (57 boys and 87 girls), average age 13 years old. All data was analyzed and compared according to age, sex and disease.

Results: The occurrence of tuberculosis among patients was at the 6,3% level (9 cases per 142 people). Leading diseases of TB-positive patients were anorexia nervosa and depression. The male:female ratio of patients infected was 0,50 and that reflects almost the ratio in whole group tested (0,67). Unlike our group in general population that ratio is rather reverse.

Conclusions: According to scientific publications the level of morbidity caused by tuberculosis in global population doesn't exceeds 6,9%. Our results compared to general values showed no specific correlation between mental illnesses and developing tuberculosis. However there is no such data in that field among Polish population and careful further testing and analysis can outline some interesting pattern.

Keywords: Mental illness, tuberculosis, QuantiFERON TB Gold

DYNAMICS OF PHYSICAL DEVELOPMENT IN PRETERM BIRTH CHILDREN TREATED WITH VITAMIN D IN PREVENTION DOSES

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Introducion: Physical development is one of the indicators of health status in children. In Ukraine more than 5% of children are born preterm. All preterm children have increased risk of vitamin D deficiency. The aim of the study was to evaluate physical development delays in preterm children when using vitamin D in prevention doses.

Methods: The study group included 30 children, from 6 months to 3 years, who were hospitalized to neurological department of Ternopil regional children's hospital. The criteria for selecting the children for the study were preterm birth, weight at birth less than 2,500 g, absence of seizures and normal level of 25-hydroxyvitamin D. All children were divided into two groups: 1 - included 18 patients who received 800 IU/day of vitamin D and 2 - 12 children that had not been given preventive doses of vitamin D.

Results: The average body weight in children was 2,197+ 245 g, body mass index ranged from 12 to 16 kg/m², growth chart deviation was -2 to -3 sigma. The check up after 3 months revealed that children to 1 year in both groups retained -2 to -3 sigma deviation, but for children aged from 1 to 3 years in the second group it was > -3 sigma. The check up of physical development in children after 6 months showed that in Group 1 the growth chart values were normal in 34 % children, had -1 sigma deviation in 45 % and -2 sigma in 22 %. Not a single child in Group 2 achieved a normal growth chart result, while - 1 sigma was observed in 16 %, -2 sigma in 50 %, and -3 sigma in 34 % of children. Body mass index in Group 1 ranged from 16 to 22 kg/m² and in Group 2 from 12 to 18 kg/m².

Conclusions: There is observed association between availability of vitamin D and physical development in preterm children. Vitamin D in prevention doses helps preterm children avoid or lower risk of physical development delays.

Keywords: paediatrics, vitamin D, preterm children, physical development

MIGHT A RED BLOOD CELL DISTRIBUTION WIDTH (RDW) BE A PROGNOSTIC MARKER IN PEDIATRIC ACUTE LEUKEMIAS?

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Introduction: Red blood cell distribution width (RDW) has been already found as a prognostic marker of many cancer and non-cancer related diseases. It was found to be a useful marker in risk stratification of chronic myeloid and lymphocytic leukemia in adults and a marker of a disease activity in hairy cell leukemia. The aim of the study was to assess diagnostic usefulness of RDW in pediatric acute lymphoblastic and myeloblastic leukemias.

Methods: The present study included 499 healthy individuals and 357 children with newly recognized acute leukemia (including 303 ALL and 54 AML), both boys and girls, aged 0-18 years old. A retrospective analysis of red blood cell distribution width (RDW) and correlation with hemoglobin (Hgb) concentration was performed using Mann-Whitney test, Pearson r-coefficient and ROC analysis. An impact of RDW on survival and relapse rate was assessed by Kaplan-Meier survival analysis. A $p < 0.05$ was considered significant.

Results: RDW in leukemic children was $16.13 \pm 2.39\%$, whereas healthy children had RDW of $13.3 \pm 0.8\%$. There was a significant difference in RDW between leukemic and healthy children ($p < 0.0001$). Interestingly, RDW of AML ($16.83 \pm 0.37\%$) and ALL leukemias ($16.03 \pm 0.13\%$) differed significantly ($p = 0.02$) and was weakly negatively correlated with hemoglobin concentration ($r = -0.27$, $p < 0.0001$). Similar correlation between RDW and Hgb was found for healthy individuals ($r = -0.28$, $p < 0.0001$). RDW had a high specificity and sensitivity for diagnosis of acute leukemia. The area under curve (ROC analysis) was 0.8996. Sensitivity of the test was 82.63% and specificity 88.58% at a cut off value of 14.05%. There was no association between mortality rate or relapses incidences and RDW at a time of diagnosis.

Conclusions: Red blood cell distribution width is not useful in risk stratification in pediatric acute leukemias.

Keywords: RDW, hemoglobin concentration, prognostic marker, pediatric acute leukemia, retrospective analysis, Mann-Whitney test, Pearson r-coefficient, ROC analysis

COURSE OF THERAPY OF HYPOPLASTIC LEFT HEART SYNDROME, HLHS IN COMPARISON TO OTHERS CONGENITAL HEART DISEASES.

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Introducion: Hypoplastic left heart syndrome (HLHS) is a cyanotic, single ventricle congenital heart disease (CHD) that additionally involves mitral stenosis or atresia, aortic stenosis or atresia or hypoplasia of ascending aorta and aortic arch. The essential lifesaving procedure for children with HLHS is Norwood operation that aims to convert the functionally right ventricle to act as left ventricle by implementation of goretex shunt between aorta or right subclavian artery (RCA) and right pulmonary artery (RPA). The following steps of surgical treatment are Glenn operation (attachment superior vena cava to pulmonary arteries) and Fontann operations (connecting the arteries to inferior vena cava). The aim of the study was to compare the course of therapy of HLHS with other CHDs in terms of complications, surgical and pharmacological treatment and number of cardiopulmonary resuscitations (CPR).

Methods: Data considering 112 children CHDs (including 47 with HLHS) both sexes and in variated age was collected using anonymous questionnaire answered by their parents. The statistical analysis involved the frequency tables with percentage value, the descriptive statistics and a parametric (t-Student, Levine test) and nonparametric (Pearson's chi-squared test) tests. Results with $p < 0.05$ were assessed as statistically significant.

Results: All patients with HLHS (100%, $p < 0.05$) underwent averagely 3.02 ± 0.531 operations. Moreover, 95.7% of patients with HLHS underwent 3 stages of operations (Norwood, Glenn and Fontann surgeries). These values are higher when compared to other CHDs. While comparing time of operations- in case of HLHS, surgeries occurred earlier - 83.0% patients had surgery before 14th day of life, 10.6% after several weeks and 6.4% in prenatal period ($p < 0.05$). Statistical difference was not asserted in number of CPR yet in group of HLHS the events occurred more often (57.9% with at least 1 CPR) than in other CHDs (24.3%). Postoperative complications were more common in other CHDs group- 68% for protein losing enteropathy (PLE) and 48.9% for pulmonary hypertension than in HLHS - 4.3% for hypertension and 10.6% for PLE.

Conclusions: HLHS is more demanding syndrome than CHDs in case of postoperative complication, pharmacological and surgical treatment and involves higher number of CPR during its course.

Keywords: HLHS, Norwood operation, Glenn operation, Fontann operation, children congenital heart diseases.

HOW TO FIND SOMETHING THAT IS MISSING? – THE STORY OF RENAL AGENESIS/HYPOPLASIA IN CHILDREN

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Introduction: Renal agenesis is defined as a complete absence of one kidney, whereas renal hypoplasia means its reduced size and nephron number. Originally, these conditions seemed harmless, but now it is known that in some patients they can lead to hypertension and progressive renal insufficiency. For that reason early diagnosis and continuous nephrological care are fundamental.

Methods: The data from medical records of 47 patients (21 girls, 26 boys), hospitalized at the Department of Pediatric Nephrology in Wrocław from 01.2014. to 07.2017., were analysed in terms of clinical picture, age at diagnosis and coexistence of other abnormalities of the genitourinary tract.

Results: The study group comprised 37 patients with renal agenesis and 10 with hypoplasia. Mean age at diagnosis was 2 years 6 months. The diagnosis was put in: newborns (38%), children <1 year (21%), patients between 1 and 5 years (11%) and children \geq 5 years (30%). The indications for the diagnosis among newborns and infants were: prenatal or neonatal ultrasound screening (64%), urinary tract infections (11%) and US performed due to other anomalies. The diagnostic process among children older than 1 year was triggered by abdominal pain (37%), urinary tract infections (26%) and other diseases (21%). In the whole group of patients prenatal US revealed the anomaly in 23% of cases. 19% of children had other congenital anomalies in the urinary tract. 8 patients had positive family history of kidney anomalies. In 3 cases it had impact on early diagnosis.

Conclusions: Despite the vast availability of US investigation, the diagnosis of kidney agenesis/hypoplasia is frequently put accidentally or during investigation of other anomalies. In children under 1 year diagnostic process was triggered by prenatal or neonatal US examination. In children older than 1 year anomalies were revealed due to US performed in diagnostics of abdominal pain and urinary tract infections.

Keywords: kidney, agenesis, hypoplasia, anomalies, diagnosis, prenatal US

Pharmacology, Dietetics and Genetics

BETA-HYDROXY BETA-METHYLBUTYRATE (HMB) SUPPLEMENTATION DURING PREGNANCY AND PERINATAL PERIOD – STATE OF KNOWLEDGE AND FUTURE PERSPECTIVES.

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Introducion: beta-Hydroxy beta-methylbutyrate (HMB) is a diet supplement popular among amateur sportsmen. It is known for its' positive impact on muscle anabolism. It decreases proteolysis in muscle tissue, which plays an important role in the process of muscle regeneration after intensive training. The number of possible medical implications of HMB is still growing. The aim of this review was to find potential applications of HMB in women and infants during pregnancy and/or perinatal period.

Methods: PubMed and Google Scholar search was performed to find studies showing overall outlook on this substance and more detailed view into HMB's usage in pregnant dams and infants of animals.

