iMEDIC 2016 Bydgoszcz

International MEDical Interdisciplinary Congress 2016 Bydgoszcz

Abstract Book

NICOLAUS COPERNICUS UNIVERSITY IN TORUŃ

COLLEGIUM MEDICUM UMK

WROCLAW MEDICAL UNIVERSITY

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Dear Friends and Collegues

We are honored to cordially invite you to the International MEDical Interdisciplinary Congress iMEDIC 2016. The event will be held 11 June 2016 in Bydgoszcz, Poland.

This congress aims to create an opportunity for the young researchers, PhD students and doctors to share and present their scientific work, discuss a new developments and exchange experiences in wide range of fields.
iMEDIC is designed to be inspiring and motivating meeting, where you have a chance to share ideas and contemplate our honorable guests' lectures as well as improve your practical skills, during the workshops.

We feel obligated to provide you a meeting platform stimulating a creative exchange of scientific ideas, likewise enjoyable social event where you can meet scientifically enthusiastic friends from all over the world.

We look forward to welcome you in Bydgoszcz!

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STUDENCKIE TOWARZYSTWO NAUKOWE
CM UMK W BYDGOSZCZY

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AGENDA

Place: Holiday Inn Hotel, Grodzka 36 Street

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<tr><td>8:30</td><td colspan="4" rowspan="4">Opening Ceremony</td></tr>
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<tr><td>10:00</td><td rowspan="4">A1. Obstetrics & Pediatrics Session</td><td rowspan="5">B1. Cardiology & Cardiaosurgery Session</td></tr>
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<tr><td>12:00</td><td rowspan="3">C2. Basic Science & Molecular Biology Session</td><td rowspan="3">D2. Physiotherapy & Sports Medicine Session</td></tr>
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<tr><td>13:30</td><td colspan="2" rowspan="3">Lunch</td></tr>
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A1. Obestrics & Paediatrics Session

1st prize in Obestrics & Paediatrics Session

Title: DeDiet and socio-economic factors determining supplementation during pregnancy at through patients' eyes.

Authors: Anna Knapik, Marcin Michalik, Mateusz Jankowski, Jakub Mazur, Krzysztof Kocot, Mateusz Wilk

Affiliation: Medical University of Silesia / Medicine

Introduction: Proper nutrition during pregnancy is essential for the health of the mother and child. Still few pregnant women used dietary supplements in the recommended manner, therefore, it seems to be very important to identify dietary and socio-economic factors that are associated with the attitude of women to supplementation during pregnancy and the level of its application.

Aim: The aim of the study was to assess supplementation in pregnant women depending to dietary factors and socio-economic

Materials and methods: From July to October 2015 population based survey was performed, in a group of 450 pregnant women from the Silesia voivodeship, patients of obstetric, gynecological-obstetric surgeries and antenatal classes. The questionnaire, created for the purpose of the study, included questions on eating habits during pregnancy.

Results: Completed questionnaires were obtained from 327 pregnant women (72,6%), aged 30±5,6. 84.5% of mothers declared the use of supplements during pregnancy, 85.7% decided to supplement after a conversation with the doctor, while 13.3% chose independently type and amount of taking supplements. Most of these supplements consist folic acid, vitamin preparations, iron and omega-3. Among the respondents, 93% believe that diet has an impact on child development. Internet as a source of information about supplementation was indicated more often in a group of women in satisfactory (S; 64%) or moderate (M; 63%) financial situation, compared to the women with unsatisfactory (U) economic status (40%; p = 0.04). Women from urban areas above 100,000 citizens. took more omega 3 (16.4%) and magnesium (15.7%, 4%, 5%, p=0.002) compared to women with the cities to 100tys. (11%) and rural (2.5%; p = 0.006). A woman holding a university degree, compared to not having higher education, during pregnancy applied supplementation more often (91% vs. 80%, p=0,003) and took more preparations (11% vs. 1%; p=0.0001). Mothers, who do not have a higher education, compared to people with university degree during pregnancy more often used alcohol (30% vs. 10%; p =, 00001) and cigarettes (27.5% vs. 8.5%; p = p = .0001).

Conclusions: Still, a large part of women does not apply the recommended supplements and proper diet. Socio-economic factors are an important determinant of attitudes and frequency of supplementation in pregnancy. Pregnant women with higher education and better material status more frequently and consciously took supplements.

Key words: pregnancy, supplementation, supplements, nutrition, dietary.

2nd prize in Obestrics & Paediatrics Session

Title: Multiple blood transfusions as a cause of increased serum ferritin concentration in patients with oncological and hematological disorders.

Authors: Agnieszka Paszkowska, Karolina Dąbrowska, Katarzyna Janczewska, Barbara Musiałowska

Affiliation: Department of Pediatric Oncology and Hematology, Medical University of BIałystok

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

Aim: The aim of the study was to evaluate the number of blood transfusions and serum ferritin concentration in pediatric patients with oncological and hematological disorders.

Materials and methods: The study group consisted of 315 children who received blood transfusions in the Departament of Pediatric Oncology and Hematology, Medical University of Białystok. The data were obtained from patients transfusion books and medical documentation, starting in January 2010. After excluding patients who were given only one transfusion, results from 190 participants (male: 106 female: 84) between 1 month - 17 year of age (mean age 7.63) treated for leukaemias (n=88), lymphomas (n=16), solid tumors (n=43), hematopoiesis dysfunctions (n=16) and iron-defficiency anaemias (n=26) were analysed. The population was divided into 4 groups according to the age: up to 1 year old (y. o.), 1-5 y.o., 5-10 y.o., >10 y.o. Serum ferritin concentration (ng/ml) was measured in every patient at the beginning, towards the end of the treatment and after termination of therapy.

Results: The study showed increased serum ferritin concentration in patients after multiple blood transfusions. Statistically significant increased serum ferritin concentration was observed in patients with leukaemias comparing to other diagnoses: at the beginning of the treatment ($p<0.0001$), towards the end ($p=0.005$) and after treatment termination ($p=0.0563$). Statistically significant increased amount of received blood in mililitres ($p<0.0001$), in mililitres per kilogram of body weight ($p<0.0001$) and increased mean number of transfusions per patient ($p<0.0001$) was observed in patients with leukemias comparing to other diagnoses.

Conclusions: The study revealed that the amount of blood transfusions correlates with the increased serum ferritin concentration. The amount of transfusions and increased serum ferritin concentration depend on the diagnosis, but has no correlation with gender or age. The research allows to identify the group of patients with the highest number of blood transfusions and serum ferritin concentration, who require chelation therapy from the beggining of the antineoplastic treatment as a group of higher risk of side effects.

Key words: blood transfusions, serum ferritin concentration, iron overload.

3rd prize in Obestrics & Paediatrics Session

Title: Evaluation of parents' knowledge and sources of information about bone metabolism diseases their children have.

Authors: Marta Fiedkiewicz, Martyna Kamola

Affiliation: Medical University of Łódź : Pediatric Propedeutics and Bone Metabolism Diseases Clinic

Introduction: Recent researches have proven that bone metabolism diseases are frequent problem among children. The number of fractures and vitamin D deficiency related disorders are still growing, what is an important pediatric problem. Most of bone disorders entail necessity of diet supplementation and rehabilitation so it is important for parents to have knowledge about that kind of diseases. They often have to make a difficult decision on which source of information to choose.

Aim: Appraisal of the knowledge about bone metabolism disorders among the parents of children treated in Osteoporosis Treatment and Other Bone Metabolism Diseases in Children and Adolescents Clinic in Lodz. Analysis of sources of information used by trial parents and their ability to harness gained knowledge.

Materials and methods: The study included 108 parents of children aged 1 to 18 years, who were coming to the clinic mentioned above from December 2015 till April 2016. All of the parents voluntarily took part in an anonymous poll.The questions related to general knowledge about the illness of a child, the sources of information, the judgment of the quality of information provided by the doctor and practical use of acquired knowledge in practice.

Results: The most common diseases were: vitamin D deficiency, osteoporosis and osteogenesis imperfecta. The most popular sources of information were: the doctor and the internet (about 40% of respondents), followed by family and literature. Only 63% of respondents had no objections to the information provided by the physician and about 4% find the information incomprehensible. All parents followed recommended vitamin D supplementation, however, the diet of more than half of the children did not contain the recommended intake of fish. Only a small group of children (7%) did not receive adequate amounts of dairy.

Conclusions: Vast majority of parents considered themselves well informed about their children's illnesses.The doctors are no longer the most trusted source of information for parents, as the Internet is equally important. It shows the need for verification and continuous updating of content on the internet and it should be carried out by doctors so it can be reliable. Alarmingly large number of parents were not satisfied with the quality of information obtained from the doctor, what indicates the need to improve the soft skills of doctors, as well as the need to devote more time to talk with the patients and parents.

Key words: pediatry, bone metabolism diseases, survey, deficiency of vitamin D, osteoporosis, sources of information

Distinction in Obestrics & Paediatrics Session

Title: Pregnancy and sport - which form of physical activity do pregnant woman choose? A presentation of preliminary results of the study.

Authors: Katarzyna Urtnowska

Affiliation: Obstetrics Department, Reproductive Medicine and Andrology Section; Faculty of Health Sciences; Collegium Medicum (CM) in Bydgoszcz Nicolaus Copernicus University (NCU);

Introduction: Nowadays, there are more and more options for pregnant women to practise physical activity. Every school of childbirth propose special gym workouts with exercise ball combined with breath lessons, likewise special yoga or pilates classes for pregnant in most fitness clubs. Women can also safely participate in aqua aerobic lessons, swim in the pool or have typical walks and start Nordic walking. Even though there are many possibilities, and available knowledge of what workout is appropriate for pregnant, lots of women don't even try do any kind of sport, and explain it with lack of time or the mood.

Aim: The aim of this study is to demonstrate which of possible forms of physical activity designed for pregnant do women choose and why. Another object of the survey is to observe whether or not women have exercised before pregnancy and if yes, have they decided to change the way of their workout or maybe resigned from practicing any kind of sport at all.

Materials and methods: The research tool used in the study is a specially developed questionnaire. The study is taking place in the area of the Bydgoszcz city obstetric - gynecological clinics, and places for pregnant women like birth school, or yoga classes. The received responses are being subjected to statistical analysis. The study is still being conducted and the aim is to receive about 200 responses.

Results: A number of 75 filled questionnaires has been collected by the time of preparing this survey, and that makes about one-third of a planned study group. The preliminary results shows that the majority of women practice different kinds of physical activity (56%) and the most popular forms are running (20%), home workout (20%), bike riding and roller skating (16%), fitness and yoga classes as well as swimming (12%). The most common reason to do sport is to maintain good shape (52%) and mood (32%). During pregnancy women mostly start training even more (68%), and change the type of workout on more appropriate one, like: yoga (29%), swimming (20%) and special classes for pregnant (19%), for the same reasons like before pregnancy. By the time of collecting all needed questionnaires a new statistical analysis will be made, in which an influence of age and number of children on the physical activity will be shown.

Conclusions: The preliminary results give a reason to assume that nowadays pregnant women became more aware of the need of physical activity not only during pregnancy but also before conception.

Key words: women, pregnancy, physical activity, sport, study.

Title: Pregnancy and sexuality - physical and psychological aspects.

Authors: Katarzyna Urtnowska

Affiliation: Obstetrics Department, Reproductive Medicine and Andrology Section; Faculty of Health Sciences; Collegium Medicum (CM) in Bydgoszcz Nicolaus Copernicus University (NCU).

Introduction: Sexual life during pregnancy is still often considered as a taboo subject. Not often doctors do give a proper instruction to a pregnant women about how to lead a healthy sexual life while expecting a baby, explain risks and possibilities. Frequently, for future mothers, even asking other women for a guidance is embarrassing, so they seek for answers mostly in the Internet, which is not always an adequate source of an information.

Aim: The object of this study was to present physical and psychological aspects of sexuality during pregnancy, possible risks and to discuss possibilities of healthy sexual life of pregnant women.

Materials and methods: The research tool used in the study was a text analysis, from latest scientific publications discussing the topic of sexual behavior of pregnant women.

Results: A body of a pregnant woman passes through a series of anatomical and physiological changes, which have a major influence on sexual activity. The most important factors of disadvantageous impact are pregnancy ailments such as: nausea, vomiting, back pain, the tenderness of the breasts, fatigue and urinary frequency and urgency. Most articles showed that a general decrease in sexual activity is observed during first and third trimester, only during the second one, women can experience an increased feeling of desire and sexual excitement. That positive change in the middle of pregnancy in an effect of hormonal level stabilization, genital congestion, and smaller general ailments. Psychological influence concerns mainly fear of injury to the fetus, negative body image and fear of rejection by the partner. There are no confirmed data about risks to the fetus, but there are some opinions of probable complications caused by a sexual activity during pregnancy, such as prematurity or fetal distress. More common are vaginal bleedings, contractions and infections.

Conclusions: There are many different options to lead a healthy sexual life during pregnancy, partners only have to take some precautions and adjust to the new situation. If there are some concerns, couple shouldn't be afraid to ask specialist for some advice while visiting doctor's office. Pregnant women need more care attention from their partners, who should be more patient and understanding about changing physical condition and special needs of the future mothers.

Key words: women, pregnancy, sexual behavior.

Title: Pregnancy and sport - basic rules of physical activity for pregnant women.

Authors: Katarzyna Urtnowska

Affiliation: Obstetrics Department, Reproductive Medicine and Andrology Section; Faculty of Health Sciences; Collegium Medicum (CM) in Bydgoszcz Nicolaus Copernicus University (NCU);

Introduction: There are many different activities that allow us to maintain good shape and positive mood. Nowadays, most of young women do a various kinds of sports in order to stay fit and healthy, some of them more frequently and intensively, some more for fun and pleasure. During pregnancy a lot of them are wondering if they can continue exercising in the same way they used to, or should they change the type of workout or even resign at all. Not always pregnant can find their answer at the doctor's office - unfortunately gynecologists often forbid to do any kind of sport during the pregnancy, with an aim of preventing from hurting the baby or causing the premature birth.

Aim: The object of this study was to discuss whether or not should women continue exercising during pregnancy. Also, another aim of this survey was to present basic rules, indications and benefits of physical activity for pregnant women, as well as contraindications and most common mistakes made during workout.

Materials and methods: The research tool used in the study was a text analysis, from latest scientific publications discussing the topic of physical activity for pregnant women.

Results: Available articles shows that physical activity during pregnancy is necessary for staying in good form and health. Studies confirms that regular exercises prevents from developing lower back pain and gaining too much weight. In addition, sport allows future mothers to quickly return to the shape and form from before the pregnancy, and minimalizes the effect of "baby blues" and post-natal depression. Every attempt of practising any kind of sport needs to be regularly consulted with a doctor, because of dynamic changes observed during the whole pregnancy.

Conclusions: The results confirm that women should practice physical activity suitable for their medical condition, physical form and preferences. Pregnant which used to be in a good shape and exercised a specific kind of workout (even jogging or fitness) should continue doing it, only in more gentle way and frequency. Women that haven't exercised before and had a sitting job, definitely should start physical activity adequate for pregnant - swimming, aqua aerobic, joga, Pilates, Nordic waking and gentle gym workouts.

Key words: women, pregnancy, physical activity, sport.

A2. Oncology Session

1st prize in Oncology Session

Title: Obesity and cancer. The role of adipocytes in cancer of the corpus uteri.

Authors: Aneta Popiel[1], Natalia Sokołowska[2], Mateusz Kopaczyk[2], Remigiusz Sokołowski[2], Lidia Hirnle[1]

Affiliation: 1) Wroclaw Medical University;
2) Department of Geriatrics, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: 2.8 million people die every year because of being overweight or obese. Based on World Health Organization (WHO) data the statistics are alarming. From 1980 the number of obese people has doubled. Excessive body weight is a risk factor of several cancers including: endometrial, breast, colon cancer. Enlarged adipose tissue can support the creation of inflammation and angiogenesis. Despite many researches: there are no specific tumor markers for corpus uteri cancer. Because diagnostic methods are based on invasive techniques: biopsy and curettage, good clinical tool is needed.

Aim: The aim of this study was analysis the function of adipocytes in endometrial cancerogenesis and implementation of molecular knowledge into clinical work.

Materials and methods: We performed PubMed search of the english literature from 2005-2016 about adipose cells and endometrial cancer.

Results: The literature data indicate that adipose tissue causes chronic low grade inflammation and plays significant role in angiogenesis

Conclusions: Obesity is a major predictor of the endometrial cancer. Understanding obesity's influence on cancerogenesis is an important step forward in expanding possibilities of the prevention of the corpus uteri cancer.

Key words: cancerogenesis, function of adipocytes, ocesity, cancer of the corpus uteri

2nd prize in Oncology Session

Title: Overweight and obesity as a risk factor of colorectal intermediate and high-risk lesions and colorectal cancer in screening programme.

Authors: Dawid Adamkiewicz, Anna Sikorska, Klaudia Bigorowska, Artur Arutjunjan

Affiliation: Department of Gastroenterology, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: Colorectal cancer is the second most common cancer amongst Polish women and the third amongst Polish man. Taking into account the dynamic growth in CRC's morbidity in Poland, it is estimated that the overall number of cases will rise up to 24600. (in 2025) Hence, it is very important to identify the patomechanism and risk factors in order to eliminate it and to increase the effective detection of the high-risk lesions. There are numerous studies that indicate age, diet, genetics, male sex, smoking cigarettes to be the risk factors. Approximately half of the Polish population is overweight and recent studies have shown that the prevalence of obesity is also associated with the increased risk of cancer diseases, including CRC. Plenty of publications have confirmed the correlation between BMI and CRC.

Aim: The aim was to examine the association of overweight and obesity with the risk of colorectal high-risk lesions and colorectal cancer.

Materials and methods: The retrospective single centre study at the Gastroenterology Department in Nicolaus Copernicus University Collegium Medicum in Bydgoszcz was the part of Screening Programme for Early Detection of Colorectal Cancer. In 2014-2015, 1194 patients in the age of 50-65 were examined by colonoscopy. In order to eliminate on of the main risk factors of CRC, only 577 non-smokers were qualified to the research. We adopted National Comprehensive Cancer Network criterion of intermediate and high risk lesions of colorectal cancer. The assessment of the body weight was based on BMI (normal: 18,5-24,99; overweight: 25-29,99 ; obesity: more than 30).

Results: Colorectal intermediate and high-risk lesions or colorectal cancer were diagnosed among non-smokers with normal body mass (30,33%), overweight (35,46%) and obesity (40%). Sensitivity, specificity and accuracy of BMI for values: 24,97 came out at 0,683, 0,389 and 0,49 respectively and for BMI 29,8 (0,236, 0,817 and 0,617) with p=0,1.

Conclusions: Frequency of intermediate and high risk lesions rises together with BMI increase, but the high value of p (p = 0,1) indicates no significant correlation. According to these results, it seems worth studying the BMI within 2 separate groups – female and male due to different distribution of body fat and potential use of hormone replacement therapy.

Key words: BMI, colorectal cancer, high-risk leasions

3rd prize in Oncology Session

Title: Transarterial chemoembolization of liver metastases from uveal melanoma with irinotecan-eluting beads.

Authors: Stanisławska K, Stadnik H, Nawrocki M

Affiliation: Poznan University of Medical Science

Introduction: Uveal melanoma is the most common primary intraocular malignancy in adults and the liver is the predominant site of its metastases. None of the systemic treatments employed in therapy of cutaneous melanoma has any significant impact in treatment of liver metastases. Transarterial chemoembolization (TACE) has been proposed as a palliative treatment. TACE involves hepatic artery embolization with simultaneous delivery of concentrated doses of chemotherapeutic agents. DC beads are polyvinyl alcohol microspheres with sulfonic acid groups and can be preloaded with irinotecan.

Aim: The purpose of this study was to evaluate the efficacy of transarterial chemoembolization with microspheres loaded with irinotecan in liver metastases from uveal melanoma.

Materials and methods: During the study period, 5 patients with hepatic metastases from uveal melanoma were treated with TACE. A series of 34 TACE interventions were performed in cycles with 4 procedures per cycle.(mean number per patient: 6.8, range: 3 – 18) with emulsion of DC beads loaded with 100 mg irinotecan mixed with 8 ml of contrast agent. Tumor response was evaluated in 3 patients 4 – 6 weeks after each completed cycle based on the RECIST (version 1.1) using contrast enhanced CT scans.

Results: CT showed stable disease in tumor size after TACE in 3 patients (60%). The median follow-up time from the beginning of therapy was 16 months (range 2-22 months).

Conclusions: Transarterial chemoembolization with DC beads loaded with irinotecan is effective in the treatment of liver metastases from uveal melanoma.

Key words: transarterial chemoembolization (TACE), uveal melanoma, liver metastase.

Title: Siucide gene therapy - a review of strategies.

Authors: Maciej Gawroński, Arkadiusz Goede, Adrian Krajewski

Affiliation: Nicolaus Copernicus University, Ludwik Rydygier`s Collegium Medicum in Bydgoszcz

Introduction: Cancer is one of the leading cause of death in western industrialized countries. What's particularly important, over the last decade we have seen dramatic increase in its occurrence, therefore treatment of cancer is one of the greatest challenges of modern medicine. However, it is becoming increasingly difficult to ignore the fact that standard strategies used in cancer treatment such as chemotherapy, surgery, radiotherapy, or a combination of the aforesaid have a number of disadvantages. A major problem with aforementioned treatment methods is the fact, that t a large number of cancers responds poorly to standard therapies, or is resistant to them. Moreover, they have vast number of side effects which significantly affects the quality of patients life. For aforementioned reasons, researchers have shown an increased interest in alternative therapies. One of such approaches that raises great hopes for the future is suicide gene therapy, which could be very selective in killing cancer cells while sparing normal ones and avoiding systemic side effects.

Aim: This paper will review the research conducted on suicide gene therapy and its effectiveness in cancer treatment.

Materials and methods: Review of the available scientific literature.

Results: A considerable amount of literature has been published on suicide gene therapy. These studies include the usage of suicide genes, genes that encode bacterial toxins or cytokines to cancer cells by using highly specific vectors. One of the most frequently used suicide genes are: thymidine kinase, cytosine deaminase and purine nucleoside phosphorylase which have been proved to be successful in selectively killing cancer cells. The experimental data from stage I and II clinical trials indicate that usage of aforementioned genes is relatively safe and effective. Another popular strategy in suicide cancer therapy is usage of oncolitic viruses because of their ability to replicate only in malignant cells and therefore induce their lysis. Such approaches have been successively applied in the treatment of many types of cancer, such as glioma or prostate cancer.

Conclusions: This publication provides a brief description of the most commonly used therapeutic strategies in the context of suicide gene therapy of cancers. Numerous studies shows that such approach is safe, well-tolerated by patients and have many advantages over standard therapeutic strategies. Therefore, suicide gene therapy, in the future, may become an attractive alternative to aforementioned methods.

Key words: suicide gene therapy, oncolytic viruses, cancer.

A3. Case Report Surgical Session

1st prize in Case Report Surgical Session

Title: Klippel-Feil syndrome as an example of a rare congenital disorder

Authors: Anarmaa Bayalag-Erdem, Żaneta Acalska

Affiliation: Nicolaus Copernicus University Collegium Medicum in Bydgoszcz

Introduction: Klippel-Feil syndrome is a rare disease, which consists of a triad of symptoms: a short neck, restricted movement of the neck and a low hairline at the back of the head. These abnormalities result in fusion of two or more bones of the spinal column (vertebrae) within the neck (cervical vertebrae). They may also be related to the thoracic spine and often occur with other malformations

Case report: The aim of this study is to present the case of Klippel-Feil syndrome. The present case concerns a newborn male, diagnosed with Klippel-Feil syndrome. The first abnormalities of the fetus came out in the 12th week of pregnancy: ultrasound increased thickness measurements of NT scan (NT = 7.4 mm) and an increased risk of having a baby with aneuploidy based on double test of the Fetal Medicine Foundation. The amniocentesis test showed a normal kariotype. In the 20th week of pregnancy, ultrasound found irregularities in the construction of the vertebrae of the cervical and thoracic spine, significant shortening of the vertebrae and abnormalities of the chest. Based on the results of imaging and genetic studies Klippel- Feil syndrome type III was suspected, thus cesarean section was recommended. A child was born in the 40th week of pregnancy by cesarean section and the labour was uncomplicated. The newborn had an Apgar score of 6 and was transferred to neonatal intensive care unit.

Conclusions: Klippel- Feil syndrome is a rare congenital disorder and the diagnosis may be difficult to determine. In the ultrasonography, the nuchal translucency scan may indicate an increased risk of fetal aneuploidy but it can be also an evidence of other genetic disorders. It is therefore necessary to carry out invasive diagnostics, including other rarely occuring genetic diseases, as well as the most common ones. Klippel-Feil syndrome, due to defects of the skeletal system, is an indication for caesarean section.

Key words: Klippel- Feil syndrome, obstetrics, congenital disorder.

2nd prize in Case Report Surgical Session

Title: What happens when Endovenous Laser Ablation goes wrong?

Authors: Emil Kania, Agnieszka Paszkowska

Affiliation: Vascular Surgery Clinic USK Białystok

Introduction: One of the very rare Endovenous Laser Ablation complication may be a damage of vessel's wall causing arteriovenous fistula. Fistula is an abnormal connection or passageway between an artery and a vein. It may be congenital, surgically created as an access for hemodialysis. It may be also acquired due to pathological processes, such as trauma or erosion of an arterial aneurysm.

Case report: 68 year old woman was admitted to the Vascular Surgery Clinic in January 2015 with massive oedema, severe pain and skin trophic changes of right lower extremity - the symptoms of arterial insufficiency. In 2013 the patient underwent EVLA (Endovenous Laser Ablation) of great saphenous vein in right lower extremity. During the procedure the surgeon caused penetration between iliac vein and iliac artery, making an arteriovenous fistula, which is uncommon finding in that type of operation. In Color Doppler Ultrasound was found a continuous flow from iliac artery to iliac vein, which bypassed the farther vessels of right lower extremity. CT angiography imaging of that area revealed 15mm long loss in the walls of both vessels.

Conclusions: The treatment aimed to restore the blood circulation in right lower extremity was achieved by endovascular implantation of Gore Viabahn endoprothesis. The procedure resulted in returning of the pulse in arteries in the right foot. The conclusion is that application of a flexible, self-expandable stent is successful method in elective closure of the fistula's ostium.

Key words: Fistula, endoprothesis, endovenous laser ablation.

3rd prize in Case Report Surgical Session

Title: 38 year old patient with obsessive-compulsive disorder, gout and chronic sore throat: a case report.

Authors: Anna Gładka, Wojciech Czak

Affiliation: Department of Otolaryngology, Head and Neck Surgery, Wroclaw Medical University

Introduction: Chronic sore throat is very common complaint. The main cause of sore throat is chronic pharyngitis caused by external or internal factors (hypothyroidism, chronic rhinitis or sinusitis). However, pharyngitis might be a manifestation of a serious disease.

Case report: We present the case of 38-year-old patient, with a history of 20 pack-years, who was admitted to hospital due to nasopharyngeal tumor. The patient complained of nasal obstruction from 2002, sore throat for several years, flowing discharge on the back wall of the throat, snoring, dental pain, dysphagia periodic shortness of breath and recurrent inflammation of throat – 2 to 3 times a year. Physical examination on admission showed left nadal septal deviation and hypertrophy of lower nasal turbinate. On the back wall of the throat there was visible muco-purulent discharge, the tonils were enlarged. CT scan of the throat performed on June 2015 revealed tumor of nasopharynx of 34x29x35 mm. The patient was operated on October 2015. Under control of the endoscope the perforation of the nasal septum and a large mass filling the nasopharynx were found. The tumor was removed using Beckman's adenotom. First histopathological examination from intraoperative biopsy revealed nasopharyngeal amyloidosis. Next examination of this sample showed amyloidosis with dense infiltration of neoplastic plasma cells. Patient was treated successfully with surgery and radiotherapy.

Conclusions: Plasmacytoma and amyloidoma are extremely rare and discrete solitary masses of neoplastic monoclonal plasma cells or insoluble fibrinous protein called amyloid. Amyloidosis can be secondary to lymphoid neoplastic process, thus the cases of localized nasopharyngeal amyloidosis should be carefully examined and investigated for the presence of a lymphomatous process. There is a theory, which assumes that amyloidoma is not a pseudotumor, but a remnant of a true plasma cell neoplasm or the manifestation of low-grade Bcell neoplasms. Our case seems to supports that concept.

Key words: Plasmacytoma, localized amyloidosis, sore throat

Title: Three case study of patients with pulmonary lymphangioleiomyomatosis.

Authors: Piotr Cierpikowski, Anna Gładka, Aneta Popiel, Piotr Błasiak

Affiliation: Wrocław Medical University

Introduction: Pulmonary lymphangioleiomyomatosis (LAM) is a very rare disease with a prevalence of 1:1000000 people, which mostly affects females before menopause. The clinical course of LAM is characterised by cystic changes in lungs, progressive dyspnoea and recurrent spontaneous pneumothorax which may lead to death of patient from respiratory failure. The gold standard for diagnosis of LAM is computed tomography and surgical biopsy of lung or involved lymphatics.

Case report: We present analysis of three cases of patients with LAM, who were treated in Thoracic Surgery Clinic. Severe course of LAM – chronic dyspnoea, recurrent pneumothorax – was observed in two patients. They were treated symptomatically and in one case by hormonal therapy. Progressing respiratory failure of these patients led to their death, respectively after 5 and 7 years of treatment. Third patient presented asymptomatic course of disease from 5 years. Main reasons of performed hospital diagnostic were exertional dyspnea and weakness. Diagnosis of LAM was confirmed by histopathological examination in all cases.

Conclusions: Pulmonary symptoms of LAM are similar to other lung diseases and cause that diagnosis of LAM is often delayed. Recurrent pneumothorax in young female should be always considered as LAM. Early diagnosis of LAM may improve on survival of patients.

Key words: lymphangioleiomyomatosis, surgical treatment.