Results: The most important effect of HMB usage during pregnancy or shortly after birth was increased muscle anabolism in the infants. It might be stimulated by many factors like mTOR signaling pathway, increased activity of GH/IGF-1 axis or elevated blood concentration of some amino acids. This might potentially help infants born with intrauterine growth retardation (IUGR). Other potential benefits are improvement in quality and quantity of colostrum and milk, decreased enamel roughness, which potentially reduces caries risk, positive impact on bones and cartilages or immunostimulating effect. Despite many postulated positive effects, there are no studies on safety of longterm HMB supplementation, especially in pregnancy and perinatal period. Moreover there are results that imply increased peripheral insulin resistance after prolonged supplementation of HMB.

Conclusions: There is a huge potential in HMB usage in numerous health states, also in pregnancy and perinatal period especially in infants with low birth weight, but further investigation is needed to estimate benefits to risk ratio and introduce specific guidelines.

Keywords: ?-Hydroxy ?-methylbutyrate supplementation, low birth weight, muscle metabolism, prenatal programming

DOES CARBENOXOLONE, AN ANTAGONIST OF GAP JUNCTIONS, AFFECT THE PROTECTIVE ACTION OF GABAPENTIN (AN ANTIPILEPTIC DRUG) IN CHEMICALLY-INDUCED SEIZURE TEST IN MICE?

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Introduction: Brain is the most complex structure of human body.[1] Seizure activity starts from abnormal, excessive and synchronized neuronal discharges.[2] Number of people suffering from this disease reaches 60 million, moreover 30% of them is drug resistant. For all of them, there should be a chance to efficiently cure epilepsy. Consequently, novel and innovative methods of treatment need to be discovered. Pentylenetetrazol (PTZ) is an agent used to study seizure phenomena, as well as to identify pharmaceuticals that may control seizure susceptibility. It triggers seizure attacks by blocking the GABA-A receptors[3], as well as increasing intraneuronal calcium and sodium influx.[4] Carbenoxolone (CBX), apart from the blockade of gap junctions, affects GABA-A receptors by decreasing inhibitory synaptic signals via direct influence on these receptors and also reduces glutamate-induced events mediated by ionotropic glutamatergic receptors.[5] It blocks calcium channels, decreases input resistance and stops action potentials.[6] Gabapentin (GBP) was originally synthesized as a GABA analogue.[7] It has no affinity neither to GABA-A nor GABA-B receptors, not influences the neural uptake of GABA, and does not inhibit GABA transaminase.[8] However, this drug was documented to inhibit L-calcium channels through its binding to the alpha2delta subunit of the channels and reduce the synthesis of glutamate.[9]

Methods: Swiss male mice were used. The animals received CBX in doses of 75 and 150 mg/kg, combined with GBP. Both substances were injected intraperitoneally. After drug application, seizure activity was induced by PTZ (at its convulsive dose of CD97, i.e. producing seizure activity in 97% mice) subcutaneous injection. The animals were observed for 30 min for the occurrence of clonic seizure activity. The anticonvulsant activity of GBP was expressed in the form of its ED50 values, i.e. doses necessary to protect 50% of mice against seizure activity.

Results: CBX in doses of 75 and 150mg/kg, combined with gabapentin, has not changed its anticonvulsant activity.

Conclusions: Carbenoxolone, an antagonist of gap junctions, has not modified the anticonvulsant potential of gabapentin against PTZ-induced convulsions in mice.

Keywords: epilepsy, carbenoxolone, gabapentin, pentylenetetrazol

THE INFLUENCE OF CARBENOXOLONE, AN ANTAGONIST OF GAP JUNCTIONS, ON THE ANTICONVULSANT EFFECT OF VALPROATE IN PENTYLENETETRAZOL SEIZURE MODEL IN MICE.

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Introduction: Epilepsy is one of the most frequent neurological disorders. In spite of many modern drugs introduced into treatment, there are about 30-40% of patients, whose epileptic seizures are not satisfactorily controlled. Consequently, experimental studies are aimed at finding novel substances able to efficiently interact with antiepileptic drugs (AEDs) in AED-resistant patients. Carbenoxolone (CBX) is an inhibitor of 11 beta-hydroxysteroid dehydrogenase and gap junctional intercellular communication. Formerly, it was used in the treatment of peptic ulcer disease. The recent data show that gap junctions play a significant role in pathogenesis of a number of neurological disorders, including epilepsy. On the other hand, there are data indicating that gap junction inhibitors are generally able to increase seizure threshold and enhance the anticonvulsant effect of some AEDs in seizure models in mice. Valproate is a classical antiepileptic drug. It has a broad spectrum of anticonvulsant activity and it is widely used as a first-line treatment for many types of seizures.

Methods: The experiment was carried out on Swiss male mice. In the first step, CBX dose was determined in the convulsive threshold test. Next, CBX was administered to mice in doses of 75 mg/kg and 150 mg/kg. The control group received valproate 30 min before the convulsive test, while the experimental groups received valproate in combination with CBX. After drug application, the seizure activity was induced by administration of pentylenetetrazol, an antagonist of GABA A receptor at its CD97 (a dose responsible for the induction of seizure activity in 97% of mice).

Results: CBX in doses of 75 mg/kg and 150 mg/kg did not modulate the protective effect of valproate in pentylenetetrazol seizure model.

Conclusions: The results obtained indicate that blockade of gap junctions has nothing to do with the expression of the anticonvulsant activity of valproate.

Keywords: epilepsy, valproate, carbenoxolone, anticonvulsant activity, gap-junctions, pentylenetetrazol-induced seizures

RESEARCHING OF THE HYPOGLYCEMIC ACTIVITY OF THE DRY EXTRACT OF HEMEROCALLIDIS FULVAE BULBOTUBERA IN EXPERIMENT

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Introduction: Phytotherapeutic treatment and prevention of diseases recognized by scientific medicine and has quite a reasonable basis - biologically active chemical components of medicinal plants, can affect physiological processes in the body. *Hemerocallis fulva* L. - a perennial herb with a powerful creeping rhizome roots with storing rootbulbs. The dry extract of rootbulbs of *Hemerocallis fulva* L. was obtained by water extraction, it is a uniform crystalline powder creamy yellow color, sweet-spicy-salty taste, with a slight pleasant aromatic odor, soluble in water. The chemical composition is characterized by high content of inulin (46.8%). The aim of the work was to measure hypoglycemic effect of the dry extract of rootbulbs of *Hemerocallis fulva* L. in acute and chronic hyperglycemia in rats.

Methods: Materials and methods. Experiments were performed on 96 white nonlinear female rats with weight 190-230 g. Acute hyperglycemia was performed by injection of 40% glucose solution at a dose of 3 g / kg. Chronic hyperglycemia was made by dexamethasone administration at a dose of 0,125 mg / kg for 14 days. Blood glucose levels measured by the glucometer. Rats were divided into 4 groups for 7 animals in each. The first group - intact, the second group - dexamethasone without correction (control), the third - the dry extract of rootbulbs of *Hemerocallis fulva* L., the fourth group - dexamethasone + the dry extract of rootbulbs of *Hemerocallis fulva* L., which was introduced in conventionally effective dose, which was determined in conditions of acute hyperglycemia.

Results: Our results showed that the dry extract of rootbulbs of *Hemerocallis fulva* L., which was administered on a background of acute hyperglycemia in rats caused a dose-dependent hypoglycemic effect, the intensity of which increased in the range of doses from 50 to 150 mg / kg. Further dose escalation (175, 200 mg / kg) wasn't accompanied by noticeable increasing of the investigated effect. Therefore, for further research was selected the dose of 150 mg / kg. Those group which received dexamethasone for 14 days had increasing in glycemia for 47,2 % comparing with baseline. Group (without hyperglycemia) which received dry extract, practically didn't show hypoglycemic effect (only 5.63% compared to baseline). But those group who had dexamethasone hyperglycemia, which received the dry extract, had significantly lower level of glycemia, for 23.9% compared to baseline. The results showed that simulation of chronic hyperglycemia caused significant lipid metabolism disorders (Unsaturated fatty acids and Triglycerides) and increasing of an atherogenic potential (increasing of Total cholesterol level and Low density lipoprotein, with simultaneous decreasing of Low density lipoprotein) in group with dexamethasone hyperglycemia. The dry extract of rootbulbs in a conventionally effective dose statistically reduced detected changes. It was found that the dry extract of rootbulbs possessed a powerful cytoprotective effect because, on the background of its administration, were reduction of the activity of both aminotransferases (Aspartate aminotransferase activity and Alanine aminotransferase activity). What is more another positive effect of the dry extract of rootbulbs is its anti-oxidant effect. On the background of pathology without correction, were observed significant increasing in lipid and protein peroxidation indexes (Level of malondialdehyde and Level of protein carbonyl groups). While in the group which were treated with dry extract, this growth was statistically significantly lower.

Conclusions: The dry extract of rootbulbs of *Hemerocallis fulva* L. has a clear hypoglycemic properties both in acute and chronic hyperglycemia, as well as antiatherogenic, antioxidant and cytoprotective properties and can be recommended for further study as prospective hypoglycemic remedy

Keywords: phytotherapeutic treatment, *Hemerocallis fulva* L., dexamethasone hyperglycemia, hypoglycemic, antiatherogenic, antioxidant, cytoprotective, remedy.

THE INVESTIGATION OF ANTICONVULSANT ACTIVITY OF DECAHYDROQUINOLINE DERIVATIVES IN A MODEL OF ACUTE NICOTINE POISONING

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Introduction: Nowadays the possibility of using nicotinic receptor antagonists in practical medicine is a perspective direction in experimental and clinical pharmacology. There is a hypothesis that the search for new inhibitors of nicotinic receptors located in the dopaminergic neurons is a priority direction for effective overcoming nicotine addiction.

Methods: The study was performed on white mice. Four indicators of acute nicotine intoxication (the latent period, strength and duration of the convulsions, the duration of intoxication) were recorded. We investigated anticonvulsant activity of 10 decahydroquinoline derivatives in a model of acute nicotine poisoning. The examined compound was injected subcutaneously in a dose of j predicted in silico LD50 per kg of weight, the animals of the control group were injected a corresponding amount of saline solution. After 30 min. nicotine was injected subcutaneously in a dose of 10 mg/kg (0.1% solution). The study of active compounds anticonvulsant activity was also conducted in compare with diazepam (j LD50).