Title: Recurrent giant aneurysm of the anterior communicating artery.

Authors: Aneta Kossowska, Anna Kot

Affiliation: Jagiellonian University Medical College

Introduction: The main goal of treatment of the cerebral aneurysms its complete obliteration. Surgical clipping is most effective treatment option for achievement of this goal.The chance of the aneurysm recurrence after successful clipping is very small. It has been reported as 0.5% per year. Various methods for screening the patients after surgical clipping are discussed, but often patients after clipping do not undergo any radiological imaging.

Case report: A 61-year-old male was admitted to the Neurosurgery and Neurotraumatology Department with a decreased level of consciousness, presenting with auto- and allopsychic disorientation. In addition left-sided hemiparesis was discovered. In 1984, he developed a subarachnoid haemorrhage from an aneurysm located in the anterior communicating artery (ACoA) and underwent clipping of the aforementioned aneurysm. In 2015, he suffered from an ischemic stroke in anterior circulaction region. Patient also suffers from hypertension and type 2 diabetes mellitus. Since that episode he has had left-sided hemiparesis. Imaging tests showed a giant (42mm in diameter) aneurysm of the ACoAlocated as the previous one treated 32 years ago. The characteristisc of the aneurysm disqualified it from intravenous embolization due to a large intraluminal thrombus filling the aneurysm lumen. Bifrontal craniotomy was performed and aneurysm was visualized in the left frontal lobe. Evacuation of the thrombus from the aneurysm sack, removal of previous clip and clipping were performed without complications. Three days after the surgery he developed pneumonia and was intubated for 7 days. After antibiotic treatment he was transfered to a neurological ward in a stable condition. Currently patient is 6-months after surgery, and has no additional neurological deficits.

Conclusions: The careful long-term follow-up to detect recurrent aneurysms and appropriate management to prevent cerebrovascular disease should be recommended for every patient with surgically treated aneurysm.

Key words: recurrent aneurysm, anterior communicating artery, long-term follow-up

Title: Acute pancreatitis complicated by rupture of abdominal aortic aneurysm.

Authors: Sylwia Sławek, Krzysztof Szmyt

Affiliation: Department of General and Vascular Surgery, Poznan University of Medical Sciences

Introduction: Acute pancreatitis (AP) is a potentially life-threatening condition with unpredictable evolution. Extremely rare AP co-exists with abdominal aortic aneurysm (AAA). It is estimated that, among gastroenterological complications associated with ruptured abdominal aortic aneurysm (rAAA) AP occurs in 0.7% and significantly increases the mortality rate. Both, AP and rAAA are risk factors for developing serious infections and abdominal compartment syndrome (ACS). Open abdomen (OA) techniques are increasingly used, in order to prevent ACS occurence.

Case report: We report a case of 65-year man with severe AP by rupture of AAA, which was treated by open abdomen (OA) with application of negative pressure wound therapy (NPWT). The patient was diagnosed with AP based on typical ultrasound and laboratory findings. During the 4th day of hospitalization, the patient's condition deteriorated, epigastric pain had intensified, and clinical symptoms of the hypovolemic shock occurred. Computed tomography angiography indicated ruptured AAA (rAAA). Emergency surgery of rAAA was performed. Immediately, after surgery the negative pressure wound therapy was founded into abdominal wall. The duration of NPWT was 30 hours. Good results of AP treatment were achieved and it was no presence of acute compartment syndrome or other complications. The patient was discharged in good general condition on the 14th day home. During 6-month follow-up there was no evidence of clinical or radiological symptoms of prosthesis infection.

Conclusions: rAAA caused severe AP is extremely rare but life-threatening condition and requires prompt and accurate diagnosis. Application of NPWT in OA therapy allowed to improve control and effectiveness of removing fluid from abdominal cavity and thereby to prevent development of direct IAH and ACS. NPWT also helped in initial rapid closure of the surgical wound and, in protection against intraabdominal infection.

Key words: Acute pancreatitis, Abdominal Aortic Aneurysm, Open Abdomen, Negative Pressure Wound Therapy

Title: Can EndoVAC therapy help with pancreatico-gastric anastomosis insufficiency? The novel approach.

Authors: Krzysztof Szmyt

Affiliation: Department of General and Vascular Surgery, Poznan University of Medical Sciences

Introduction: Pancreatic leakage after pancreaticoduodenectomy is associated with a high morbidity and mortality. Different techniques have been investigated to improve a safety of anastomosis after pancreatic surgery. Negative pressure wound therapy (NPWT) is a well-established treatment based on a device called vacuum-assisted closure (VAC) system. Endoscopic vaccum-assisted wound closure system (EndoVAC) therapy has been proven to be an important alternative in patients with upper and lower intestinal leakage not responding to standard endoscopic and/or surgical treatment procedures.

Case report: A 72-year-old patient was admitted to the Department of General, Endocrinological and Gastroenterological Oncology Surgery because of diagnosed tumor in the head of the pancreas. A CT scan revealed a tumor in the head of the pancreas (14x11x10cm). Pancreatoduodenectomy (Whipple procedure) was performed. Intraoperative histopathological examination diagnosed a neuroendocrine tumor of the pancreas. At 6 day after primary surgery a pancreatico-gastric anastomosis insufficiency was diagnosed. The patient was re-operated twice, at 7 and 15 day after the primary surgery. Because of deterioration of patient's general condition, patient was qualified for EndoVAC therapy at 20 day following the primary surgery. Continuous negative pressure of 100 mmHg was set up. At 6 day following initiated EndoVAC therapy, the check-up with endoscopy was performed. The size of the anastomotic fistula significantly decreased and there was no indication for further NPWT. Patient was discharged from hospital at 21 day after the NPWT was implemented with any signs of pancreatico-gastric anastomotic dehiscence.

Conclusions: EndoVAC provides perfect wound drainage, closure of the various kind of defect and promotes tissue granulation. This therapy may significantly improve a morbidity and mortality. Moreover, EndoVAC may be usefulness in the multidisciplinary approach – from upper gastrointestinal to rectal surgery complications. Further extensive, large-cohort studies need to be performed to establish application and effectiveness of EndoVAC, before routine widespread use can be recommended.

Key words: EndoVAC, Negative Pressure Wound Therapy

Title: The usefulness of negative pressure wound therapy for the treatment of initial inflammatory phase Charcot neuroarthropathy

Authors: Krzysztof Szmyt, Sylwia Sławek, Krzysztof Wachal

Affiliation: Poznan University of Medical Sciences, Department of General and Vascular Surgery

Introduction: Negative pressure wounds therapy (NPWT) has now become a standard in the treatment of difficult healing wounds. The NPWT is particularly helpful in the treatment of infections and chronic wounds in patients with the diabetic foot (DF). One of the most destructive complications of diabetes is the Charcot neuroarthropathy (CN). The aim of the study is to evaluate the effectiveness of NPWT in the treatment of painful, edematous phase of CN in patients with DF.

Case report: We present two clinical cases of NPWT application in patients with painful and unremitting foot edema in course of CN without the presence of wounds and ulcers. In both cases, the management strategy with the use of the NPWT gave advantageous results for patients. In both cases there was an improvement within the parameters of skin microcirculation, highly significant decrease of swelling and edema. There was also a significant reduction of pain, normalization of CRP and WBC count. Both patients were observed by us for nearly 3-years after the end of treatment, and we did not reveal any complications or recurrence of the previous symptoms.

Conclusions: The application of NPWT in edematous stage of the CN has not been previously reported in the world literature. Although the application of NPWT in general clinical practice is very broad, the use of NPWT in CN is novel and innovative. The treatment with NPWT may bring good results in patients with CN and acute edema, even after failure of conservative therapy.

Key words: Laser Doppler, Charcot arthropathy, Foot complications, Vascular surgery

Title: Treatment difficulties in patient with Malignant Peripheral Nerve Sheath Tumor lacated in rectosigmoid junction - case report.

Authors: Monika Trojakowska, Marta Wojciechowska

Affiliation: Nicolaus Copernicus University, Ludwik Rydygier Collegium Medicum in Bydgoszcz

Introduction: Malignant Peripheral Nerve Sheath Tumor (MPNST) originates from a peripheral nerve or exhibit nerve sheath. It can arise from multiple cell types making diagnosis and clessification difficult. It comprises 5-10% of all soft tissue sarcomas. The most common sites of occurance are upper and lower extremities and the trunk, but it may be found in other locations, such as digestive tract. In general population MPNST is very rare and its estimated incidence is 0,0001%. Approximately half of the cases are associated with Neurofibromatosis Type 1 (NF1). These tumors are characterised by a high risk of local recurrence. Surgical resection is the first-line treatment. Patients often need adjuvant and neoadjuvant treatment (chemotherapy and radiotherapy).

Case report: A 49-year old man visited OC clinic in 2011 suffering from painless rectal tumor. Imaging showed a 15x12x19mm tumor localised near rectosigmoid junction. Patient was undergone anterior rectal resection. Histopathological diagnosis was MPNST G2. In 2013 PET-imaging revealed a local recurrence of the disease. Despite preoperative radiotherapy, tumor removal was not possible during laparotomy. Moreover, intraoperative multiple peritoneal tumors were found, histopathologally verified as MPNST. Patient was applied chemotherapy (Ifosfamide). MRI in 2014 presented numerous metastases, inter alia in liver. Treatment with chemotherapy ADIC scheme until 2016 resulted in disease stabilisation.

Conclusions: The case above ilustrates the therapeutic difficulties in patients with MPNST in rare location. It is unique due to the occurence of this extremaly rare tumor in patient who was not charged with risk factors like NF1 or previous radiotherapy. Thanks to proper treatment, including surgery, radiotherapy and chemotherapy patient survived over 5 years after diagnosis, despite advanced disease.

Key words: Malignant Peripheral Nerve Sheath Tumor, rectosigmoid junction tumor

Title: Clinical difficulties with the evaluation of papillary thyroid cancer.

Authors: Natalia Lesiewska, Joanna Bąk, Marta Czupryniak, Michał Wałęsa

Affiliation: Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University, Medical Department

Introduction: Thyroid cancer is one of the most prevalent malignancy of the endocrine system, with papillary thyroid cancer being the most common variant. A proper diagnosis may be difficult due to wide morphological spectrum of this type of neoplasm.

Case report: The patient is a 65 years old Caucasian female who presented with focal lesion on the right lobe of thyroid. As revealed in ultrasound, 12 x 11 mm mass was homogenous without observed blood flow and lymph nodes enlargement. After fine-needle aspiration (FNA) biopsy the papillary thyroid carcinoma was suspected. On the basis of intraoperative frozen section analysis, which resulted in diagnosis of papillary thyroid carcinoma, the patient had total thyroidectomy with central lymph node dissection. Nonetheless, postoperative histopathological workup did not confirm the initial diagnosis, however, colloid goitre was revealed. The evaluation of thyroid neoplasm lesions are problematic due to their indistinctive and diverse histopathological and in imaging presentation. Imaging studies are useful tools in an estimation of metastases. Thyroid gland and adjacent lymph nodes are commonly evaluated by ultrasound imaging modality (USG), however FNA biopsy remains established method in the diagnosis of papable nodules. Computed Tomography (CT) can be also utilized in some case scenarios to display and evaluate changes in neck and upper mediastinum. Pathological examination has the biggest importance and consists of: intra operative frozen section examination, which determines the extent of the operation due to specific algorithm; and postoperative histopathological study to confirm the diagnosis.

Conclusions: Presented case report resemblances clinical difficulties with the evaluation of thyroid papillary cancer due to the morphological diversity of this type neoplasm, interdependent of abilities and experience of pathologists.

Key words: papillary thyroid carcinoma, Work-up, FNA, thyroidectomy,

B1. Cardiology & Cardiosurgery Session

1st prize in Cardiology & Cardiosurgery Session

Title: Usefulness of serum C-reactive protein level as prognostic factor in patients with chronic heart failure.

Authors: Daniel Rogowicz[1], Łukasz Wołowiec[1], Joanna Banach[1], Ewa Gruszczyńska[2], Katarzyna Buszko[3], Władysław Sinkiewicz[1]

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Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń.

Introduction: Heart failure (HF) is a cardiological disease which is characterised by a constantly increasing morbidity and mortality rates. There are still searches for bio-chemical markers which better describe this group of patients and which may be used as prognostic factors in forecasting repeated hospitalization and death for patients with HF.

Aim: The goal of this paper was to assess the usefulness of marking the highly specific C-reactive protein (hs-CRP) as a potential predicator for death within a 24-month follow-up in patients with systolic chronic heart failure (CHF).

Materials and methods: The study group was comprised of 165 patients with chronic NYHA II-IV class heart failure who were hospitalized. All patients from the examined group underwent, on admission, routine lab tests as well as they were tested for the plasmatic concentration of protein C-reactive with a turbidimetric method with high sensitivity (hs-CRP), plasmatic concentration of ferritin and plasmatic concentration of N-final pro-peptide natriuretic type B (NT-proBNP). 31 healthy individuals served as negative controls. The follow-up period took 24 months and the endpoint included the death for any reason during the follow-up.

Results: 28.5% of patients died during a 2-year follow-up. Those patients were characterized by significantly statistically higher NYHA class, lower ejection fraction and higher plasma concentration medians of hs-CRP, troponin T and NT-proBNP. The comparison of the examined group and the control group has shown that the plasmatic hs-CRP level was statistically different in both groups. In univariate analysis, a statistically significant impact on the occurrence of the endpoint was observed: NYHA class (p = 0,007), EF (p = 0,018), hs-CRP (p = 0,002), NT – proBNP (p < 0,001) oraz BMI (p = 0,0496). Multivariate analysis has shown that hs-CRP (p = 0,028), NT-proBNP (p = 0,007), NYHA class (p = 0,032) and BMI (p = 0,048) are independent significant predictors of death. In the ROC analysis the suggested cut-off point for hs-CRP amounted to 11,99 mg/L, AUC=0,617 (0,521-0,712), p=0,0168, whereas for NT-proBNP it was 1615 pg/ml, AUC=0,659 (0,569-0,75), p=0,0005. No statistically significant difference in the power of diagnostic tests was observed between of hs-CRP and NT-proBNP. For particular cut-off points, Kaplan- Meier survival analysis was conducted. It was demonstrated that the suggested cut-off points for both hs-CRP (p<0.001) and NT-proBNT (p=0.006) divide patients into two groups showing statistically significant differences in terms of overall survival. Increased concentrations of hs-CRP and NT-proBNT were connected with higher risk of death than an increased concentration of NT-proBNP itself.

Conclusions: It seems that plasmatic concentration of hs-CRP can be considered as a valuable predictor of death in patients hospitalized with systolic chronic heart failure in NYHA class II-IV.

Key words: chronic heart failure, hs-CRP, prognosis

2nd prize in Cardiology & Cardiosurgery Session

Title: The level of indoxyl sulfate is associated with fibrinolysis disorders in patients with chronic kidney disease on conservative treatment.

Authors: Kamiński T., Karbowska M., Pawlak K., Myśliwiec M., Pawlak D.

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2) Monitored Pharmacotherapy;
3) Nephrology and Clinical Transplantation,
Medical University of Bialystok, Poland.

Introduction: Patients with chronic kidney disease (CKD) are at higher risk of incidence of thromboembolic events. The effect of continuous loss of function of nephrons is a progressive accumulation of uremic toxins. Indoxyl sulfate (IS) is an aggressive uremic toxin exerting proinflammatory and prooxidative properties, which affects multiple signaling pathways.

Aim: We examined the association between indoxyl sulfate and disturbances of fibrinolysis system in predialysis patients with CKD.

Materials and methods: Studies have been conducted on a group of 53 patients with CKD on conservative treatment and 18 healthy volunteers. For the determination of parameters of fibrinolysis ELISA-immuno-enzymatic kits were used, whereas the IS levels were determined by HPLC. The hematological and biochemical parameters were assessed using standard laboratory methods.

Results: IS concentration was about three-fold higher in CKD patients compared to controls ($p<0,0001$). Parameters of fibrinolysis: urokinase receptor (uPA), soluble urokinase-type plasminogen activator receptor (suPAR), tissue plasminogen activator (tPA), plasminogen activator inhibitor-1 (PAI) and plasmin-antiplasmin complex (PAP) in uremic group were significantly higher than in control group ($p<0.05$, $p<0,0001$). IS levels were positively correlated both with CKD markers and uPA and suPAR ($p<0,0001$, $r\geq0,45$), and negatively correlated with levels of tPA and PAI and these results were also statistically significant (all $p<0,05$, $r\geq0,35$). Moreover, we found inverse correlation between IS and some hematological parameters (HCT, HGB, WBC, LIM and RBC).

Conclusions: The results demonstrate a strong relationship between indoxyl sulfate and fibrinolysis activity in CKD patients. It opens a new idea that IS can play a crucial role in the occurrence of thromboembolic events in CKD patients.

Key words: Indoxyl Sulfate, Chronic kidney disease, Fibrynolysis, Hemostasis disorders

3rd prize in Cardiology & Cardiosurgery Session

Title: Invasive cardiac procedures - the coronary sinus access is a help or disturb?

Authors: Krzysztof Szmyt, Sylwia Sławek

Affiliation: Poznań University of Medical Sciences, The Young Judicial Medics Association

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

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

Materials and methods: We performed macroscopic measurements in 61 cadaver hearts during autopsy examination (mean age 47.7±20 years, 20% of female) using electronic caliper. Exclusion criteria were the presence of the cardiac disease in the medical history, the presence of heart injury or state of putrefaction. We calculated the weight and volume of the heart, as well as the thickness of both ventricles. We evaluated the morphology of the CS ostium into the right atrium, and measured the ostium surface as follows πr^2. We also assessed the presence and shape of the TV. The types of TV were classified according to their shape as semilunar/fenestrated/a fold/a chord. The length and maximum diameter of the CS, the presence of VV, as well as the distance between the CS and the mitral annulus were measured. All data were statistically analyzed.

Results: The mean heart mass in all studied group was 390.0±93.6 g, and was significantly lower among women than men (317.75±62 g vs. 407.63±91.9 g, p= 0.0012). The mean CS ostium surface was 97.8±93.8mm² and positively correlated with heart mass (p=0.009). The Thebesian valve was present in 62.3% (38 of 61) of heart specimens. Semilunar was the most common type of Thebesian valve in terms of shape (68.42% of valves) A chord was observed in 13.16%, a fold in 10.53%, while fenestrated CS in 2.63%. Mixed-shaped (both semilunar and the chorda) CS accounted for 3.28% of Thebesian valves. The Vieussens valve was present in 3.18% of hearts. The mean CS length was 63.7±19.5 mm and significantly correlated with left ventricle thickness (14.9±3.0 mm), (r=0.572, p=0.0001). The average of maximum CS diameter was 25.2±7.7 mm and was significantly correlated with CS length (r=-0.307, p=0.016) and heart age (r=0.292, p=0.022). The mean distance between the CS and the mitral annulus (10.4±5.4 cm) significantly correlated with CS length (r=-0.423, p=0.001), left ventricle thickness (r=-0.33, p=0.011) as well as with CS ostium surface (r=-0.33, p=0.008).

Conclusions: Our results indicate large variability in CS anatomy. The knowledge of the anatomical relationships in human heart may facilitate the safest access to the venous system of the heart during indirect invasive procedures. The close proximity of the CS to the mitral annulus still is not a paradigm.

Key words: Coronary sinus, Thebesian valve, mitral annulus, semilunar valve, Vieussens valve.

Title: Analysis of Non-planned Thirty Day Rehospitalization Causes and Costs Following Coronary Artery Disease.

Authors: Białowąs Kacper, Bulwin Beata, Kolanowska Dorota

Affiliation: Collegium Medicum im. Ludwika Rydygiera w Bydgoszczy UMK w Toruniu

Introduction: Coronary artery disease (CAD), together with other cardiovascular diseases, is the most common cause of death in developed countries. Unfortunately, even optimal treatment after an acute coronary event does not prevent complications from the cardiovascular and other systems, which often cause early rehospitalisation. Readmission may also be due to a natural progression of the disease or be elective in order to continue the treatment.

Aim: In our study we focused on the analysis of the most common causes of non-planned readmissions in patients initially hospitalized due to CAD and costs that it generates.

Materials and methods: This retrospective single-center study examined readmission causes in 38 patients (average age 71,89 ± 11,22) initially treated in Cardiology Department at University Hospital No 1 in Bydgoszcz, in 2015. All data required for this study was obtained using OPEN CARE system. We evaluated causes of readmissions of patients initially admitted due to CAD and rehospitalized non-electively within 30 days after discharge. We calculated the percentage of causes of readmissions using the internal hospital system and ICD-10 final clinical diagnosis in relation to all patients. We estimated costs of hospitalisation using a standard ratio designed by National Health System, which is 51,50 PLN for one procedural point.

Results: Among the evaluated patients the results based on the internal hospital system are as follows: 34,21% of readmissions were due to unambiguously different disease; 21,05%- the lack of implementation of the recommendations after the initial hospitalization; 10,53%- the specific nature of the disease and its routinal treatment; 10,53%- too early discharge of the patient resulting from inadequate assessment of the clinical status of the patient at the day of discharge; 5,26%- progression of the disease; 5,26%- too early discharge of a patient on his or her demand; 13,16%- others. Among the evaluated patients the results based on final clinical diagnosis according to ICD-10 are as follows: 23,68%- NSTEMI; 18,42%- UA, 10,53%- HF; 7,90%- STEMI; 7,90%- arrhythmia; 2,63%- pericarditis; 28,94%- others. The total cost of rehospitalisations for the National Health System was 338476,2 PLN.

Conclusions: About 1/3 of non-planned thirty day readmissions after CAD were due to human error, both medical staff and patient. Special emphasis should be put on education and awareness of the consequences of poor communication between doctors and patients

Key words: coronary artery disease, 30-day rehospitalisation, non-planned, cause

Title: Pathophysiology and clinical consequences of ischemia-reperfusion injury.

Authors: Tomasz Aleksiewicz

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Collegium Medicum Bydgoszcz, Nicolaus Copernicus University

Introduction: WHO reports that cardiovascular and cerebrovascular diseases are leading causes of death in high income countries to which Poland belongs. Mechanism underlying mentioned diseases is primarily ischemic. Treatment is reperfusion. That could be achieve by thrombolytic therapy, percutaneous coronary intervention (PCI), surgery and other therapeutic options. Nowadays is known that after restore the blood flow the damages in ischemic tissue are greater than damages causes only by the ischemic. It is called ischemia-reperfusion injury (IRI). Knowledge of mechanism underlying IRI and clinical implications are important to treat properly patient with illnesses causes by ischemic.

Aim: Aim of these presentation is review knowledge about pathophysiology and treatment ischemia-reperfusion injury and to inform the audience how important is IRI in clinical practice.

Materials and methods: The investigator searched the scientific to find scientific articles about IRI.

Results: Research found 11 review articles and 13 original articles with experiments about ischemia-reperfusion injury.

Conclusions: Mechanisms underlying ischemia-reperfusion injury are complex. Reduction of intracellular ATP is causing endothelial injury and accumulation of reactive oxygen species (ROS). The blood flowing into reperfusion tissue is carrying white blood cells (WBC). They are release proinflammatory factors. WBC are primarily responsible for inflammatory response. Clinical consequences of reperfusion could even involve systematic inflammatory response syndrome (SIRS) which is life threatening condition. Avoiding IRI is difficult. It is possible to moderate the consequences of reperfusion. Numerous of IRI therapy had not confirmed in clinical trials. These sentence refers to adjunctive therapy to PCI by administration the Cyclosporine A or adenosine. Hypothermic therapy is well documented therapeutic strategy, which reduce the infract size. For now, effective therapeutic strategy, implement the knowledge from basic science to clinical treatment and more research combining various treatment strategies are needed.

Key words: ischemia-reperfusion injury, clinical implications, pathophysiology, treatment.

Title: Bleeding complications in patients on anticoagulation therapy, who undergo cardiac electronic device implantation.

Authors: Sylwia Sławek

Affiliation: Department of General and Vascular Surgery, Poznan University of Medical Sciences

Introduction: Nowadays, it is still observed the constant growth in the number of application of implantable cardiac electronic devices (CIEDs) in a wide spectrum of heart rhythm disorders. It is estimated that approximately 40% of patients undergoing CIED surgery receive anticoagulation therapy (ACT) for the treatment of coexisting morbidities. There is continues and unfulfilled need for the evaluation of the safe and influence of ACT on the risk of bleeding complications at the time of CIED implantation.

Aim: The study was designed to assess the risk of significant bleeding complications in patients receiving ACT at the time of CIED surgery and the utility of the HAS-BLED scale in the prediction of bleeding events.

Materials and methods: We performed a prospective study in 226 consecutive patients undergoing CIED (pacemakers, cardioverter-defibrillators and cardiac resynchronization therapy devices) implantation. Among all patients included to the study: 127 patients required the use of ACT, and 99 patients was a control group. ACT group was then divided into subgroups depending on the type of ACT receiving during the five days before the CIED implantation: I- vitamin K antagonists (VKA, n = 70), II- new anticoagulants (NOACs, n = 22), III-bridging therapy with low molecular weight heparin (LMWH , n = 15), IV concomitant treatment with antithrombotic agents (APT + ACT, n = 20). The investigation based on routine blood tests taken before and after CIED surgery. Pre-implantation bleeding risk was assessed using HAS-BLED scale. A significant bleeding complication was defined as a bleeding incident requiring pocket exploration, blood transfusion or decrease in hemoglobin concentration more than 1 mmol/L. An irrelevant bleeding complications was defined as pocket hematoma not requiring any intervention, subcutaneous hematoma or ecchymosis.

Results: Bleeding complications were significantly more frequent in the ACT group compared to controls, 62.9% vs. 35.45% (OR 3.0; 95% CI: 1.74 to 5.29; p = 0.0001). The incidence of major bleeding was comparable in the ACT group and control group, 7.1% and 6.06%. Serious bleeding complications were detected in 4.3% in I subgroup, in 4.5% in II subgroup,, in 13,3 % in III subgroup and in 15% in the APT + ACT. The incidence of pocket hematoma did not differ significantly between the group ACT (35.9%) and control (24.25%). The risk of bleeding evaluated before surgery with a HAS-BLED scale correlated with a decrease of hemoglobin concentration in the ACT group (p = 0.026, r = 0.25).

Conclusions: Treatment with ACTdoes not significantly increase the risk of major bleeding complications as a result of CIED surgery. Results of our study suggest that HAS-BLED scale cannot be recommended in prediction of overall postimplantation bleeding events in patients receiving ACT, but may be helpful in predicting serious bleeding.

Key words: anticoagulation therapy, complications, pacemaker, cardioverter-defibrillator, cardiac resynchronization therapy device, bleeding, HAS-BLED scale

Title: The impact of socioeconomic conditions on the level of adherence to medical recommendations in patients with chronic systolic heart failure.

Authors: Daniel Rogowicz[1], Łukasz Wołowiec[1], Joanna Banach[1], Ewa Gruszczyńska[2], Katarzyna Buszko[3], Władysław Sinkiewicz[1]

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Introduction: According to the registry POLKARD HF, in Poland the number of patients with chronic heart failure (CHF) is estimated at 500 thousand to 750 thousand, whereas in Europe it amounts to 15 million and this number is still increasing because of better treatment of acute coronary events as well as population ageing. Massiego and Shah have named CHF the epidemic of modern times, which requires searching newer, better methods to improve the quality of life and prognosis in this group of patients. Self-care and adherence to medical recommendations in the home setting is crucial in the therapeutic process in patients with CHF and is linked to the improvement of clinical status and the quality of life. Therefore, despite the fact a set of technological innovations has been introduced to medicine, it is still important to educate patients and promote other activities that improve patient self-care and consider patients` socioeconomic conditions as well as cognitive abilities.

Aim: The aim of the study was to determine the level of knowledge of and adherence to selected medical recommendations including the differences caused by socioeconomic conditions in the group of 202 patients with CHF.

Materials and methods: The examined group consisted of 202 patients of Caucasian race: both outpatients and hospitalized in the Department of Cardiology II CM UMK with CHF in class II – IV according to the NYHA due to CHF exacerbation or in order to perform medical procedures as planned. All the patients received optimal medical treatment in accordance with the guidelines of the European Society of Cardiology. Inclusion criteria were age over 18 years, HF with left ventricle ejection fraction (LVEF) <45% assessed during current hospitalization or maximum six months before. Exclusion criteria were acute coronary syndrome, acute heart failure, severe kidney failure(GFR <30ml / min), active cancer, active infection, fever of unknown origin, autoimmune diseases decompensated diabetes mellitus requiring insulin intra venous infusion and chronic inflammatory bowel diseases. Each patient had to complete a questionnaire consisting of sociodemographic data and questions assessing the degree of knowledge of and adherence to medical recommendations. All the data from the questionnaires has been compared to clinical information and the results of some additional tests.

Results: The analysis covered 202 patients with CHF with impaired with left ventricle ejection fraction, whose average age was 59 ± 12 years, males were 84.16% of the patients. In the examined group, only 23% of the patients knew all medical recommendations and adhered to them. The best known recommendation was regular medicines intake, on the other hand, the least known was the necessity of daily weighting and the awareness of increased risk of depression. Regular medicines intake was the most adhered to whereas the patients complied with regular physical activity the least. Hospitalized patients differed significantly from the outpatients in terms of disease severity assessed by the NYHA class as well as in terms of the ejection fraction. Furthermore, there has not been shown any statistically significant correlation between the level of familiarity and adherence to medical recommendations, with socio-economic conditions and clinical condition.

Conclusions: The lack of statistically significant correlation between the degree of knowledge of and adherence to medical recommendations with socioeconomic circumstances may indicate that doctor - patient communication as well as both the mental and cognitive abilities in patients with CHF play significant role in this aspect

Key words: chronic heart failure, socioeconomic conditions

Title: Biomarkers in chronic heart failure.