Results: The compound PAS-66 has had the pronounced N-anticholinergic properties, i.e. this compound is able to prolong the latent period of nicotine intoxication ($p < 0.05$), and also has the ability to shorten the duration and strength of nicotine intoxication ($p < 0.05$). In the comparative study of PAS-66 anticonvulsant activity with diazepam it was found that the anticonvulsant activity of PAS-66 exceeded that of diazepam ($p < 0.05$) in indicators of the latent period, convulsions strength and duration, intoxication duration.

Conclusions: The obtained data can serve as a basis for further purposeful study of PAS-66 as a potentially perspective compound for correction of pathological conditions with excessive activation of N-cholinergic processes.

Keywords: anticonvulsant activity, nicotine intoxication, decahydroquinoline, PAS-66

CHEMICAL COMPOUNDS AND ACTIVITY OF LACTARIUS (L.) GREY.

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Introducion: Lactarius deliculosus comonly known as saffron milk cap is one of tthe European mushrooms valued for its intense taste and aroma. In addition to its exceptional taste, its constitute o source of many biologically active compounds, demonstranding valuable pharmacological properties. aim of study was reviewing data from scientific database on the chemical composition and activity of L. deliciosus

Methods: The following databases were used in the study: Scopus, Science Direct, Web of Science, PubMed. Lactarius deliculosus useded as keywords for searching all databases.

Results: following number of records were found in databases PubMed: 59 Scopus: 162 Web of Science 179 Science Direct 447 Avilable data indicate that a lot of compounds for Lactarius deliciosus have been detected. Several antioxidant phenolic acids have been isolated or confirmed, which are important for anti-cancer prophylaxis. Polysaccharides contained in the fungus exhibited antitumor and immunostimulatory effects. Polyols, amino acids, fatty acids and azulene compounds and other substances have also been found in L. deliculosus

Conclusions: Lactarius deliciosus Contains many chemical ingredients with the desired pharmacological properties. The immunostimulatory, antitumor and antiradical compounds can be used to produce new anti-tumor preparations. However, futher research ery for comprehensive study of composition and biological activity of this mushroom species.

Keywords: Lactarius deliciosus. Chemical compounds.

Poster Session

ANALYSIS OF CHEMICAL COMPOSITION AND ANTIRADICAL ACTIVITY OF RHODODENDRON LUTEUM

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Introduction: The genus *Rhododendron* includes more than 1000 botanically identified species. Many of them were not studied for their biological properties and content of bioactive molecules. Some studies of Turkish *Rhododendron* species have revealed that they contain plenty of compounds, which could be potentially used for medical purposes. In view of the evidences of pharmacological activity of *Rhododendron* genus, it was decided to analyze total phenolic content, total flavonoid content and antioxidant activity of Polish *Rhododendron* species.

Methods: Leaves of *Rhododendron luteum* were collected in Wola Zarczycka (Poland) in June 2017. Different extracts from the plant material were prepared using ASE System (Accelerated Solvent Extraction System), 80% and pure methanol at 40°C and 80°C. Total phenolic content was assayed on microplates by the modified Folin-Ciocalteu method. The results were expressed as mg of gallic acid per mg of dry matter. The flavonoid content was determined according to the method described by Lamaison and Carret with some modifications. The results were expressed as mg of quercetin per 1 mg of dry matter. Radical scavenging activity of extracts was assayed using DPPH spectrophotometric method. All tests were carried out in triplicate and averaged.

Results: *R. luteum* extracts exhibited high content of polyphenolics includes flavonoids and antioxidant activity.

Conclusions: Results indicate that extracts from *R. luteum* leaves are rich source of polyphenolics, with flavonoids constituting considerable part of them. Moreover, extracts present the high ability to scavenge DPPH (2,2-diphenyl-1-picrylhydrazyl) radical. It was also established that content of polyphenolics and antiradical activity depend largely on temperature and solvent used in the extraction process.

Keywords: *Rhododendron luteum*, phenolics, antioxidant activity

INFLUENCE OF DUODENO-JEJUNAL OMEGA SWITCH (DJOS) AND DIET ON GLUCOSE-DEPENDENT INSULINOTROPIC PEPTIDE AND GLUCAGON-LIKE PEPTIDE-1 LEVELS IN SPRAGUE-DAWLEY RATS.

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Introduction: Introduction: GLP-1 and GIP are metabolic hormones ameliorating insulin secretion. They are released from the digestive tract into the circulatory system in response to consumption. GLP-1 stimulates insulin release from pancreatic beta-cells and inhibits glucagon secretion from α -cells. GLP-1 is also known to improve peripheral insulin sensitivity and promotes beta-cell proliferation. It is widely known that high nutrition diet and bariatric surgery stimulate strong secretion of GIP and GLP-1.

Methods: Seven-week old male SD rats (n= 48) were randomly assigned to two groups fed differently for one month before surgery-the control group (DK) was on normal chow diet (n=24) and the second group was fed a high fat diet (HFD). In the first stage of the surgery there was transection conducted distal to the duodenal bulb. Distal part of transected duodenum was stitched. Second incision was performed in one-half of the total small intestine. Then an isoperistaltic end-to-end anastomosis was performed between duodenal bulb and selected loop. During the preoperative and postoperative period the body weight, GIP, GLP-1 and body mass were measured.

Results: After DJOS surgery α GIP was statistically significantly lower ($p < 0,05$) in the CD/HF group compared with the HFD/HFD group. After SHAM surgery the α GIP value was statistically significantly lower ($p < 0,05$). for the CD/CD group compared with the other groups and between the HFD/HFD and CD/HF groups Only the CD/HF group showed statistically significant changes ($p < 0,05$) of α GIP after SHAM and DJOS surgery.

Conclusions: Statistically significant changes of almost all analyzed parameters were observed in the CD/HFD groups following both, DJOS and SHAM surgery. It may suggest that change of diet affects all these parameters, independently of performed surgery. However, this type of surgery showed to be fundamental for the GLP-1 serum concentration. GLP-1 levels increased following DJOS irrespective to body weight change.

Keywords: DJOS, metabolic surgery, obesity, incretines

THE PATIENTS' QUALITY OF LIFE 1,5 YEARS AFTER SUPPLEMENTARY RADIOTHERAPY - EORTC QLQ-C30 SURVEY

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Introduction: According to the Polish National Cancer Registry head and neck cancers (HNC) are increasing diagnostic and therapeutic challenge. A cancer diagnosis and its treatment, like surgery, chemo- and radiotherapy (RTH) may be a reason of physical and psychological problems, like acute and late radiation sequelae and psychological distress. The care of the HNC patients should be comprehensive – therapeutic team should contain not only oncologist, but also psychologist and physiotherapist. Objective and subjective assessment of patient's quality of life is essential to provide full health recovery. Aim of the study was to investigate HNC patients' psychological condition after RTH.

Methods: The data was collected prospectively during follow up visits. Twenty-eight patients from the Białystok Oncological Centre were included, who were at least 18 months after RTH cessation. The EORTC QLQ-C30 questionnaire was used.

Results: Most of patients had little trouble taking a long walk (57%). 91% of patients after treatment didn't need help with essential activity (eating, dressing, using toilet). Furthermore, majority of patients (74%) didn't feel limited in doing own work, daily activities and in perusing hobbies. 60% of patients reported persistent pain. Half of the patients (51%) had trouble with sleeping. Survivals admitted that they feel a little (57%) and quite a bit (12%) weaker in comparison to the time before treatment. Almost 61% felt chronic fatigue in past two weeks, 47% were depressed. Half of the patients (54%) admitted that physical condition and medical treatment interfered with family life, 38% claimed that therapy caused financial difficulties.

Conclusions: The analysis showed that patients' everyday activities are moderetary limited. Due to mental health issues, patient after RTH need more psychological counsel and care.

Keywords: Quality of life, Head and neck cancer, Assessment, Questionnaire, Validation, EORTC QLQ-C30

THE ARTIFACTS IN 99MTC-MDP BONE SCINTIGRAPHY A MONTH AFTER 131I TREATMENT- CASE REPORT.

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Background: A bone scintigraphy is a nuclear medicine study that most commonly uses Technetium 99m methylene diphosphonate (MDP) as an active agent. This technique helps to diagnose different bone diseases, such as: skeletal cancer or metastasis, inflammation, fractures and bone infection. Therapy with 131I is one of the treatment methods for multinodular thyroid goitre causing hyperthyroidism. The possibility to perform scans using other radiopharmaceuticals after 131I therapy depends on the effective half-life and established activity of radioiodine.

Case Report: A 70-year-old woman with multinodular thyroid goitre and subclinical hyperthyroidism was admitted to Department of Nuclear Medicine in Lublin on 2nd November 2015 and qualified for radioiodine treatment 131I. On 12th November 2015 the patient was treated with radioiodine 131I capsule with an activity of 444 Mbq (12 mCi). The dose of radioiodine was calculated using Marinell formula, which took into account such factors as: diagnosis, a mass of thyroid gland and a half-life of radioisotope. On 15th October 2015, exactly 33 days after radioiodine treatment, the patient came back to Department of Nuclear Medicine with a suspicion of knee arthritis. A three-phase and a whole body 99mTc-MDP bone scan was performed. Despite one month break and a usage of collimator for low-dose molecular imaging, an increased intake of radioisotope was observed in a region of neck that responded to diffuse radiation of thyroid gland. In three-phase 99mTc MDP scan of knee joints no artifacts were found.

Conclusions: This case shows that even 33 days period between 131I treatment and 99mTc-MDP scan can not be enough. We recommend to enlarge this period for few weeks longer.

Keywords: 99mTc-MDP bone scan, 131I treatment, scintigraphy artifacts

PMA AND CALCIUM IONOPHORE INDUCE NEUTROPHIL EXTRACELLULAR TRAPS FORMATION IN REACTIVE OXYGEN SPECIES-DEPENDENT AND NF-KAPPA B INDEPENDENT MANNER.

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Introducion: Neutrophil extracellular traps (NETs) are one of anti-microbial strategies employed by neutrophils. Although the mechanism of NETs formation remains poorly understood, some authors underline the immense role of reactive oxygen species (ROS) in this process. It has been shown previously that oxidative burst can induce NF-kappaB as well as p38 MAP kinase activation, which in turn leads to changes in gene expression and cell metabolism. However, the involvement of these pathways in NETs release has not been thoroughly tested so far. The aim of this study was to evaluate the role of ROS, p38 kinase and NF-kappaB pathway activation in NETs formation.

Methods: Neutrophils were isolated from blood of healthy donors using density gradient separation method. NETs formation was stimulated by the phorbol myristate acetate (PMA) and Calcium Ionophore A23187 (CI). Some samples were preincubated with ROS, NF-kappaB or p38 inhibitors/scavengers (DPI- NADPH oxidase inhibitor; NAC-ROS scavenger; parthenolide – NF-kappaB inhibitor; p38 MAP kinase inhibitor). NETs release was assessed qualitatively (fluorescent microscopy) and quantitatively (DNA release by fluorometry).

Results: NAC significantly inhibited PMA- and CI-induced NETs release (PMA: 95265 ± 5243 , PMA+NAC: $2375 \pm 630,4$; CI: 86987 ± 5129 , CI+NAC: $2322 \pm 801,9$; mean \pm standard error; relative units of fluorescence), while DPI significantly inhibited only PMA-induced NETs release (PMA: 95265 ± 5243 ; PMA+DPI: 28987 ± 5505).

Conclusions: We conclude that both PMA and CI induce NETs formation in a ROS-dependent manner, but only PMA-induced process requires NADPH oxidase activity. Moreover, activation of MAP 38 kinase and NF-kappaB transcription factor is not necessary for the release of NETs upon PMA nor CI induction.

Keywords:

THE ANTIOXIDANT POTENTIAL OF SELECTED EXTRACTS FROM LAETIPORUS SULPHUREUS (BULL.: FR.)

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Introduction: *Laetiporus sulphureus* (Bull.: Fr.) commonly known as “Sulphur Shelf” or “Chicken of the Woods” is popular wood-rooting fungus which belongs to the Polyporaceae family. It constitutes an edible species growing wild in forests as well as urban areas. Due to the beneficial properties *L. sulphureus* possess a long history of using as natural health-promoting food by traditional practitioners. However, the chemical composition of this mushroom has not been fully investigated.

Methods: The aim of our study was determination of the total phenolic content (TPC) and antioxidant potential of extracts from *L. sulphureus*. The extractions with four different water – ethanol proportions were performed using an accelerated solvent extraction system (ASE). Extractions were conducted at three different extraction temperatures (40, 100, and 180°C) with water and three ethanol concentrations (50, 70 and 100%). All colometric measurements were conducted on 96-well transparent microplates using an Elisa Reader Infinite Pro 200F. The TPC was assayed by the modified Folin- Ciocalteu method. The absorbance was measured at 680 nm after 20 min using an Elisa reader with the solution containing water instead of the Follin-Ciocalteu reagent as a blank. The results were expressed as mg of gallic acid per mg of dry extract. The antioxidant activity was measured using a DPPH• radical scavenging assay. Freshly prepared DPPH• colored solution in methanol were mixed with extracts of different concentrations in 96-well microplates. The solution were shaken and incubated for 60 min in the dark. A decrease in DPPH• absorbance induced by the sample was measured at 517 nm using an Elisa reader.

Results: Biologically active ingredients of *L. sulphureus* exhibit antioxidant activity

Conclusions: Obtained results suggest that *L. sulphureus* (Bull.: Fr.) extracts contain polyphenols which may be responsible for the antioxidant effects.

Keywords: pharmaceutical botany, antioxidant activity, total phenolic content,

UTILITY OF SEMEN CULTURE IN DIAGNOSIS PROCESS OF CHRONIC BACTERIAL PROSTATITIS - RETROSPECTIVE ANALYSIS OF MICROBIOLOGICAL PROFILE, ANTIBIOGRAMS AND CLINICAL UTILITY.

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Introducion: Chronic bacterial prostatitis is a significant clinical problem with numerous laboratory and microbiological studies in order to designate the most optimal treatment. Although infrequent used, semen culture is the possible way to choose in diagnostic process. The aim of this study was to define the most common types of bacteria found in semen culture in men diagnosed with chronic bacterial prostatitis, as well as their sensitivity to antibiotics found in antibiograms and clinical utility of semen cultures itself.

Methods: All patients treated in the Out-Patient Urology Department who had semen cultures taken from January 2012 till December 2016 and had a complete history and physical examination with follow up, were analyzed retrospectively. All pathogens were analyzed in contrast to antibiograms to commonly used antibiotics and treatment success. Data about crucial clinical information was obtained including age, clinical diagnosis, semen culture result, antibiogram and the therapeutic effect.

Results: Full clinical data was obtained in 56 men with median age 45 years (range 21 to 77). The most common pathogens were *Enterococcus faecalis* in 25.9% of cases, *Escherichia coli* 22.2%, *Pseudomonas aeruginosa* 11.1%, *Proteus mirabilis* 7.4%, *Klebsiella pneumoniae* 7.4%. Gram negative bacteria accounted for 60.7% of cases. Among pathogens found in semen cultures, all the pathogens were sensitive for carbapenems and gentamicin. Resistance to Ciprofloxacin was observed in 31.6% of pathogens, cotrimoxazol in 25.0%, levofloxacin in 20.0%, cefuroxime 16.7%, ceftriaxone 27.3%.

Conclusions: Semen culture results can potentially help us in the chronic bacterial prostatitis treatment process. In case of severe infections carbapenems or gentamicin seems to be a good therapeutic modality, due to a very low antibiotic resistance. As for commonly used antibiotics there is a high risk of resistance, therefore targeted therapy is preferred. Unfortunately, in over half of semen cultures contamination was detected.

Keywords: urology, prostatitis, antibiograms, microbiological profile,

INTENSIVE TREATMENT INCLUDING EXTRACORPOREAL MEMBRANE OXYGENATION IN PATIENT WITH ADVANCED STAGE OF ESOPHAGEAL CANCER.

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Background: Among many other procedures provided to the patient on the ICU, airway management seems to be the most important. Extracorporeal Membrane Oxygenation (ECMO) is the modified technique of the extracorporeal circulation. It is instituted for the management the life-threatening pulmonary or cardiac failure. However the veno-arterial configuration of ECMO is commonly used in cardiosurgery in many situations such as post-operative cardiogenic shock, the veno-venous ECMO, especially in Poland, is not that common. The main indication for using V-V ECMO is pulmonary failure due to ARDS, pneumonia or trauma, and premature neonates for treating immature lungs. V-V ECMO involves peripheral cannulation using femoral and internal jugular vein.

Case Report: The following case-report describes the 48-year old patient admitted to the intensive care unit after esophagectomy due to advanced stage of planoepithelial esophageal cancer. He presented the symptoms of respiratory failure, due to hypotension the patient was given catecholamines, he was kept in analgosedation using fentanyl and propofol. On day 2. Patient was extubated, there was no need to administer catecholamines anymore, the patient was stable, verbally responsive. On day 3. the patient presented sudden crash of respiratory efficiency, after endoscopy he was diagnosed with necrosis of the stomach. He was qualified for the surgery and after that he came back to the ICU. Due to the constant pulmonary failure he was qualified for V-V ECMO. After 4 days of ECMO the patient regained the full respiratory efficiency. During them the patient didn't manifest any side effects of the treatment. On day 5. the patient was extubated and kept the right saturation on his spontaneous breath.

Conclusions: Post-operative ARDS is a common complication in patients with advanced stage of cancer. As it turned out careful manipulation of mechanical ventilation, and use of ECMO in the proper setting was life-saving.

Keywords: ECMO; ARDS; extracorporeal membrane oxygenation; esophageal cancer; intensive care; airway management; extracorporeal circulation; acute respiratory distress syndrome

THE DRUGS AFFECTED BY THE LACK OF ACCESSIBILITY IN POLAND: AN ANALYSIS OF THE MARKET AFTER THE REVISION OF THE PHARMACEUTICAL LAW

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Introduction: The risk of medicines' shortages is a serious problem for the public health sector, and especially for patients. Due to the role of parallel export mechanism in increasing risk of drugs shortages, in 2015 the Pharmaceutical Law was changed, limiting the ability to export medicines to avoid lack of the availability of drugs. So far, the effectiveness of the legislative changes has not been fully investigated. The aim of the study was to analyse the trends in the individual substances and ATC groups, as well as the identification of the groups of medicines especially threatened by the lack of availability.

Methods: Data was obtained from 15 notices announced by the Minister of Health and published in the Journal of Laws in the period from July, 2015 to September 2017. A total of 2. 828 medicines (including medicinal products, as well as food for special medical purposes) mentioned in notices were used in further analysis.

Results: The biggest risk of medicines' shortages on the Polish market was connected with antineoplastic and immunomodulating agents, drugs used in respiratory system diseases, drugs acting on blood and blood forming organs. The lowest risk was noticed in the group of antiparasitic drugs. In the context of the examination of the active substances, major shortcomings have been observed in the group of low molecular weight heparines, methotrexate, budesonide and human insulin. From 2016 has been noticed restriction's growth in availability to oxaliplatin.

Conclusions: Despite the changes in Pharmaceutical Law, lack of availability of drugs still remains at a constant level. The identification of the main ATC groups and active substances included in the notices of the Ministry of Health should be the basis for in-depth analysis, which will be able to be a base to the implementation of the innovative and effective security mechanisms in Polish trade to protect Poland from medicines' shortages.

Keywords: medicines shortages, ATC groups, parallel export, Pharmaceutical Law

CONGENITALLY MISSING TEETH (HYPODONTIA) IN PAEDIATRIC PATIENTS – CLINICAL CASES

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Introduction: Hypodontia is the most commonly registered developmental anomaly in the human dentition. It is a congenital tooth agenesis, which may occur separately or coexist with congenital defect syndroms. The aetiology of hypodontia is multifactorial, nevertheless the most common aetiologic factors are genetic defects. The aim of the study was to present clinical cases of congenitally missing teeth in paediatric patients.