Authors: Daniel Rogowicz[1], Łukasz Wołowiec[1], Joanna Banach[1],
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Introduction: Biomarkers in chronic heart failure (CHF) can be used in the diagnosis of CHF, the risk stratification in patients with CHF, the treatment monitoring but also in setting and implementing expensive treatment in a proper time and for a sufficiently short time (in the procedure of heart transplantation or the implementation of implantable device). In recent years, in the PubMed database there were published over 6500 publications that contained keywords such as biomarker and heart failure. The etiology of heart failure is complex, and therefore the markers used in CHF treatment are categorized, for instance, based on to the processes that the markers are involved in, and that are the root cause of development or heart failure progression. The following groups of biomarkers have been distinguished: markers of inflammation, markers of oxidative stress, markers of fibrosis and remodeling of extracellular matrix, markers of neurohormonal activation, markers of cardiomyocyte damage and markers of cardiac stress. Despite the large number of biomarkers reported in CHF, international guidelines still recommend to use only a few of them in routine clinical practice, ie. NT-proBNP, troponin T and I, galectin-3 and sST2. A small number of biomarkers recommended by international guidelines is caused by inconsistent research methodology, the insufficient number of examined group of patients and the lack of explicit reference research results to clinical practice. The solution to this problem may be the expert advice regarding the determination and application of biomarkers in heart failure.

Aim: The aim of the study is to present the current knowledge on the use of biomarkers in the CHF and make recommendations for the determination of new biomarkers of heart failure..

Conclusions: Uniform and consistent rules for research design should be the foundation for future researches, that will clearly show the role of new biomarkers in chronic systolic heart failure. They should include a judicious selection of the observed patient groups, and have clearly defined objectives for the study.

Key words: biomarkers, chronic heart failure.

B2. Endocrinology & Diabetes Session

1st prize in Endocrinology & Diabetes Session

Title: Influence of angiogenin and advanced glycation end-products on the development of increased vascular stiffness, subclinical atherosclerosis and cardiovascular autonomic neuropathy in diabetes mellitus type 2.

Authors: Paweł Stępniewski, Rafał Małecki, Magdalena Stępniewska, Grzegorz Krzyżanowski, Urszula Jakobsche-Policht, Edwin Kuźnik

Affiliation: Wrocław Medical University, PhD Students' Scientific Club "Biomed", Wrocław University of Technology

Introduction: Diabetes mellitus 2 (DM2) is a disease caused by the influence of modern civilization. Its complications increase the risk of blindness, kidney failure, diabetic foot syndrome and generalized atherosclerosis. Proper and specialized diagnostics is very crucial in avoidance of the diabetic complications development. Role of angiogenin (ANG) and advanced glycation end-products (AGEs) in those processes still remains not fully clarified.

Aim: Identify relation between autonomic nervous system function parameters, vascular stiffness indices, subclinical atherosclerosis rate and the concentration of AGEs and ANG in patients with DM2.

Materials and methods: 60 patients with DM2 and treated only with oral antidiabetic drugs were recruited. Authorial questionnaire concerning the basic illness was performed. The patients with history of insulin treatment, serious complications (e.g. diabetic foot syndrome, trophic lesions in course of chronic ischemia of lower limbs) and other severe concomitant diseases were excluded from the research. Blood samples for glycated haemoglobin (HbA1c %), lipid profile, AGEs and ANG (ELISA method) were gathered. Assessment of subclinical atherosclerosis rate (intima media thickness of carotid arteries - IMT; ankle-brachial index – ABI) was performed. Evaluation of vascular stiffness parameters (pulse wave analysis – PWA; pulse wave velocity - PWV) and autonomic nervous system function (heart rate variability – HRV, Valsalva and orthostatic index) was also carried out.

Results: The concentration of ANG and AGE showed positive correlation with peripheral vascular stiffness parameters ($p<0,05$) and negative interdependence with ABI ($p<0,05$), however relevant correlations with autonomic nervous system function, HbA1c %, lipid profile and IMT haven't been found. ABI, patient's age and duration of DM2 showed positive correlation with vascular stiffness parameters ($p<0,05$). Autonomic nervous system function indices (mainly Valsalva index) showed negative correlation with aortic and peripheral augmentation index ($p<0,05$) and the duration of DM2, but relevant connections with HbA1c % haven't been found.

Conclusions: The significance of AGE and ANG associated with ABI, PWA and PWV may oblige in diagnostics of subclinical atherosclerosis and in prevention of serious vascular complications. The impairment level of autonomic nervous system in DM2 isn't properly reflected by biochemical parameters and therefore "Ewing battery" tests should be performed in every suspicion of autonomic neuropathy.diabetes mellitus, atherosclerosis, vascular stiffness, AGEs, ANG

Key words: diabetes mellitus, atherosclerosis, vascular stiffness, AGEs, ANG

2nd prize in Endocrinology & Diabetes Session

Title: Selected endothelial parameters associated with inflammation in morbidly obese patients.

Authors: Katarzyna Szot

Affiliation: Department of Pathophysiology,
Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

Introduction: Morbid obesity is defined as the progressing illness that consists of exaggerated accumulation of adipose tissue in individuals with the BMI over 40 kg/m2. It is associated with cardiovascular risk (stroke, heart attacks), insulin resistance, dyslipidemia. Vascular endothelium play the substantial role in haemostasis and is involved in pathogenesis of various diseases including obesity. Available data has shown essential influence of inflammation in the development of obesity. There is the hypothesis that immune activation in obesity is a homeostatic mechanism to protect the organism from reaching the point at with the over-accumulation of fat decreases the possibility to body moving. However they not concern inflammation in morbid obesity.

Aim: The aim of the study was evaluate selected parameters of endothelial function and inflammation in patients with morbid obesity.

Materials and methods: The study was conducted in 104 individuals, included 74 morbidly obese patients with the BMI>40 kg/m2 [53 females aged 26-57 (mean of 46) and 21 males aged 24-53 (mean of 44)]. The control group consisted of 30 healthy volunteers with normal BMI (under 24 kg/m2), [22 women, aged 28-59 (mean of 44) and 8 males aged 20-56 (mean of 41)]. The patients were under the care of the Clinic of Balneology and Physical Medicine in Ciechocinek, Poland, 38 patients were qualified for elective gastric bypass surgery. The following tests were performed in the citrated plasma: concentrations of soluble forms of selectin E (sE-selectin), selectin P (sP-selectin), and interleukin 6 (IL-6).

Results: Higher concentration of sE-selectin and simultaneous lower concentrations of sP-selectin and IL-6 were observed in patients with morbid obesity as compared to controls.

Conclusions: Over-expression of sE-selectin is the effect of endothelium stimulation. Additionally reduction of sP-selectin concentrations indicate suppression of the platelets activation which not deliver pro-inflammatory mediators accumulated in the platelet granules. Simultaneously decreased level of IL-6 thus can be considered as a different mechanisms of inflammation occur in morbid obesity.

Key words: morbid obesity, vascular endothelium, inflammation

3rd prize in Endocrinology & Diabetes Session

Title: Interdependence of secretory and endocrine pancreatic insufficiency in patients with chronic pancreatitis with concomitant diabetes mellitus.

Authors: Zakharchuk Uliana

Affiliation: Ternopil State Medical University / Department of Primary Health Care and General Practice

Introduction: Chronic pancreatitis (CP) – a pathology with a wide range of clinical symptoms for which typical is a combination of secretory and endocrine insufficiency of the pancreas. In literature there are conflicting data about mutual influence of exocrine and endocrine disorders in patients with chronic pancreatitis (CP) and diabetes mellitus (DM).

Aim: To evaluate the correlation between secretory and endocrine insufficiency in patients with CP with concomitant DM.

Materials and methods: 60 patients were examined with a diagnosis of CP with DM. The control group consisted of 20 quite healthy people. To assess the exocrine function of pancreas noninvasive test was used – defining the level of concentration of elastase in faeces by immunoenzymatic method. Determination of glycosylated hemoglobin (HbA1c) was used for diagnosing and evaluation of endocrine pancreatic insufficiency. Statistical significance of differences of average values was carried by Mann –Whitney U-test ($r<0.05$).

Results: We observed greater endocrine insufficiency on the basis of more severe exocrine insufficiency. The concentration of elastase in faeces was significantly decreased in patients with CP with DM (99.52±13.22) mcg/g against (229.78±4.99) mcg/g control group. The level of glycosylated hemoglobin in patients with CP with DM (8.96±1.39) % ($p<0.001$) was significantly higher than in control group (4.61±0.10) %. In conducting the correlation and regression analysis contrary correlations between the concentration of elastase in faeces and level of glycosylated hemoglobin in the blood ($r=-0.58$; $p<0.001$) were found.

Conclusions: Credible interdepedence between the secretory and endocrine insufficiency in patients with chronic pancreatitis with concomitant diabetes has been proven.

Key words: Chronic pancreatitis, diabetes mellitus, secretory insufficiency, endocrine insufficiency.

Title: Visceral adipose tissue as the active endocrine organ - why is it so important to evaluate the composition and distribution of adipose tissue.

Authors: Paulina Cembrowska

Affiliation: Collegium Medicum UMK, Katedra i Zakład Diagnostyki Laboratoryjnej

Introduction: According to numerous studies, obesity leads to the development of type 2 diabetes, cardiovascular diseases, nonalcoholic fatty liver disease, dyslipidemia, hypertension and contributes to increased mortality. Recently, researchers have shown that adipose tissue is not only energy storage, but affects whole body metabolism by the large number of bioactive proteins. However, due to differences between subcutaneous and visceral adipose tissue, it is crucial to evaluate composition and distribution of body fat instead of the amount of adipose tissue.

Aim: The purpose of this paper is to review recent research regarding differences between various types of adipose tissue. Also it presents bioactive substances secreted by visceral adipose tissue, which impact the balance of our body.

Materials and methods: The systematic literature search was performed by the use of Pubmed as a database. The date range of used article is from 2007 to January 2016.

Results: Adipose tissue produces a large number of hormones and cytokines. It is essential that dysregulation of this endocrine organ and invalid adipokine secretion, may contribute to occurrence of chronic proinflammatory state and abnormality in lipid and glucose metabolism. Due to the secretion of pro-inflammatory and pro-atherosclerotic mediators, the excess of fat mass supports pathological vascular changes, which account for the development of cardiovascular disease. According to researchers, the quantity of adipose tissue is the main issue explaining metabolic disorders. Thus, subcutaneous adipose tissue have a protective role, despite the fact, that it also has a secretory characteristics and large volume.

Conclusions: This paper has explained the importance of the evaluation of accumulation of visceral adipose tissue, which impacts the development of metabolic disorders.

Key words: visceral adipose tissue, obesity, subcutaneous adipose tissue

Title: Clinical characteristics of patients with thyroid ectopy.

Authors: Sylwia Sławek, Krzysztof Szmyt, Małgorzata Kałużna

Affiliation: Department of Endocrinology, Metabolism and Internal Medicine, University of Medical Sciences

Introduction: Thyroid ectopy (TE) is an embryological aberration of thyroid migration characterized by the presence of thyroid tissue at sites other than its normal location. The most common location of ectopic thyroid gland is the lingual region. Patients with TE are usually hypothyroid and at low risk of malignancy. TE may be asymptomatic or cause local compressive symptoms or bleeding.

Aim: The aim of the study is to describe clinical characteristics within a group of 9 patients diagnosed with TE at adult age.

Materials and methods: This study is a retrospective review of 9 cases referred to the Our Department between 2007- 2015. The study group consisted of 7 women and 2 men, aged from 22 to 69 years. Diagnostic procedures included baseline thyroid function tests, thyroid autoantibodies measurement, thyroid ultrasonography, radionuclide imaging.

Results: The most common type of TE was lingual thyroid (55%), followed by sublingual thyroid (33%). Six patients (66%) were hypothyroid and 3 patients (33%) were euthyroid at the time of diagnosis. The average age at diagnosis was 34 years and average BMI was 26.6 kg/m2. Two patients presented compressive symptoms and two patients had dysmorphic features on physical examination. The majority of patients were treated conservatively with levothyroxine (LT4) replacement therapy. One patient was treated with the use of radioiodine. Three patients underwent resection of TE because of compressive symptoms or suspicion of neoplastic process (unconfirmed by histopathology).

Conclusions: TE is a diagnostic challenge. Our study suggests that radionuclide scanning and thyroid function testing may be useful not only for the diagnosis of TE but also before deciding on the therapeutic modality. Surgery should be reserved for patients who do not respond for levothyroxine treatment, present with severe compressive symptoms or have suspicion of neoplastic process.

Key words: thyroid ectopy, lingual thyroid, sublingual thyroid, hypothyoidism

B3. Pharmacy & Laboratory Diagnostics Session

1st prize in Pharmacy & Laboratory Diagnostics Session

Title: Biocompatibility evaluation of nanomaterials functionalized with Fe3O4 for potential application in the treatment of cancer.

Authors: P. Goździk, M. Perużyńska, K. Podsiadło, Ł. Skalski, W. Sachwanowicz

Affiliation: Pomeranian Medical University in Szczecin, Department of Pharmacology

Introduction: Recent developments in nanotechnology enable creation of new targeted medical therapies and increasing use of nanomaterials as carriers of medicaments and various substances allowing simultaneous usage of many therapeutic methods. Nanoflakes i.e., the subject of presented studies, have a unique "sandwich" structure. Thanks to such property, they might be filled with Fe3O4 ferromagnetic and prospectively with medicament. Consequently, chemotherapy of neoplasm and local hyperthermia may be linked. The use of hyperthermia allows elimination of cancer cells while preserving normal tissues.

Aim: Determination of silica and graphene-silica- Fe3O4 functionalized nanoflakes' biocompatibility in vitro. Evaluation of cytotoxicity of the nanomaterials on neoplastic cells induced by alternating magnetic field.

Materials and methods: Study was conducted on A375 melanoma cells cultures. Substances tested were mSiO2-Fe3O4-PEG and GO-mSiO2-Fe3O4-PEG (100, 50, 25, 12.5, 6.25, 3.125 μg/ml). Cells were incubated with the indicated compounds for 24 hours. First, biocompatibility of these substances was measured, then their cytotoxicity under the influence of altering magnetic field. Cell viability was assessed by the mitochondrial activity (WST1) and the integrity of membranes (LDH). As evaluation of nanomaterials' penetration into cells, confocal microscopy was used.

Results: Obtained results confirmed the nanomaterials' biocompatibility in the environment devoid of magnetic field. Significant decrease in the activity of mitochondrial enzymes A375 was observed only at higher concentrations (100, 50 μg/ml) of graphene-silica nanoflakes. Across the concentrations range used, none of the used nanomaterials affected the cell membranes integrity.

Conclusions: In in vitro model no cytotoxic effect of mSiO2-Fe3O4-PEG and GO-mSiO2-Fe3O4-PEG was observed. This is a basis for further studies of these structures with potential antineoplastic effect. In comparison to conventional hyperthermia, usage of ferromagnetic nanocarriers penetrating deep into the neoplasm tissue would allow a local increase in temperature, which could potentially increase the selectivity and improve the efficiency of therapy.

Key words: nanomaterials, biocompatibility, cancer treatment

2nd prize in Pharmacy & Laboratory Diagnostics Session

Title: Development and characterization of lipoplex-loaded nanostructures for gene therapy.