Methods: Patients aged 10-16 years were admitted to the Department of Paediatric Dentistry of the Medical University of Lublin for dental treatment. Detailed diagnostics including medical and dental history and clinical dental examination were performed. We observed some missing permanent teeth or persistent deciduous teeth in the dental arch after physiological term of eruption of permanent teeth, which prompted us to perform a thorough radiological diagnostics.

Results: Based on the radiographs we diagnosed in our patients congenitally missing teeth: maxillary lateral incisors, maxillary and mandibular second premolars and third molars. Detailed history revealed the incidence of hypodontia in the family of our patients, which confirmed the heredity of this dental anomaly.

Conclusions: Lack of permanent tooth in the dental arch after physiological term of eruption should always lead dental professional to perform a thorough radiological diagnostics. Treatment of patients with congenitally missing teeth requires multidisciplinary approach.

Keywords: congenitally missing teeth, hypodontia, tooth agenesis

MYASTHENIA GRAVIS COMPOSITE SCALE AS A USEFUL CLINICAL IMPLEMENT TO MONITOR THE COURSE OF MYASTHENIA GRAVIS. SINGLE CENTER TRIAL.

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Introducion: Myasthenia Gravis (MG) is an autoimmune disease with a variety of symptoms related with a dysfunction of neuromuscular conductivity. Due to its progressive nature an objective assessment of patient's status is crucial for his quality of treatment but, at the same time, is extremely hard to achieve. The solution of the problem turn out to be Myasthenia Gravis Composite (MGC), which was accepted as a reliable implement to monitor the course of the disease. Its main advantage is that through a cooperation between a doctor and the patient the scale gives the possibility to optimize in clinical language and grades subjective symptoms felt by the patient. The aim of our study was to monitor clinical changes in polish population of patients diagnosed with myasthenia gravis using Myasthenia Gravis Composite.

Methods: The study group consisted of 50 patients who were treated due to myasthenia gravis in Public University Hospital in Zabrze in 2016. The status of patients was assessed twice a year, with a six month time interval.

Results: The results achieved during the second assessment of patients with myasthenia gravis were statistically significantly higher compared to the outcome from the first assessment ($p < 0,05$). Changes in neurological examination were observed in 77% of patients and the symptoms of muscle apocamnosis increased 43%. 17% of patients reported an intensification of double vision. Changes in clinical status with myasthenia gravis made a meaningful impact on treatment ($p < 0,05$). 34% of patients have pirydostygmine dose increased however 19% of the study group needed to reduce a dose of this medicament. The results received through the patients correlated with the severity of the disease.

Conclusions: Adjusted and complex medical care with myasthenia gravis patients is possible due to selected and recurrent assessment methods. Validated into polish MGC scale is the best instrument to monitor myasthenia gravis patients and provide them with accurate treatment.

Keywords: Myasthenia Gravis, MG-Composite, muscles weakness, apocamnosis

EXPRESSION OF GENES ENCODING IAP PROTEINS IN THE PRESENCE OF ADALIMUMAB IN NORMAL HUMAN DERMAL FIBROBLASTS (NHDF).

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Introduction: IAP is a group of proteins that regulate cell apoptosis by forming complexes with other proteins involved in transduction of this process. They consist of two sequence motifs - BIR and RING domains. The IAP family includes XIAP, cIAP1, cIAP2, NAIP, livin and survivin. Adalimumab, an immunosuppressive drug, is a recombinant human anti-TNF- α monoclonal antibody. It is used in the treatment of autoimmune diseases. The aim of the study was to evaluate changes in the expression of genes encoding IAP proteins associated with regulation of apoptosis in skin fibroblasts, depending on the exposure time of the cells to adalimumab.

Methods: The study material consisted of normal human dermal fibroblasts (NHDF) cultured under standard conditions in the presence of adalimumab (8 μ g/ml) for 2, 8 and 24 hours. The expression profile of genes associated with apoptosis was determined with the use of HG-U133A 2.0 oligonucleotide microarrays (Affymetrix). Comparative analysis was performed using one-way ANOVA and Tukey's HSD tests ($p < 0.05$) with the use of the PL-Grid Infrastructure (<http://www.plgrid.pl/en>).

Results: In the study, it was observed that among 335 mRNAs involved in the regulation of TNF- α mediated apoptosis, 128 mRNAs change their transcriptional activity depending on the drug exposure time, including 4 genes encoding IAP proteins: BIRC2, BIRC3, BIRC5 and XIAP. After 2 hours of incubation with adalimumab, an increase in BIRC3 expression was observed while BIRC2, BIRC5, XIAP were downregulated. BIRC2, BIRC3, XIAP demonstrated increased expression after 8-hour drug exposure. All 4 genes were upregulated after 24 hours of incubation with the drug.

Conclusions: Adalimumab has an effect on the transcriptional activity of genes encoding IAP proteins, inhibitors of apoptosis, in NHDF cells compared to control, and the direction of change depends on the exposure time of the cells to the drug.

Keywords: IAP proteins, adalimumab, NHDF

PROINFLAMMATORY CYTOKINE TNF IS INVOLVED IN THE CARDIOVASCULAR RESPONSE TO ACUTE STRESS

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Introduction: Increased levels of proinflammatory cytokines, such as tumor necrosis factor (TNF), are associated with cardiovascular diseases and stress conditions. It is well established that central nervous system is critically involved in rapid adaptations of the cardiovascular system to stress stimuli. A growing body of evidence indicates that TNF contributes to the central control of the cardiovascular system. However, it has not been determined so far if brain TNF affects hemodynamic response to acute stress. Thus, the aim of our study was to investigate if TNF administered into the brain affects hemodynamic response to acute stressor in normotensive rats.

Methods: We performed the experiments in adult male Sprague-Dawley rats, which were implanted with the arterial femoral catheter and intracerebroventricular (ICV) cannula inserted into the lateral cerebral ventricle. In conscious freely moving rats, mean arterial blood pressure (MABP) and heart rate (HR) were recorded during 60 min of ICV pretreatment with sterile saline (5 microl/h) (control group, n=7) or TNF (200 ng/5 microl/h) (experimental group, n=7). Following ICV infusions, the acute stressor in the form of an air jet was applied on the rat's forehead and measurements of MABP and HR continued for 10 min.

Results: Resting MABP and HR did not differ between control and experimental groups. The air-jet stress induced a significant increase in MABP in both groups ($p < 0.05$, Student t-test). However, pretreatment with TNF resulted in a significantly greater increase in MABP in response to the stressor than control conditions ($p < 0.05$).

Conclusions: The findings of our study indicate that intrabrain administration of TNF enhances hemodynamic response to acute stressor and suggest involvement of the cytokine in the brain regulation of the circulatory adaptation to stress.

Keywords: TNF, stress, rats, adaptation, cardiovascular

Public Health

DNA DAMAGE INFLICTED BY HIGH PM2.5 LEVELS AS A POSSIBLE CAUSE OF ONCOGENESIS.

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Introduction: XXI-century is not only the time of unquestionable progress and scientific advancement, but also time of high air pollution. Numerous researchers linked air pollution to increased risk of cancer, asthma and cardiovascular disease. PM2.5 is a type of particulates less than 2.5µm in diameter. According to WHO in 2014 approximately 90% of city inhabitants were exposed to PM2.5 levels exceeding WHO guidelines for air quality.

Methods: PubMed search was performed to identify studies on the possible link between PM2.5 and cancer, 13 high quality studies were identified and analyzed.

Results: A US-wide study by Al-Hamdan et al. estimated that PM2.5 exposure is possibly strong risk factor for respiratory system cancer development in both Caucasians and Afroamericans. Reduced levels of plasma miR-182 and miR-185 after PM2.5 exposure were noted, which may possibly increase the risk of lung carcinogenesis (Liu et al.). Li et al. observed actin cytoskeleton dysregulation and decreased levels of miR-802, which may be another lung oncogenesis risk factors. The capacity of PM2.5 for DNA damage was observed by Sorensen et al., Landkocz et al. and Lai et al. PM2.5 may cause aggravation of DNA damage, G2/M cell cycle arrest and apoptosis of bronchial epithelial cells by activation of HER2/ErbB2 leading to activation of Ras/Raf/MAPK pathway and overexpression of c-Myc (Wu et al.). Borgie et al. suggested a possible link between PM2.5 transition metals and organic compounds content and cumulative DNA damage – possibly leading to carcinogenesis. Zhou et al. and Zhao et al. found that prolonged PM2.5 exposure may lead to P53 silencing by promotor hypermethylation in ROS-Akt-DNMT3B pathway-dependent mechanism. PM2.5 are linked to increased capacity for migration and invasion by hepatocellular carcinoma cells (Zhang et al.). A possible link between ALL and astrocytoma in children and PM2.5 exposure during pregnancy was noted (Lavigne et al.). Yaghjyan et al. suggested possible link between PM2.5 exposure and increased breast density (cancer risk factor).

Conclusions: Many possible mechanisms for PM2.5-related oncogenesis were identified. Although further studies are needed for full understanding the link between fine particulates matter exposure and cancer development seems strong.

Keywords: PM2.5, carcinogenesis, lung cancer, p53

ANALYSIS OF EUROPEAN HBV VACCINATION LEVEL AND MORBIDITY

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Introducion: Hepatitis B virus infects over 300 million people worldwide. It is common cause of liver disease, cancer included. Vaccine against hepatitis B contains HBV surface antigen – HBs. HBs antigen indicated over 6 months confirms chronic HBV infection.

Methods: Aim of the study: Analysis of European HBV vaccination level and morbidity
Materials used for analysis originate from WHO reports and scientific articles.

Results: Three doses of HBV vaccine are recommended by WHO as the most effective prevention against virus infection. In 1990, 4% of European Region population got 3 vaccine doses. 10 years later – 42%. In 2004 – 72% and at last 77% in 2009.. One of the highest percentage of vaccinated people is in Poland (98% of target population in 2009), what causes statistically 0 new cases (per 100 000 population) in 2010-2013. At the beginning of 1990, around 40 incidents were reported. From 1993, the amount of cases has been falling. A vaccination prevalence since 2000 to 2009 was in the same level as 98%. A decrease of new cases of viral hepatitis B was reported in almost all European countries. In Bulgaria: 1990, when vaccination program was applied – 4 new cases in 2012.

Conclusions: The number of people vaccinated against HCV increases. Decrease of hepatitis B incidents is caused by higher immunisation among population. Therefore, decrease of complication is estimated, especially chronic.

Keywords: HBV, vaccine, HBsAg, morbidity, vaccination level, Europe

PERCEPTION OF SEXUAL HEALTH IMPORTANCE BY MEN 65 YEARS OF AGE AND OLDER WITH CORONARY HEART DISEASE IN YEARS 2012-2016.

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Introduction: Taking into consideration common pathogenesis of diseases of cardio-vascular system and erectile dysfunction, significant numbers of men with coronary heart disease (CHD) present erectile dysfunction (ED). It is distinctively noticeable in population of seniors who suffer from CHD. Sexual activity of elderly for a long time was omitted or even stigmatised until custom transformation especially concerning sexual health. Aim of our study was to analyse perception of importance of sexual health by men 65 years of age and older in years 2012-2016.

Methods: Group of 731 male with mean age 70.69 ± 5.11 with CHD undergoing cardiac rehabilitation in 5 medical facilities. Analysis conducted with the use of own questionnaire estimating importance of sexual performance and IIEF-5 questionnaire for assessment of the presence of ED.

Results: In analysed group 93.02% suffered from ED. 25.31% presented severe dysfunction, 19.70% moderate dysfunction, 28.59% mild to moderate dysfunction and 19.43% mild erectile dysfunction. 9.30% patients state that sexual health is not important to them, 17.24% could not delimit their opinion. For 47.88% sexual health is important and for 25.58% very important. In years 2012-2016 number of men, who admit that good sexual health is not important to them, underwent significant decrease ($p < 0.001$) and stand at 14.44%, 13.93%, 6.17%, 6.54% and 3.13%. Number of men who state that sexual health is important or very important increased with statistic significance ($p < 0.001$) and stand at: 64.44%, 66.80%, 72.22%, 76.64% and 91.40%.

Conclusions: In years 2012-2016 number of men 65 years of age and older with coronary heart disease, who perceive sexual health as important or very important has significant increase and number of patient who perceive sexual health as not important significant decreased.

Keywords: erectile dysfunction, elderly patients, sexual health, coronary heart disease, IIEF-5 questionnaire

THE RELATIONSHIP BETWEEN ETIOLOGY AND LOCALIZATION IN NON-GASTRIC MALT LYMPHOMA – THE REVIEW

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Introducion: Mucosa-associated lymphoid tissue- derived lymphoma (MALT lymphoma) is a non-Hodgkin lymphoma. It derives from marginal zone B lymphocytes. Far from being rare, MALT lymphomas account for approximately 8% of all non – Hodgkin lymphomas. These lymphomas may occur at any age with a peak of incidence in the age of 60 years. MALT lymphomas behave clinically as indolent non – Hodgkin's lymphoma with a long disease-free survival and long overall survival. The disease remains localized for long period and has low frequency of progression to high- rate lymphoma (<10%). Localized non- gastric MALT lymphoma is often multifocal, although this may not reflect a truly disseminated disease. Clinical presentation depends upon involved organ.

Methods: We reviewed the literature of the years 2000-2017.

Results: MALT lymphoma is most frequently localized in stomach. However, it has considerable presence in other mucosal sites such as the salivary and lacrimal glands, the bronchi. It is also localized in the organs which are normally devoided of lymphoid tissue, for instance central nervous system, ocular adnexa. MALT lymphomas are associated with microbial pathogens, which indirectly infect lymphoid cells but support their proliferation. *Helicobacter pylori* has been reported to be related to gastric MALT lymphoma, *Campylobacter jejuni* to small intestinal lymphoma (IPSID), *Chlamydia psittaci* to ocular adnexal lymphoma, *Borrelia burgdorferi* to cutaneous MALT-lymphoma, *Chlamydia* species, *Achromobacter xylosoxidans* to pulmonary MALT- lymphoma. Extranodal MALT lymphoma is also associated with hepatitis C virus. MALT lymphomas develop also on a background of autoimmunity. Sjogren syndrome, autoimmune Hashimoto thyroiditis, systemic lupus erythematosus are associated with MALT lymphoma of salivary glands, thyroid, lungs . Characteristic chromosomal aberrations influence the course of disease. The (11;18) translocation, the most frequent one, has been found mainly in MALT lymphoma of stomach and lung. These genetic abnormalities can be responsible for antibiotic resistance.

Conclusions: To summarize, the most common extragastric sites of MALT lymphoma are ocular adnexa, skin and lung, which are caused by microbial pathogens. Their response to antibiotics owns great clinical relevance, because many patients can be treated without chemotherapy.

Keywords: extranodal marginal zone lymphoma, MALT lymphoma, autoimmune disease, microbial pathogens

NURSING STUDENTS AND NURSING ROBOTS – WILL THEY GET ALONG?

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Introduction: Technology is becoming part of a human environment, therefore it is important to integrate assistive technology systems in various fields of the care of older people. In this study we asked nursing students, as the ones who are likely to use soon this technology in their professional career, about their opinions on the use of nursing robots.

Methods: The study was conducted among 40 nursing students studying at Poznan University of Medical Science by means of the Users' Needs, Requirements, and Abilities Questionnaire (UNRAQ). The study was performed as a part of the ENRICHME project (ENabling Robot and Assisted Living Environment for Independent Care and Health Monitoring of the Elderly, financed by the European Union within the Horizon2020 program, 643691).

Results: As for the assessment of the preparedness of older persons for coping with the robot, the vast majority (88,5%) of students viewed older persons as unprepared. Nonetheless, the participants were of the opinion that this can be changed, "training on operation of the robot is necessary," and that the introduction of a robot in the life of an older person should be "gradual, allowing for gaining familiarity, increasing the number of available functions." The statement the robot should be a companion of the older person was rated positively by 38,5% of students only. On the other hand, the statements the robot should be a useful device and the robot should be an assistant of the older person were rated positively more often (94,9% and 84,6% respectively). The participants stated "the robot will not replace [human companionship]" but also "it should not be with the older person 24/7 as it would rather be a kind of supervision than company." As far as the reminding function of the robot is concerned, the reminding about fluids intake gained special attention.

Conclusions: As robotics makes more therapeutic applications available, nursing students, who are likely to be future professional caregivers, should take into account the availability of increasingly intelligent robots and be aware of many ways in which the robots can help meet their future patients' needs.

Keywords: Robots, technology, older people, nursing students

REPRODUCTION MIRACLE OR TEST TUBE BABY? IN VITRO FERTILISATION IN THE EYES OF POLISH UNIVERSITY STUDENTS.

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Introducion: Rather than a medical issue, infertility is seen as a developmental crisis, stressful situation and personal tragedy experienced not only by couples but also by individuals. In vitro fertilization is one of the possible option to realize wish of having a children. This matter is widely discussed by polish society and brings a lot of controversial opinions.

Methods: 9686 students took part in our survey (79,90% women and 20,10% men) in the age bracket 19-35. They were asked to fill the original questionnaire which consisted questions including their personal and demographic data as well as their attitude towards in vitro fertilization. Students were divided into two groups: medical (11,40%) and non-medical (88,60%). A pilot study were conducted on a group of 30 students from Medical University of Silesia.

Results: 54,64% of non-medical students and 58,42% of medical students declare their Roman Catholic beliefs. 89,11% women and 80,74% men consider that IVF should be legal in our country. 70,60% of women and 61,33% of men claim that they would consider this method of therapy in case of own infertility. In the group of medical and non-medical students essential differences in the field of in vitro fertilization, their legality and refundation were not observed. In the group of Roman Catholics only 56,90% would carry out this medical procedure in comparison to 83,25% of students who are not Roman Catholics.

Conclusions: Majority of students think that IVF should not be legally prohibited. Most of them declare that they would consider this kind of medical procedure in case if they have problems with infertility. In the group of students who declare religion affiliation method of in vitro fertilization is less admissible than in the group of non-believers. Women are more tolerant than men in the field of this infertility medical therapy.

Keywords: In vitro fertilisation; Attitude; Students' opinion; Law regulations; Survey;

MERCY PROCEDURE OR NIGHTMARE? ATTITUDE TOWARDS PREGNANCY TERMINATION AMONG POLISH UNIVERSITY STUDENTS.

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Introducion: There is no country in the world in which access to abortion is completely without barriers. Even in the most non-restrictive countries access to abortion services can be limited by structural, logistic, social and economic factors, as well as by religious and ideological beliefs. However we do not have enough data to describe opinion on this matter in different groups.

Methods: There were 9686 people (79,90% women and 20,10% men) from different branch of study who took part in our research. We divide student into two groups: medical (11,40%) and non-medical (88,60%) fields of study. The questionnaire consisted of original questions which were first tested on a group of 30 students from Medical University of Silesia.

Questions about attitude towards abortion in different situations (health problems' or threat to life, rape or social life) were involved in the survey.

Results: 54,64% of non-medical students and 58,42% of medical students declare their Roman Catholic beliefs. Mean age of interviewee were 23 in group of men and 24 in group of women. 90,21% of women and 85,05% of men consider that abortion should be legal in the situation of threat to mother's life, while only 46,60% of women and 35,23% of men accept it in the hard financial situation of mother. 89,61% of people who do not declare religion affiliation approve abortion in the situation of danger to mother's health in the comparison to 54,20% of students who are believers.

Conclusions: Mostly medical and non-medical students stand for abortion in the situation of threat to mother's life or mortal fetus defect as well as in the case of rape. Medical students and women accept abortion in this cases more often than non medical students and men. Less than half of interviewee students in two groups consider that abortion should be legal in hard financial situation of mother or on mother's demand. People who declare religion affiliation more often disagree to abortion even in the hardest cases like danger of mother's life or mortal fetus defect.