Authors: Malgorzata Tarnowska

Affiliation: Medical University of Lodz, Faculty of Pharmacy,
Department of Pharmaceutical Biochemistry and Molecular Diagnostics

Introduction: The recent discovery of RNA interference (RNAi) and its role in the regulation of cellular metabolism offers perspectives on the development of novel therapeutic tools in cancer treatment. Although RNAi has a considerable potential, several hindrances prevent its clinical application. Short half-life in plasma due to rapid degradation by RNase and high instability of siRNA in biological media are ones of the biggest hurdles.
Novel nanocarriers represent a promising alternative to encapsulate and protect genetic material, which helps to overcome problems related to unfavorable pharmacokinetics of siRNA.

Aim: 1) To establish an efficient and reproducible method to characterize siRNA association to the LNC. 2) To study the influence of LNC hydrodynamic size and charge ratio on the lipoplex association

Materials and methods: Preparation of lipoplex-loadex lipid nanocapsules (LNC) via phase inversion technique (preparation of liposomes, complexation of liposomes with siRNA, formulation of lipoplex-loaded LNC).Physico-chemical characterisation of the system using Dynamic Light Scattering method and encapsulation efficiency studies using RiboGreen Assay.

Results: The results showed a strong correlation between the size and EE of the systems: decreasing the size of LPX-LNC (from 70nm to 30nm) resulted in a ~50% reduction of siRNA encapsulation. Whereas, changes in C/R (from 5 to 2.5), intended as the charge ratio between positively charged liposomes to negatively charged siRNA, did not affect the EE.

Conclusions: 70 nm LPX-LNC was the most successful system that showed the best characteristics in terms of siRNA association (60%) as compared with 30nm LPX-LNC (encapsulation efficiency of 30%). Globally, the characterization performed on these systems and the establishing of the protocol for siRNA detection constitute the bases for the improvement of siRNA delivery strategies.

Key words: lipid nanocapsules, lipoplex, siRNA, gene therapy, nanomedicine

3rd prize in Pharmacy & Laboratory Diagnostics Session

Title: Electromembrane extraction followed by liquid-phase microextraction – A serial hybrid concept for extraction of analytes in a very broad pK a -window-a preliminary study.

Authors: Karol Jaroch[1], Alina Jaroch[2, 3], Chuixiu Huang[4], Barbara Bojko[1], Astrid Gjelstad[4], Stig Pedersen-Bjergaard[4]

Affiliation: 1) Department of Pharmacodynamics and Molecular Pharmacology, Faculty of Pharmacy, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Toruń, Poland; 2) Department and Institute of Nutrition and Dietetics, Faculty of Health Sciences, Collegium, Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Toruń, Poland; 3) Department and Clinic of Geriatrics, Faculty of Health Sciences, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Toruń, Poland 4) Department of Pharmaceutical Chemistry, School of Pharmacy, University of Oslo ,Oslo,Norway

Introduction: Electromembrane extraction (EME) was introduced by the first time in 2006. In this microextraction technique, charged analytes in donor solution migrate to acceptor solution through a supported liquid membrane (SLM). Extraction takes place by dint of electrical power applied to a system. Due to electricity EME process is a rapid and efficient preparation method in which analytes isolation, enrichment and clean-up are done simultaneously in one step. Combretastatins, a class of natural stilbenes, were isolated fromAfrican willow tree Combretum caffrum. Combretastatin A4 (CA4) features potent anticancer activity but due to low water solubility this compound is not suitable as a drug. Therefore, combretastatin A4 phosphate disodium salt (CA4P) was synthesized. In live organism CA4P (a prodrug) is metabolised to CA4 (active compound) rapidly by specific phosphatases.

Aim: The goal of this study is development and validation of selective and rapid CA4 and CA4P extraction method from biological fluids.

Materials and methods: CA4 and CA4P were purchased from Sigma-Aldrich. An ES 0300-0.45 power supply from Delta Elektronika BV was employed. The platinum wires (0,5 mm diameter) were used. The pH value in donor and acceptor solution was adjusted with PBS. Accurel polypropylene flat membrane from Membrana was used. Organic solvents used as SLM were: 1-heptanol, 1-octanol, 1-nonanol, 2-nonanone, 2-octanone, dihexylether, NPOE, 1-heptanol+35%NPOE. The HPLC-UV analysis was carried out using a Dionex Ultimate 3000 system. HPLC solvents were purchased from Merck.

Results: The 1-heptanol was found to be the most efficient SLM solvent. In high alkaline conditions in donor solution both compounds are charged but CA4P is double charged and due to this electrokinetic diffusion doesn't occur and recovery is close to zero. At lower pH in donor solution CA4P (pKa1 1,62 and pKa2 6,59)carries only one charge but CA4 (pKa 9.84) is uncharged. However, in these pH conditions still both compounds are extracted from a water sample. Acceptor solution pH was adjusted to high alkaline conditions.

Conclusions: The most efficient conditions for CA4 and CA4P extraction are similar to other acidic drugs EME: higher alcohol as a SLM solvent, highly alkaline acceptor solution condition. Generally, highly alkaline conditions in donor solution are required for extraction. However, in this particular case, due to broad pKa value of target drugs CA4 is extracted by passive diffusion (LPME) and CA4P is extracted by EME.

Key words: Electromembrane extraction, combretastatin, liquid-phase microextraction.

Title: Association of COMT and DAT1 gene variants in depression and obesity.

Authors: Natalia Lesiewska[1], Alina Borkowska[1] , Marta Tomaszewska[1], Maciej Bieliński[1], Marcin Sikora[2], Andrzej Tretyn[2]

Affiliation: 1) Department of Clinical Neuropsychology, Collegium Medicum, NCU Bydgoszcz, Poland
2) Nicolaus Copernicus University Biotechnology Department, Toruń, Poland

Introduction: Obesity and major depressive disorders (MDD) have become a serious global problem due to low quality of life and increasing mortality associated with these disabling conditions. Many studies provide evidence that alleles of dopamine transporter gene (DAT1) and catechol-O-methyltransferase gene (COMT), which are involved in dopaminergic neurotransmission, may contribute to major mental illnesses and weight disorders via influencing the reward system.

Aim: The aim of this study was to determine whether there is an association between the occurrence of polymorphisms in dopamine-related genes and the prevalence of depressive symptoms in obese patients. Two polymorphisms were tested: a 40-bp variable tandem repeat in the dopamine transporter (DAT1) gene and a Val158Met polymorphism in the COMT gene.

Materials and methods: This study involved 364 patients (231 females, 133 males) with obesity. Biometric analyses were used to measure body mass index (BMI) as a proxy for adiposity. Beck Depression Inventory (BDI) and Hamilton Depression Rating Scale (HDRS) were utilized to evaluate a prevalence of depression. DNA was obtained for DAT gene and COMT gene-linked polymorphism (DAT1 and COMT Met158Val) genotyping.

Results: In obese patients 9R genotype of DAT1 as well as Met/Met genotype of COMT were correlated with higher depressive scores. Subjects with 9R presented significantly higher BMI and greater intensity of depressive symptoms in BDI and HDRS. Met/Met subjects presented significantly greater intensity of depressive symptoms in BDI and HDRS but association with BMI wasn't statistically significant. BMI correlations with BDI and HRDS ware statistically significant. Patients who were moderately obese scored higher in BDI, while very severely obese subjects scored higher in HDRS.

Conclusions: In obese patients 9 allele of DAT1 was associated with greater depressive scores and BMI while Met allele of COMT corresponded only with greater prevalence of depression. Modulation of reward system due to polymorphism differentiation may be involved in manifestation of depression in obesity subjects.

Key words: BDI; Depression; HRDS; Obesity; Dopaminergic neurotransmission

Title: The phototoxicity and photomutagenicity of fluoroquinolones combined with selected excipients in ophthalmic formulations.

Authors: Anna Zgadzaj, Anna Dziełak, Agata Skrzypczak, Grzegorz Nałęcz-Jawecki

Affiliation: Medical University of Warsaw, Department of Environmental Health Sciences

Introduction: Investigating the phototoxicity and photomutagenicity of drugs in various formulations is important to increase the knowledge about the photosafety of pharmaceuticals and to avoid their adverse effects caused by the light exposure. Fluoroquinolones (FQ) are antibiotics often used as components of various ocular formulations. On the other hand many FQ are photolabile and their photodegradation products are known to be toxic and genotoxic. Photolysis of antibiotics may also lead to the reduction of their antibacterial activity.

Aim: Analysis of the FQ photoreactivity not only as single compounds but also as components of mixtures may provide new information in the field of the photochemistry and new possibilities to increase the photosafety of pharmaceuticals. There are several new or widely known ocular excipients that may have an influence on the photosafety of photolabile drugs, like antioxidants, sunscreens or preservatives. However, their photoprotective effect has never been investigated in combination with FQ. Therefore, the aim of this work was to evaluate the influence of selected excipents (p-coumaric acid, benzophenon-4 and benzalkonium chloride) on the phototoxicity, photogenotoxicity and photodegradation of three FQ widely used in ocular formulations.

Materials and methods: The irradiation of samples was performed with sunlight simulator or UV lamps. The photodegradation was monitored by the HPLC method. The phototoxicity and photogenotoxicity of all mixtures were evaluated with a set of in vitro tests on mammalian cells: lactate dehydrogenase release assay, neutral red uptake test, the methylthiazole tetrazolinum reduction assay and the micronucleus test.

Results: Several variants of tested mixtures revealed differences in the photodegradation, photogenotoxicity or phototoxicity of irradiated solutions in comparison with single FQ, especially the antioxidant combined with ciprofloxacin.

Conclusions: Results of these research may help to develop new formulations of photolabile drugs and provide new information about possibilities to increase the photosafety of pharmaceuticals. Results obtained for tested mixtures may be the basis for further research on their clinical use.

Key words: fluoroquinolones phototoxicity photodegradation

Title: Structure-activity relationship in compounds with antifungal activity.

Authors: Łukasz Fijałkowski, Alicja Nowaczyk

Affiliation: Department of Organic Chemistry,
Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: The introducing a new substance as drug is very long and expensive process. The estimate cost of the introducing the new drug is increasing exponentially since the fifties. This situation is caused by increasing cost of clinical trials, raising a security standards and limited sources of new compounds. All mentioned facts induced development of in silico computational methods, based on computer simulation of reality and making various databases. The analysis of molecular properties plays major role in prediction the effectiveness of compound as medicine. The first collection of the most significant parameters and their optimal values were determined by Lipinski and co-workers also called "Rule of five". Thiazolidin-4-one derivatives was chosen to our study because of their broad spectrum of activity. The antitumor, antiphlogistic, analgetic, anticonvulsant and antimicrobial activity were confirmed so far. Many studies indicate, that thiazolidin-4-one derivatives exhibit antifungal activity.

Aim: In this work we described molecular properties of all currently registered antifungals. Moreover comparison between antifungal drugs and selected compounds with potential antifungal activity was conducted.

Materials and methods: Results of our study were obtained using Osiris DataWarrior software. During research we created two different chemical databases. Structures of antifungal drugs were downloaded from FDA website. Examined molecules were collected from publications of D. Prasad and C. Kavitha. For every structure selected physicochemical parameters were independently designated and the analysis between preferred parameter groups relationship was performed.

Results: In this study following Lipinski and Veber parameters for every compound were autonomously determined. We presented received results separately on figures. Moreover, to compare gained data the comparative analysis was performed. Among investigated molecules only three compounds don't meet the requirements of Lipinski's rule.

Conclusions: The conducted analysis confirms, that Osiris DataWarrior software is good tool to preliminary analysis of compounds with potential activity. The analyzed thiazolidin-4-one derivatives exhibit similar molecular properties to registered antifungals. At most of cases conducted tests confirmed in vitro antifungal activity. Therefore, our study suggest that after exclusion toxic, mutagenic and cancerogenic effects, thiazolidin-4-one derivatives will be good drug candidate compounds.

Key words: Antifungals, Rule of five, Veber rule, thiazolidin-4-one derivatives.

Title: Synthesis of new amidrazone derivatives with potential biological activity.

Authors: Aleksandra Stojanović, Renata Paprocka, Bożena Modzelewska-Banachiewicz

Affiliation: Department of Organic Chemistry, Faculty of Pharmacy, Nicolaus Copernicus in Toruń

Introduction: Amidrazone derivatives have a variety of biological activity, for example they can be used as antiviral, antibacterial, antifungal, antiinflammatory and analgesic medications.

Aim: The aim of the study was to obtain new derivatives of particular amidrazone in reaction with cyclic anhydrides and to determine the initial biological activity of obtained products.

Materials and methods: The course of the reaction of N-p-tolylpicolinohydrazonamide with tetrahydrophthalic anhydrides was examined in different conditions (various solvents, temperature). The structures of new compounds were confirmed by spectral methods (NMR, MS). Preliminary assessment of biological properties was achieved by using Lipinski's rule of five and topological planar surface area (TPSA) values. In order to determine the type of potential pharmacological activity of obtained chemical structures was used program PASS Online (Prediction of Activity Spectra of Substances).

Results: The result of the carried out reactions was obtaining five new derivatives. All compounds qualify for "rule of five" and have moderate TPSA values which may suggest their advantageous pharmacokinetics properties (bioavailability, absorption, penetration via cell membranes). PASS program predicted possible biological activities such as for example: antiinflammatory, fibrinolytic, thromboxane B2 antagonist, erythropoiesis stimulant, kidney function stimulant, antiviral.

Conclusions: Obtained compounds have beneficial parameteres. Since the leading causes of death in Europe are coronary artery disease and stroke finding out that these products can be used as anticoagulant medications raises hope, so they are considered worthy of future biological research. In the immediate future derivatives will be accurately investigated to prove their biological activity.

Key words: biological activity, PASS, amidrazone, synthesis

Title: Molecular docking study on 2-substituted 4-hydroxybutanamide derivatives as potential human GABA uptake inhibitors.

Authors: Łukasz Fijałkowski, Alicja Nowaczyk

Affiliation: Department of Organic Chemistry,
Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: γ-Aminobutyric acid (GABA) is one of the main inhibitory neurotransmitter in the human central nervous system (CNS). The main role of GABA emerges from its inhibitory action within the neurons of the CNS. Altered GABAergic transmission often results in seizures, anxiety, neurodegenerative disorders, schizophrenia, motion impairment, insomnia, pain or alcoholism. In GABA removal from the synaptic cleft specific plasma membrane transporters (GABA transporters, GATs) are involved. They are heterogeneously expressed in different brain regions and situated on glial cells or presynaptic neuronal terminals. Drugs that inhibit GABA uptake activity (e.g., tiagabine; Gabitril®, Cephalon) are used as effective anticonvulsants. Moreover, GABAergic transmission plays a key role in the inhibitory regulation of the nociceptive process, especially within the dorsal horn of the spinal cord. Therefore, many GABAergic drugs reveal antinociceptive activity.

Aim: In current analysis we investigated the affinity of potential GABA uptake inhibitors to human GAT1 transporter using molecular docking technique. Moreover we performed comparative analysis between GABA, γ-hydroxybutyric acid (GHB), examined compounds and nine registered antiepileptic drugs with verified additional analgesic activity.

Materials and methods: Ligand preparation. The 3D structure of nine antiepileptic drugs, GABA and GHB were downloaded from ZINC database. Four potential GABA uptake inhibitors were synthesized at the Department of Physicochemical Drug Analysis, Pharmaceutical Faculty, Jagiellonian University in Kraków. Structures of these compounds were constructed using the GaussView 4.1.2 program. Finally, the Gasteiger charges were assigned to each compound using the AUTODOCKTOOLS software. Molecular docking. The protein sequence for the hGAT-1 protein was gained from the Swiss-Prot database (accession number P30531). Molecular docking was performed using the AUTODOCK 4.2 SUITE software. The ligand binding site is formed by a shell of 13 surrounding important residues such as Tyr60, Ala61, Gly63, Gly65, Leu136, Tyr140, Phe294, Ser295, Tyr296, Gly297, Leu300 and Thr400. The docking calculations were carried out using the Lamarckian genetic algorithm. The optimal docking result in each case was considered to be the conformation with the lowest binding energy. Hydrogen bonds between docked potent agents and related macromolecule were analyzed using Autodock tools program (ADT, Version 1.5.4).

Results: During performed analysis we obtain following data: ligand affinities, inhibition constant, hydrogen bond energies, their distances and angles. It was found that 2-substituted 4-hydroxybutanamides derivatives could interact with active site of human GABA transporter 1 (hGAT1). The binding modes of all compounds with hGAT1 were examined in detail. The lowest binding energy exhibit compounds GT27 and GT29 (-9.47 and -8.91 kcal/mole respectively). Moreover GT27 forms two hydrogen bonds between residues ASP451 and TYR139. Especially connection with tyrosine is strong with energy -5.53 kcal/mole and distance 1,76 Å.

Conclusions: One of the more significant findings to emerge from this study is that the 4-hydroxybutanamides derivatives reveal affinity to the active site of hGAT1. Therefore these compounds seems to be potential GABA uptake inhibitors and modulate GABAergic transmission in CNS. It was also shown that all investigated compounds exhibit in silico interaction with hGAT1 transporter.

Key words: Molecular docking, hGAT, GABA, analgetic activity, hydrogen bonds.

C1. Geriatric & Palliative Medicine Session

1st prize in Geriatric & Palliative Medicine Session

Title: Death through patients' eyes

Authors: Paweł Flisiński, Michał Graczyk, Anna Ratajska, Małgorzata Krajnik

Affiliation: Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Palliative Care

Introduction: Contemporary medicine is grounded in guidelines and recommendations, and at the same time it promotes a holistic approach to patients and their problems at every stage of the disease process. Although death and dying constitute an integral part of life, they are still taboo subjects. This may cause anxiety not only in patients and their care givers, but also medical personnel. The authors of the present study decided to examine whether patients with an advanced, progressive and incurable disease nearing the end of their life would want to talk about death.

Aim: The purpose of this survey is to understand patients' thoughts about death, including the perception of death among those suffering from progressive cancer. It has been evaluated whether palliative care patients manifest death anxiety, and who should broach the subject of death in a conversation with those patients.

Materials and methods: A questionnaire based on an in depth interview (IDI) method specifically developed for the purposes of the present study has been used. It covers several subject areas, such as patients' emotional state, their medical condition and death. The dialogues are audio recorded and then transcribed. The information achieved is repeatedly played back and analyzed.

Results: To date, 12 cancer patients have participated in the examination. The results have shown enormous individual differences between patients in terms of their needs regarding conversations on dying , sharing their feelings, thoughts and views. Some patients explicitly stated that such discussions were not necessary, while others were of a completely opposite opinion. Importantly, both patient groups participated in the survey with alacrity.

Conclusions: The survey/ study is still in progress so as to include a planned number of patients and to obtain information based on an individual experiences. The authors think that this study will permit them to construct a conversation diagram, which will then help health care providers talk about death and dying with patients. These talks might also help evaluate fear levels in patients, if present, and also implement appropriate treatment.

Key words: death, dying, patient, talk, anxiety, depth interview method, IDI, cancer, terminal ill

2nd prize in Geriatric & Palliative Medicine Session

Title: Are people over 50 sexually active? Problems and solutions.

Authors: Klaudia Truchoń, Piotr Czernia, Marta Podhorecka

Affiliation: Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: Despite the aging of the population, little is known about the sexual behaviors and sexual function of older people.

Materials and methods: We report the prevalence of sexual activity, behaviors, and problems in a national probability sample of 3005 U.S. adults (1550 women and 1455 men) 57 to 85 years of age, and we describe the association of these variables with age and health status.

Results: The unweighted survey response rate for this probability sample was 74.8%, and the weighted response rate was 75.5%. The prevalence of sexual activity declined with age (73% among respondents who were 57 to 64 years of age, 53% among respondents who were 65 to 74 years of age, and 26% among respondents who were 75 to 85 years of age); women were significantly less likely than men at all ages to report sexual activity. Among respondents who were sexually active, about half of both men and women reported at least one bothersome sexual problem. The most prevalent sexual problems among women were low desire (43%), difficulty with vaginal lubrication (39%), and inability to climax (34%). Among men, the most prevalent sexual problems were erectile difficulties (37%). Fourteen percent of all men reported using medication or supplements to improve sexual function. Men and women who rated their health as being poor were less likely to be sexually active and, among respondents who were sexually active, were more likely to report sexual problems. A total of 38% of men and 22% of women reported having discussed sex with a physician since the age of 50 years.

Conclusions: Many older adults are sexually active. Women are less likely than men to have a spousal or other intimate relationship and to be sexually active. Sexual problems are frequent among older adults, but these problems are infrequently discussed with physicians.

Key words: sexuology, geriatrics

3rd prize in Geriatric & Palliative Medicine Session

Title: Usual food intake determined by Food Intake Variety Questionnaire (FIVeQ) of elderly patients with frailty syndrome.

Authors: Alina Jaroch[1,2], Emilia Główczewska-Siedlecka[2], Karol Jaroch[3]

Affiliation: 1) Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Department and Institute of Nutrition and Dietetics;
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3) Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Department and Institute of Pharmacodynamics and Molecular Pharmacology

Introduction: The way of eating can be assessed using food intake frequency questionnaires, like Food Intake Variety Questionnaire (FIVeQ). Achieving a well-balanced diet is easier while eating a wide range of food products and nutrients, thus increasing the food variety. During older age maintaining a diverse diet is more difficult due to loss of appetite. Diet also becomes low in calories, resulting in unintended weight loss, in particular loss of muscle mass. Poor nutritional status directly affects the patients' health, contributing to the development of anorexia, dysfunction of organs and body systems and progression of chronic diseases, such as frailty syndrome.

Aim: The main objective of this study was to assess the way of eating using Food Intake Variety Index (FIVeI) and nutritional status of frail elderly.

Materials and methods: To date, results from 20 geriatric patients with frailty syndrome were collected. The criteria used for the diagnosis of frailty were consistent with Fried et al. (2001). All anthropometric measurements were performed in accordance with the WHO guidelines. Handgrip strength was measured using a hand dynamometer. Using near-infrared technology Free Fat Mass (FFM, kg), Fat Mass (FM, kg) and Fat Mass Percentage (%FM) were assessed with body content analyser FUTREX 6100 A/ZL. Nutritional status was also assessed using Mini Nutritional Assessment (MNA), Malnutrition Universal Screening Tool (MUST) and Nutritional Risk Score-2002 (NRS-2002). Assessment of the way of eating was made using FIVeQ questionnaire, which allows specifying the frequency of food consumption. FIVeQ provides information whether during the previous week food product was consumed in amounts greater than a very small quantity. Along with FIVeQ Food Intake Variety Index (FIVeI) was also determined. It is calculated as the sum of food products consumed during the week and has ma maximum value of 60 products/week. Statistical analysis was performed using STATISTICA StatSoft 12.5 PL.

Results: Seventeen women and three men had evaluated their way of eating with FIVeQ. Using values obtained with FIVeQ values of FIVeI were calculated and were as follows: inadequate variety of food consumption (V1; <20 products/week), sufficient (V2; 20-29), good (V3; 30-39) and very good (V4; ≥40). None of the examined patients had inadequate and very good variety of food consumption. Variety was determined as good for four patients and sufficient for sixteen (80%) patients. Analysis of differences between sexes was not made due to small number of men in the study. Average value of FIVeI was 26,5 ± 3,8 points and values of other parameters are listed in table 1. Patients had a significant weight loss (11,7%), low BMI values (21,2 kg/m2), low CC (29,7) and with nutritional screening test (MNA, NRS-2002, MUST) they were characterized as malnourished. Value of FIVeI was correlated with age (R= –0,45) and with FFM (R= 0,5), results were statistically significant.

Conclusions: Examined patients had strong unintended weight loss (average of 11,7%), decreased values for anthropometric parameters and results of their nutritional screening tests indicated malnutrition, an additional reduction in consumption of food products may intensify nutritional shortages. Consuming diversity of food products is crucial for elderly patients diagnosed with frailty syndrome in order to improve their nutritional status and support the treatment process.

Key words: FIVeQ; frailty syndrome; elderly; nutritional status

Title: How to increase the detection of mild neurocognitive? Comparison of psychometric scales.

Authors: Natalia Sokołowska [1], Remigiusz Sokołowski [2], Anna Polak-Szabela [1], Karolina Klimkiewicz [1], Kornelia Kędziora-Kornatowska [1]

Affiliation: 1) Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University; 2) Department of Hygiene, Epidemiology, and Ergonomics, Department of Ergonomics and Exercise Physiology, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University.

Introduction: The Montreal Cognitive Assessment is a screening tool for mild neurocognitive disorder (mild NCD) and major NCD.

Aim: Analyze the reliability MoCA 7.2 vs. MMSE in detecting mild NCD including the sensitivity and specificity of the cut off points.

Materials and methods: We recruited 171 older adults, including 79 non NCD and 92 mild NCD patients. The mean ages were 73.44 years for non NCD and 79 years for mild NCD. In the non NCD group the 78.5% of the participants were female and in the mild NCD group the 72%. The study included detailed inclusion and exclusion criteria. For statistical analysis we used the STATISTICA 12.5 software.

Results: The mean MoCA 7.2 and MMSE scores showed significant differences between groups ($p<0,001$ for both). In the ROC curve analysis of the MoCA score in differentiating mild and non NCD, the area under the curve (AUC) was 0.95. The optimal cut-off score for mild NCD was 23/24, with a sensitivity and specificity of 90.2% and 77,2%, respectively. In the ROC curve analysis of the MMSE score in differentiating mild and non NCD, the area under the curve (AUC) was 0.86. The optimal cut-off score for mild NCD was 27/28, with a sensitivity and specificity of 79,6% and 77,2%, respectively. The difference in AUC fields MoCA 7.2 vs. MMSE was 0.085.

Conclusions: Screening test MoCA 7.2 more sensitively detect mild NCD than MMSE. Further research should aim to increase the study sample and the creation of an algorithm in greater leveling effect of age and education on the results of MoCA 7.2.

Key words: Montreal Cognitive Assessment, Mini-Mental Sate Examination, neurocognitive disorders

Title: Vitamin D toxicity in adults.

Authors: Edwin Kuźnik, Jowita Halupczok-Żyła, Hanna Sikorska-Szaflik, Magdalena Stępniewska, Paweł Stępniewski

Affiliation: Wrocław Medical University, PhD Students' Scientific Club Biomed

Introduction: Vitamin D deficiency is a common worldwide problem. Recently, it has been reported that vitamin D has many beneficial health effects associated with its pleiotropic action. Thus, increasing number of patients are using vitamin D supplements and in result, vitamin D intoxication may occur more often.

Aim: The aim of the study was to present the risk of vitamin D intoxication in patients supplementing vitamin D with a special focus on elderly population.

Materials and methods: We performed a comprehensive literature research covering the period between 1st January 2010 to 30th April 2016. We searched Medline database using terms "vitamin D toxicity", "hypervitaminosis D". We chose articles concerning pathogenesis and symptoms of vitamin D intoxication in adults. Additionally, we included guidelines on the tolerable upper intake level of vitamin D in adults.

Results: Until recently it was thought that vitamin D toxicity is rare, however an increasing number of case reports and case series have been published in last decades. Vitamin D intoxication usually occurs after inappropriate vitamin D intake. The mechanism of vitamin D toxicity have been explained by three main theories. They all involve increased concentrations of a vitamin D metabolite reaching the target cell vitamin D receptor and promoting abnormal gene expression. The symptoms and findings associated with vitamin D intoxication mostly result from serum calcium levels and duration of hypercalcemia. Because of non-specific clinical manifestation, proper diagnosis is often delayed which may lead to potentially life-threatening complications. The symptoms usually include nausea, vomiting, weight loss, thirst, constipation, polyuria, headache, weakness and apathy. Prolonged intoxication may cause nephrocalcinosis, renal dysfunction and pancreatitis. There are many controversies about the toxic dose of vitamin D, however hypercalcaemia is considered as an indicator of toxicity in adults. The Institute of Medicine (IOM) has established the "tolerable upper intake level" for vitamin D as 100 micrograms (4000 international units) daily for healthy adults.

Conclusions: Until recently it was thought that vitamin D toxicity is rare, however an increasing number of case reports and case series have been published in last decades. Vitamin D intoxication usually occurs after inappropriate vitamin D intake. The mechanism of vitamin D toxicity have been explained by three main theories. They all involve increased concentrations of a vitamin D metabolite reaching the target cell vitamin D receptor and promoting abnormal gene expression. The symptoms and findings associated with vitamin D intoxication mostly result from serum calcium levels and duration of hypercalcemia. Because of non-specific clinical manifestation, proper diagnosis is often delayed which may lead to potentially life-threatening complications. The symptoms usually include nausea, vomiting, weight loss, thirst, constipation, polyuria, headache, weakness and apathy. Prolonged intoxication may cause nephrocalcinosis, renal dysfunction and pancreatitis. There are many controversies about the toxic dose of vitamin D, however hypercalcaemia is considered as an indicator of toxicity in adults. The Institute of Medicine (IOM) has established the "tolerable upper intake level" for vitamin D as 100 micrograms (4000 international units) daily for healthy adults.

Key words: vitamin D, toxicity

Title: Knowledge of seniors about first aid

Authors: Radosław Perkowski, Joanna Androsiuk,

Affiliation: Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: First aid is a statutory duty of every citizen. Elderly people in particular are often confronted with situations in which they should give first aid. So their knowledge and skills are very important.

Aim: Aim of our study was to verify the knowledge of first aid among people over age 60.

Materials and methods: Knowledge was checked by the author's questionnaire, which contained the main elements relating to first aid. They particularly focused on the theme of heart attack and sudden cardiac arrest. Questionnaire contained 10 questions concerning first aid and it has been completed by 33 participants.After that, every participant had 1 hour training with lecture of first aid. Next they completed the test one more time.