Keywords: Abortion; Attitude; Students' opinion; Religious beliefs; Survey;

THE ROLE OF VACCINATION IN CONTROLLING THE SPREAD OF MEASLES. RETROSPECTIVE ANALYSIS OF MEASLES CASES INCLUDING VACCINATION COVERAGE IN POLISH POPULATION IN 2005-2015.

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Introducion: Measles is one of the most infectious human diseases, causing many complications and deaths. Effective vaccines provide the means to prevent this morbidity. In order to create the population immunity by vaccinations, depending on the disease, from 80 to 95% of population must be vaccinated. For example, taking measles into consideration, the amount of vaccinated people should comprise from 90 to 95% of a whole population. High coverage (> 95%) is achieved with both doses of MMR vaccine.

Methods: Measles cases and vaccination coverage in Polish population in 2005-2015 reported in National Institute of Public Health – National Institute of Hygiene were investigated.

Results: The vaccination coverage in Poland with MMR vaccine has been above 95% in the analyzed period of time, but with decreasing tendency: children born in 2005 and 2006 are in 99.8% covered by MMR vaccine, whereas born in 2012 – 98.5%; in 2013 – 97.5%. Poland belongs to the European countries with moderate incidence of measles (0.1-1.0/100 000). In 2005 there were 3 cases of measles registered in Poland (incidence 0.034/100 000). From that time, the number of cases increased (120 cases in 2006) and the tendency is still observed: (100 cases in 2008, 115 – 2009, 84 – 2013). For the 11 years of the analysis, 751 cases of measles were recorded. Most cases were observed in unvaccinated (53%) or incompletely vaccinated (14%) people. In 23.7% no vaccination data were available.

Conclusions: The increase in measles cases and decreasing tendency in MMR vaccination coverage has been observed in Poland in the analyzed period of time. Moreover, more than 50% of cases occurred among unvaccinated or incompletely vaccinated population.

Keywords: measles, vaccination, MMR vaccination

AMYGDALIN – THE CURE OR THE POISON?

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Background: Amygdalin is a derivative of phenylalanine, classified as glycoside. Naturally occurring in seeds of many plants such as almonds (*Prunus dulcis*), quince (*Cydonia oblonga*), bird cherry (*Prunus padus*) and fruit trees in which they are responsible for their bitter aftertaste. It was first isolated in 1830 from bitter almonds by Pierre-Jean Robiquet and Antoine François Boutron-Charlard. The first concepts about its antitumor action appeared in the 1920s. It was also called vitamin B17, although it was incorrect because it did not meet the definition of vitamin. In the human body amygdalin is metabolized to: hydrogen cyanide, benzaldehyde and glucose. It is precisely the cyanide radical is attributed to the alleged inhibitory effect on active tumor cells. The most popular preparation of amygdalin is Laetril, which molecule has been synthesized and patented as antineoplastic remedy in Mexico in 1950. However, since 1979 this product has been considered by the FDA and NCL to be illegal due to its high toxicity and lack of expected therapeutic effects. Despite the ban Laetril is still illegally produced and sold in Europe and the United States. There are several theories about the mechanism of action of amygdalin metabolites on cancer cells, but none has ever been officially confirmed and supported by clinical trials. It is important, however, that cyanides are responsible for the toxic effects of amygdalin, causing a number of side effects that even lead to death. Despite this, interest in this substance is still not decreasing. On the pharmaceutical industry we can find a lot of dietary supplements authorized for sale in pharmacies, which according to the manufacturing company declarations, contain amygdalin.

Case Report: The authors will present the overview of several case reports describing acute and severe cyanide poisoning from taking amygdalin among adults and children. These cases are related to patients who have been diagnosed with cancer, inter alia 73-year-old female with metastatic pancreatic cancer or 4-year-old boy with a history of metastatic ependymoma after intravenous and oral use of “vitamin B17” and also apricot kernel. The case reports have been described in the Polish and foreign scientific journals.

Conclusions: On the basis of the available data, there is neither scientific nor ethical justification for use of amygdalin in the management of cancer. Furthermore, there is a serious risk of cyanide poisoning. Nevertheless, many patients suffering from various neoplasms, in particular metastatic disease, on their own or during the stay in centers of unconventional medicine, take large doses of amygdalin repeatedly. As mentioned above, it could bring serious and even tragic consequences.

Keywords: amygdalin, vitamin B17, laetril, cyanide poisoning

BELIEVES ABOUT DEPRESSION AND HELP-SEEKING BEHAVIOURS IN HIGH SCHOOL STUDENTS GROUP

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Introducion: Depression is the most prevalent mental disorder: it is characterised by symptoms of sadness, lack of interest in routine activities and fatigue. The aim of the study was to investigate high school students' beliefs and knowledge about depression and to find out where they would seek information and help if they were depressed.

Methods: The study was conducted among 264 students from four high schools in Poznan and Oborniki (men – 91; women – 173) using the Polish version of International Depression Literacy Survey (IDLS) by Ian Hickie.

Results: 42,8% of students stated that they have ever looked for information about depression. The most popular source was the Internet – it was used by 86,7% of surveyed. Other popular answers were “asked a family member” (26,5%) and “books or health magazines” (24,8%). When asked how likely it is to be, while experiencing depression, be discriminated against by listed people or institutions, more than a half of students (55,7%) answered it is likely to be discriminated against by “your employer” and almost half of students (49,6%) said the same about “other people you don't know very well”. The vast majority said that being discriminated by “your doctor or other health professional” or “a public or private hospital” is unlikely. When asked to agree or disagree with the statements regarding people with severe depression, three forth of students agreed that people with severe depression “should pull themselves together”. 25,4% of students believed that they “are dangerous to others” and 21,6% of them that they “often perform poorly as parents” (women agreed significantly less often than men, $p=0,0086$). Nine percent of surveyed answered that they “shouldn't have children in case they pass on the illness” and that they “have themselves to blame”.

Conclusions: Main source of information about depression for high school students is the Internet so professional and trustworthy websites on this topic should be provided. Untrue and harmful believes can lead to stigmatisation towards patients and should be fought against.

Keywords: Depression, high school students, discrimination, help-seeking

THE CORRELATION BETWEEN SLEEP DISORDERS AND OBESITY – ABNORMAL SLEEP DURATION AS A RISK FACTOR FOR HIGH WEIGHT

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Introducion: Obesity and overweight are among the most common diseases in the world, last data from 2014 showed that 641 million people were obese and since 1960 the number of obese people has increased three times, which is associated with "fast" lifestyle of the majority of the world's population. This is the clue why so many scientists are looking for modified obesity factors. Overweight is a major risk factor for inter alia diabetes, cardiovascular diseases and cancers. Most studies have shown obesity as a cause of sleep disorders such as excessive daytime sleepiness EDS or sleep apnea, but recent studies have suggested that sleep disorders cause obesity.

Methods: Review about the association between sleep disorders and the occurrence of obesity based on available researchers from years 2006-2017.

Results: The relationship between obesity and sleep disorders has been proven by many researchers (ex. Vorona et al., 2005, Jenkins JB et al. 2006). Recently, researchers have been trying to find out the impact of sleep disorders on obesity. Studies which show that connection are from 2006 (by Patel SR et al., prospective one, based on 68,183 women who reported habitual sleep duration in 1986 were followed for 16 years), study from 2014 by Patel et al., based on 3053 men and 2985 women which performed by wrist actigraphy and study from 2017 by the team of researchers (Carlos C., Donald M., et al.) who analyzed data of 119,859 adults from United Kingdom aged between 37 and 73 years old. All of them have found the relationship between sleepiness and the increased risk of obesity but the last one study showed that adults from group of high genetic risk of obesity, whose sleep duration was shorter or also longer than recommended 7-9 hours, were heavier than people with correct sleep duration. Notwithstanding, for people with low genetic risk of obesity seems that abnormal sleep duration does not have any influence for their weight.

Conclusions: These studies show that the length of sleep has effect on the weight of people with a genetic predisposition.

Keywords: obesity, sleep duration, risks of obesity

ASSESSMENT OF EFFECTIVENESS OF E-CIGARETTE USE AS A TOOL TO AID SMOKING CESSATION.

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Introducion: Electronic cigarettes are advertised in the media as a safer alternative to traditional cigarettes and as an aid to reduce or quit smoking.

Methods: A population based survey was performed, in a group of 3987 students from two Universities in Katowice, Poland. Self-prepared questionnaire, included questions on cigarette and e-cigarette smoking habits.

Results: The data were obtained from 3002 students aged 21.7 ± 2.1 y-rs (70.3% women); the response rate 75.3%. Traditional cigarette smoked 14.4% (13.2-15.7) of respondents. E-smoking was declared by 1.3% (0.9-1.7) of respondents, wherein 1.8% (1.4-2.3) of respondents were dual users. Only 33.3% of e-smokers used e-cigarettes as an aid to quit smoking. Since starting e-smoking, a reduction in cigarette consumption (mean 6.7 ± 5.4 cigarettes/daily) was observed by 59% (43.4-72.9) of dual smokers. Among e-smokers, 50.7 % reported an addiction to e-cigarettes, and 11% tried to give up e-smoking. Almost 45% of e-smokers (44.3%) used e-liquid with nicotine content less than 8 mg/ml, and only 7.6% used e-cigarettes without nicotine. Since they started e-smoking, 25% reduced nicotine content in usually used e-liquid, and 11.3% of e-smokers quit smoking traditional cigarettes.

Conclusions: Willingness to reduce or quit smoking was not the main reason for start e-cigarette use. E-cigarette smokers reduced nicotine content in their e-liquid, but only 10% quit traditional smoking.

Keywords: cigarette, e-cigarette, smoking, e-smokers, quitting smoking, nicotinum

BREASTFEEDING: INFORMATION SOURCES AND RESPONSE TO NURSING IN PUBLIC

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Introduction: Mothers' milk and breastfeeding are one of the most crucial elements in newborns development. Although benefits of breastfeeding are well recognized, studies on availability of information and social reaction to breastfeeding in public in Poland are lacking. Main aim of the study was the assessment of sources of information about both breastfeeding and The Milk Banks. Additional aim included getting opinion of mothers about reactions to breastfeeding in public places.

Methods: 350 mothers, aged 18-45 (SD=4.93) took part in online survey. Participants were asked about reaction of others to breastfeeding in public and experience of "body shaming". Women also assessed availability of information about breastfeeding and The Milk Banks.

Results: Main sources of information about breastfeeding were websites, online parenting groups (63.8%) and medical staff. 77.3 % of mothers heard about idea of "The Milk Bank", however only 2.3% assessed information as comprehensive. 82.4% of participants thought that campaigns about breastfeeding and Milk Banks should be more common. 47.1% of women reported issues with breastfeeding in public (for 34.4% including negative comments). 57.4% women were affected by body shaming behavior (public places, internet groups and hospital).

Conclusions: Campaigns spreading knowledge about breastfeeding and The Milk Banks should be introduced into public health. Such actions should be taken to reduce negative reactions, body shaming and increase knowledge about benefits of breastfeeding.

Keywords: breastfeeding, milk bank, public health

SMOKERS AROUND US - PREVALENCE OF CIGARETTE AND E-CIGARETTE SMOKING AMONG STUDENTS IN SILESIA

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Introduction: The frequency of electronic cigarette usage is increasing, especially among the youth. Currently, e-smoking is a very significant public health issue, especially that their long-term influence on human health is unknown. The aim of the study was to assess the frequency of cigarette and e-cigarette usage among students in Silesia as well as to analyze pattern and style of e-smoking.

Methods: A population based survey was performed, in a group of 3986 students from two Universities in Katowice, Poland. Previously validated, self-prepared questionnaire includes questions on cigarette and e-cigarette smoking habits.

Results: The data were obtained from 3002 students (29.4% males and 70.6% females), aged 21.7 ± 2.1 y-rs with the response rate 75.3%. Respondents were divided into two groups, depending on the faculty of the study: 1485 medical (M) and 1517 non-medical (N-M) students. Ever e-cigarette use declared 27.4% of respondents (27.8% M, 26.8% N-M; $p=0.6$). The average age of e-cigarette initiation was 18.7 ± 2.1 y-rs (M: 19.2 ± 2.2 y-rs; N-M: 18.3 ± 1.9 y-rs; $p<0.001$). Traditional tobacco cigarette smoked regularly 14.4% (M:13.7%; N-M:15.1%; $p=0.3$), 1.3% used e-cigarette (M:1.1%; N-M:1.5%; $p=0.3$) and 1.8% (M:1.3%; N-M:2.3%; $p=0.04$) were dual smokers. Duration of smoking was shorter ($p<0.001$) in e-smokers (25.5 ± 14.6 months) as in tobacco cigarette smokers (44.2 ± 30.0 months). E-smokers more often believed that e-cigarettes are safe for health (33.7%) than respondents who do not use e-cigarette (2.9%; $p=0.0001$). Only 25.3% of e-smokers support e-smoking prohibition in public places, compared with 66.1% of those who do not smoke e-cigarettes ($p<0.0001$).

Conclusions: Among students e-cigarette is less popular than traditional cigarette. Non-medical students reach for both types of cigarettes more often, compared to medical students. E-cigarettes are considered as harmful wherein active e-cigarette users are more liberal in their opinions.

Keywords: electronic cigarette, tobacco, smoking, students

BREAKING THE STIGMA: MENTAL HEALTH NEEDS VS. SOCIAL TABOO – PILOT STUDY

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Introducion: Mental health is one of the biggest problem of public health. Currently, Poland has second place in European countries with highest suicide rates. However, studies on availability of information about prevention and help in crisis are still lacking. The aim of the study was to assess needs of receiving help (availability of information), level of information and influence of social stigma on problems of mental health.

Methods: 167 participants, aged 18-32, took part in online survey, including 81.4% women and 18.6% men. Participants were asked to assess level of information about mental health, knowledge, about campaigns and crisis help addressed to prevent suicides or depression.

Results: In opinion of 64.7% of participants mental health remains a taboo. 58.7% knew someone affected by self-mutilation or suicidal thoughts. 41.8% participants reported previous mental health problems, and among them 37.7% did not seek help due to fear of stigmatisation. 41.3% did not know where to obtain help in mental crisis, 25.7% did not know if crisis lines in Poland exist. 57.5% assessed availability of information about help in crisis as average, 43.2% participants did not know about any campaign on mental health, and 65.4% did not know about campaigns aimed to suicide prevention. Majority of participants (85%) reported the need for higher social education in mental health topic.

Conclusions: Although mental health issues (such as depression, self-mutilation, suicide ideation) are relatively common, this topic still remains a taboo. Results obtained in study confirm social need for better education in prevention of crisis, reducing stigma and better availability of information about sources of professional help.

Keywords: mental health, suicide prevention, campaign, public health, medicine sociology

MOTHERS' KNOWLEDGE OF THE PREVENTION OF RICKETS IN INFANTS

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Introduction: Rickets is a disease that manifests itself mainly in infancy. Due to the implementation of the preventive actions, the prevalence of this disease has decreased significantly. Caretakers' conversance with scope of preventive actions plays an important role in prevention of rickets in infants. A medical staff should be primarily involved in parents' education with regard to rickets.

Methods: The trial was conducted at the Children's University Hospital in Lublin in the Neonatal and Infant Pathology Clinic, Children's Cardiology Clinic and in the Private Kindergarden "Wild Strawberry Academy" in Bychawa among 119 mothers of children in early childhood. The results of the study were analyzed on the basis of the diagnostic poll method and the obtained data allowed for statistical analysis

Results: The trial shows that most mothers knew that vitamin D3 influences the normal bone growth and development, and that its deficiency leads to rickets. In addition, 72.27% of respondents defined the correct moment for the beginning of vitamin D3 supplementation in infants, moreover, 35.29% of mothers knew that the recommended dose of vitamin D3 for newborns was 400 IU/day. The majority of respondents knew the sources of vitamin D3, the way it was administered, and the non-pharmacological principles of rickets prevention in infants. Paediatricians, popular science journals for females and mothers, nurses and the Internet constitute the sources of knowledge of the rickets preventions in infants for the respondents.

Conclusions: 1. Almost every mother knows the role of vitamin D3 in the baby's body and knows the consequences of its deficiency. 2. Knowledge of current recommendations for vitamin D3 supplementation among mothers is insufficient. 3. The main source of knowledge of rickets prevention in infants for mothers is paediatrician or general physician.

Keywords: infants, D3 vitamin, prevention

Radiology and Nuclear Medicine

THE RESULTS OF RADIOACTIVE IODINE I131 TREATMENT OF TOXIC NODULAR GOITRE.

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Introducion: The aim of our study was to evaluate the radioiodine therapy in patients with toxic nodular goiter (TNG). TNG includes toxic multinodular goiter (MNG) and toxic adenoma (ATN) and is the second most common cause of hyperthyroidism. Antithyroid drugs does not provide long-term control and result in high recurrence rates after discontinuance. In surgery the serious complications such as recurrent laryngeal nerve injury and hypoparathyroidism may be seen. That is why radioiodine therapy is used commonly due to its relatively low cost and non-invasive character.

Methods: The material consisted of 800 patients with TNG aged 32-68 years; 82% female and 18% male; 480 patients with multinodular goitre and 320 with autonomous toxic nodule (ATN); thyroid volume ranged between 18-125ml. Malignant changes were rejected by fine needle aspiration biopsy. All the patients had TSH levels below 0.1 mU/l and effective half-life more than 3 days. The therapeutic activity of ¹³¹I was calculated using Marinelli's formula and ranged between 200-800 MBq. The absorbed dose (Gy) ranged between 150 and 260 for MNG, and 200-300 for ATN.

Results: At one year after ¹³¹I administration euthyroid status was achieved in 99% of patients with ATN and 92% of patients with MNG, hypothyroidism was observed in 1% of patients with ATN and 7% of patients with MNG, while 1% of patients with ATN had persistent hyperthyroidism and received a second dose of radioiodine. Thyroid volume reduced to 52% in MNG and 47% in ATN.

Conclusions: We observed that high cure rates were obtained in patients with TNG . The achievement of euthyroidism was due to well preparation of the patients, accurate measurement of administered activity and relatively high effective half-life.

Keywords: toxic nodular goitre,radioiodine,non-invasive,non-surgical

ANATOMICAL VARIANTS AND ARTERY DIAMETERS IN CIRCLE OF WILLIS ON 3D TIME-OF-FLIGHT MR ANGIOGRAMS IN A POLISH POPULATION

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Introducion: Circle of Willis (CW) is an important cerebral arterial anastomosis with a great variability of its anatomical structure in all populations. This study evaluates CW morphological variants and artery diameters in a population of adults presenting for head MR in a tertiary referral hospital in Poland; and also any associations of the above observations with age, sex, and pathological MR findings.

Methods: Two hundred 1.5 T 3D time-of-flight MR angiograms of 115 women and 85 men were retrospectively analyzed. Measurements of CW artery diameters were taken by three medical students. All intracranial pathologies observed in the MR scans were retrieved from radiologists' descriptions. Statistical analysis included summary statistics, Chi squared tests, and Mann-Whitney-Wilcoxon tests performed where relevant.

Results: Entirely complete CW was present only in 21% of patients and its prevalence was higher in younger subjects; however no significant difference between sexes was observed. Complete variants of the anterior and posterior part of CW were present in 67% and 29% of patients respectively. Absence of anterior communicating artery and bilateral absence of posterior communicating arteries were the most frequent variants. Diameters of certain vessels were larger in younger patients or in men. Among all intracranial pathologies observed in the study group only white matter lesions (WML) were related to presence of incomplete CW variants.

Conclusions: Most of the patients (79%) in our study group had at least one CW artery hypoplastic or absent, which puts them at a higher risk of cerebral ischemic events and which might be of concern in case of neurosurgical procedures. CW variants frequency and vessel diameters in our study are not unanimous with results of other MR-based studies of foreign populations and a CT-based study of another Polish population. This may be due to variations between populations and imaging methods. The concurrence of incomplete CW variants and WML in our group is consistent with research showing those variants generally predispose to cerebral ischemia.

Keywords: Circle of Willis, morphological variants, magnetic resonance angiography, white matter lesions

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