Results: Results of the first questionnaire showed that people, over the age 60, have a good knowledge on first aid and topics connected with myocardial infraction. The biggest problem was question about the definition of heart attack. The most respondents – 39% thought that heart attack is hemorrhage due to rupture of the coronary arteries.30% participants answered incorrectly as to how to perform a "cardiac massage" during resuscitation. Another problematic question was how to clears the airway in an unconscious person – incorrectly answer had 27% respondents. Next problematic question was about the emergency number for an ambulance. 15% of participants check incorrectly answer – they chosen number 997 and 998. These results have really changed after training and lecture of first aid. There were only few bugs. For example question about heart attack – only 6% incorrect answers, so it is 6 time less than in first questionnaire. Next problematic questions – only 9% wrong answers.

Conclusions: To summarize knowledge of older people about first aid is at good level. The greater part of the respondents correctly answer the questions. However, the results of the second questionnaire showed that it is possible to improve the level of knowledge and skills in first aid in the elderly. Therefore, we should educate seniors about first aid in order to increase consciousness and knowledge of older people in first aid, because it can influence on increase in survival in emergencies.

Key words: seniors, first aid

Title: Cutaneous adverse drug reactions in elderly patients.

Authors: Paweł Stępniewski, Hanna Sikorska-Szaflik, Magdalena Stępniewska, Edwin Kuźnik, Jowita Halupczok-Żyła

Affiliation: Wrocław Medical University / PhD Biomed Scientific Club

Introduction: Adverse drug reactions in older people are a common problem. Most of them show skin symptoms. Several conditions contribute to a greater tendency to adverse drug reactions in elderly patients including the presence of various comorbidities, use of a lot of drugs, age-related changes in pharmacokinetics and pharmacodynamics. Also, older adults frequently take over-the-counter drugs which can interact with prescription ones.

Aim: To review the literature on cutaneous adverse drug reactions in elderly patients focusing on the epidemiology, pathogenesis, clinical presentation, diagnosis, and management of these reactions in the care of the geriatric population.

Materials and methods: The English language literature during a 6-year period (from 1 st January 2010 through 31 st December 2015) was reviewed for articles about cutaneous adverse drug reactions in elderly patients. The search was conducted using the PubMed database.

Results: The most common cutaneous adverse drug reactions in elderly patients are exanthematous rashes, urticaria and angioedema. Less common but more severe and potentially life-threatening are Stevens–Johnson syndrome/toxic epidermal necrolysis and drug rash with eosinophilia and systemic symptoms. Several classes of medication, widely used in internal medicine, can induce cutaneous adverse drug reactions however the most commonly involved are antibiotics, anticonvulsants and non-steroidal anti-inflammatory drugs. Curing the older patient with cutaneous adverse drug reaction is challenging. It is not only the problem with getting proper information about comprehensive drug history. Age-related skin changes in the form of atrophy, fragility and xerosis make proper assessment and determining the diagnosis difficult.

Conclusions: As the population is ageing and the prevalence of many diseases rises, the number of administered drugs is also higher. It is important for the doctors to be aware of cutaneous adverse drug reactions in elderly patients and their consequences.

Key words: adverse drug reactions, cutaneous, elderly patients

Title: Problems carers of people with Alzheimer's disease.

Authors: Karolina Filipska [1], Anna Antczak [2]

Affiliation: 1) Katedra i Klinika Geriatrii;
2) Zakład Pielęgniarstwa Neurologicznego i Neurochirurgicznego

Introduction: Alzheimer's disease is one of the most frequently couse of torpor among the old people. Despite of significiant progress in understanding of torpor's ethiopatogenesis, especially in course of Alzheimer's disease, there is no effective method of treatment so far.

Aim: Purpose of my presentation is to show the problems of people with Alzheimer's disease.

Materials and methods: A review of 43 scientific reports - research articles and opinion articles and contemporary literature - including its theme the role of nurses in the care of patients with atopic dermatitis. Using the key words: Alzhheimer's disease, old age, dementia, family caregiver, difficulties, the role of nurses searched bibliographic databases EBSCO, ScienceDirect, SpringerLink, Medline.

Results: The lack of accurate diagnosis influenced on the quality of life of the ill person as well as his/her family. The care of somebody with Alzheimer's disease (AD) is not only exhausting physicly and mentaly, but also very expensive. This problem is very particular regarding to proces of aging of the individual and populations, and systematicly inceasing the number of ill people. On the beginning social dimension of the illness surface in the gap in functionig in sociaty, till the complet lack of capacity to fulfil the part in society and in significent way decreasing the quality of life of person with the Alzheimer's disease.

Conclusions: Taking care under the perseon with Alzheimer's disease establish high risk of decreasing the quality of life, and what is the most important the family caregiver strongly emotionaly connected with the ill person.

Key words: Alzhheimer's disease, old age, dementia, family caregiver, difficulties

Title: Lactose intolerant patients - a challenge for hospital nutrition.

Authors: Aleksandra Pawlicka

Affiliation: School of Language and Literature

Introduction: Lactose intolerance is an ailment, which concerns up to 65% of adult population in the world. It is the partial or total inability to digest milk sugar. As a result, it leads to several unpleasant side effects, both gastrointestinal and non-specific ones, which are directly related to the consumption of milk and dairy products. The awareness of the syndrome among people is not high enough, especially having taken its scale into consideration.

Aim: The aim of the presentation is to estimate the scale of the phenomenon, both in Poland and in the world, to present the specificity of lactose intolerance and outline the directions of future research in the field. A hypothesis has been drawn, that taking the issue of lactose intolerance into consideration when planning hospital nutrition may influence the improvements in the wellbeing of patients hospitalized due to other reasons.

Materials and methods: The presentation has been based on the author's own research, as well as on national and foreign subject literature.

Results: Based on the hitherto prevailing research results, the need of further research has been emphasized.

Conclusions: The directions of future research has been suggested. In addition, several practical solutions have been suggested that could be applied in hospital nutrition, in order to take the needs of milk sugar intolerant patients into consideration.

Key words: lactose intolerance, lactose, dairy, milk, hospital nutrition

Title: Functional assessment of MCI patients.

Authors: Radosław Perkowski, Joanna Androsiuk, Remigiusz Sokołowski, Natalia Sokołowska

Affiliation: Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: Mild Cognitive Impairment are characterized by: a subjectively experienced worsening in one of the domains of cognitive function, maintain independence in activities of daily living functioning, and without dementia. Cognitive impairment is often seen in people suffering from depression - applies to ⅔ of patients and it is associated with poor response to treatment. Disorders concern in executive function, and attention, and in less memory.

Aim: The aim of the study was assessment of functionality people over the age of 60 with mild cognitive impairment.

Materials and methods: The study has enrolled 44 participants. Patients were screened using a functional scale ADL, IADL, Tinetti scale assessment of gait and balance, also were used Geriatric Depression Rating Scale GDS.

Results: Among the 44 patients 75% were women. 57% of patients were 80-89 years and 29.5% were 75-79 years. The efficiency of patients with ADL and IADL showed that 89% of patients are efficient - they are independent in daily functioning. Depression has been found in only 20% patients and 67% of them were women. In assessing the scale Tinetti 55% of respondents had an increased risk of falling and 23% 5 times higher increased risk of falling.

Conclusions: Patients with MCI in terms of functional assessment of ADL and IADL are non-disabled persons. Only 9 patients had diagnosed depression. People with MCI have an increased risk of falling. It is important to conduct study in the further research on a larger group of participants.

Key words: geriatric, senior, MCI

C2. Basic Science & Molecular Biology Session

1st prize in Basic Science & Molecular Biology Session

Title: Colon cancer–associated changes in the expression of the genes affecting DNA methylation: TET, AID, and TDG.

Authors: Kinga Gutowska, Tomasz Dziaman, Jolanta Guz, Marek Foksiński, Ryszard Oliński.

Affiliation: Department of Clinical Biochemistry, Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Introduction: Term epigenetics refers to changes, which modify gene expression. There are two main epigenetic mechanisms, which are found in DNA: methylation and demethylation. DNA methylation has been studied as a stable epigenetic modification for decades. Recent research implicates active demethylation, which involves TET family proteins and AID family proteins. TET proteins oxidates 5-methylocytosine (5-mCyt) to 5-hydroxymethylocytosine, and then to 5-formylocytosine (5-fCyt), and 5-carboxycytosine (5-caCyt). AID proteins are involved in deamination of 5-mCyt to thymine, and 5-hmCyt to 5-hydroxymethylouracil (5-hmUra). All cytosine modifications are subsequently excised by thymine DNA glicosylase (TDG) in DNA repair system. DNA methylation and demetylation are considered as key events in epigenetic reprogramming. Impaired balance between DNA methylation and demethylation may also be involved in the aberrant DNA methylation pattern, what may play significant role in carcinogenesis.

Aim: In order to explain connection between methylation changes and cancer development we undertook examination of TET, AID and TDG expression in leukocytes and tissues from patients who suffered from colorectal carcinoma.

Materials and methods: We examined leukocytes, cancerous tissues and marginal tissues from 10 patients with diagnosed colorectal cancer. As a control group we analyzed leukocytes from 10 healthy subjects. Expression of TET, AID and TDG were evaluated using quantitative RT-PCR method.

Results: We found reduced expression of TET, AID and TDG genes in cancerous tissue compared with their histopathologically unchanged counterparts. Similar results were noticed among leukocytes from patients with carcinoma and healthy subjects. Moreover, we observed significant differences between expression of particular genes both in tissues and in leukocytes.

Conclusions: Our findings indicate the importance of maintenance correct expression of crucial genes involving in DNA demethylation in human body. Low TET, AID, and TDG expression in cancerous tissues suggests impaired DNA demethylation during cancer. Furthermore this process may induce changes in 5-hmCyt level, and in turn in chromatin organization.

Key words: epigenetics, DNA demethylation, TET, AID, TDG, 5-hydoxymethylcytosine

2nd prize in Basic Science & Molecular Biology Session

Title: The potential influence of potassium metabisulfite on tumor growth and cell cycle in lung and skin cancer.

Authors: Dawid Lewko, Łukasz Markiewicz, Ireneusz Majsterek

Affiliation: Department of Chemistry and Clinical Biochemistry, Medical University of Lodz

Introduction: Apoptosis is programmed cell death where participate multiple of biochemical and genetic pathways. Apoptosis has crucial role in the development and homeostasis in normal tissue. Disturbances in apoptotic pathway may lead to malignant transformation, tumour metastasis and resistance to treatment by the cancer cells. Programmed cell death plays an important role in cancer therapies as a popular target of many treatment strategies. Literature suggests feasibility of targeting apoptosis in cancer.

Aim: The aim of the study is to evaluate the potential influence of potassium metabisulfite on the development and growth of cancer cell lines A549 and B16F0.

Materials and methods: In order to perform it, lung cancer A549 and murine melanoma B16F0 cell lines have been established. A549 and B16F0 cells were purchased from the American Type Culture Collection. The cells were grown in DMEM medium supplemented with 10% heat-inactivated fetal bovine serum, FBS, 50 units/ml penicillin and 50 µg/ml streptomycin. Cells were cultured at 37oC in 5% CO2. The cells of line A549 and B16F0 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. After 24-hour incubation with selected concentrations, the cells were washed twice in DPBS and resuspended in Binding Buffer at a concentration of about 1x1000000 cells/ml. Then 5 µl of Annexin V FITC Conjugate and 10 µl of Propidium Iodide Solution were added to the test tubes with 500 µl of the apoptotic and non-induced cell suspension. Apoptosis was induced by the addition of 1µg/ml staurosporine for 3 hours as a positive control.

Results: In current stuady the in silico affinity of six antiepileptics from group fatty acid derivatives (N03AG ATC code) to human GAT1 transporter using molecular docking technique was performed. Examined drugs were: valproic acid, valpromide, aminobutyric acid, vigabatrin, progabide and tiagabine. Moreover we executed comparative analysis between GABA and examined compounds to evaluate level of transporter inhibition.

Conclusions: It proved that potassium metabisulfite possess the potential to inhibit the development and growth of lung cancer or melanoma cells. Subsequent project plans include performing other tests for detecting apoptosis with the use of Western Blot techniques (blotting against BCL-2, BAX and caspase-3 proteins) and colorimetric assay for assessing cell viability. In addition, positive results of research related to the assessment of impact of tested compound on cancer cells and inhibition of their growth would give huge possibilities for patients with cancers and new opportunities of cancer therapies.

Key words: potassium metabisulfite, apoptosis, tumor growth, lung cancer, melanoma cells

3rd prize in Basic Science & Molecular Biology Session

Title: Human GABA transporter 1 inhibition by fatty acid derivatives (N03AG ATC code drugs) - molecular docking study.

Authors: Łukasz Fijałkowski, Alicja Nowaczyk

Affiliation: Department of Organic Chemistry,
Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: γ-Aminobutyric acid (GABA) is a major neurotransmitter in mammals. Disorders of the GABAergic system are related with diseases such as Parkinson's disease, Huntington's chorea, epilepsy, and some forms of schizophrenia. One of the possible ways to alleviate GABA deficiency lies in the inhibition of uptake mechanisms. Studies on GABA-uptake inhibitors have been developed in several directions. Not only tiagabine, a well-known inhibitor of human GABA transporter 1 (hGAT1), but also the other drugs successfully inhibit the uptake of GABA by hGAT1. Some studies admit that antiepileptics - fatty acid derivatives (N03AG ATC code drugs) reveal inibitory activity on hGAT1.

Aim: In current study the in silico affinity of six antiepileptics from group fatty acid derivatives (N03AG ATC code) to human GAT1 transporter using molecular docking technique was performed. Examined drugs were: valproic acid, valpromide, aminobutyric acid, vigabatrin, progabide and tiagabine. Moreover we executed comparative analysis between GABA and examined compounds to evaluate level of transporter inhibition.

Materials and methods: The 3D structure of six antiepileptic drugs were downloaded from ZINC database. Furthermore, the Gasteiger charges were assigned to each compound using the AUTODOCKTOOLS software. The protein sequence for the hGAT-1 protein was gained from the Swiss-Prot database (accession number P30531). Molecular docking was performed using the AUTODOCK 4.2 SUITE software. The docking calculations were carried out using the Lamarckian genetic algorithm. The optimal docking result in each case was considered to be the conformation with the lowest binding energy.

Results: During performed analysis we gained ligand affinities and their inhibition constant. It was found that all investigated drugs could interact with active site of hGAT1. The binding modes of all compounds with hGAT1 were examined in detail. Progabide and tiagabine exhibit higher affinity to hGAT1, therefore we could argue that mechanism of action is related with GABA-uptake.

Conclusions: One of the more significant findings to emerge from this study is that antiepileptics from group fatty acid derivatives reveal affinity to the active site of hGAT1. Especially, affinity of progabide and tiagabine seems to be significant. Therefore these compounds pretend to be GABA uptake inhibitors and modulate GABAergic transmission in CNS.

Key words: Molecular docking, hGAT, GABA, antiepileptics, fatty acid derivatives.

Title: Recombinat cyclin M expressed in plant cells.

Authors: Ewelina Łojewska

Affiliation: Department of Genetics and Plant Molecular Biology and Biotechnology, The University of Lodz

Introduction: Enterohemorogenic E. coli (EHEC) is one of the most common and dangerous food pathogen. Infection is caused by eating infected vegetables or meat. Effect of such infection can be terminal and is mostly dangerous for young children and elderly. Colicins are a part of a bacteriocin group – protein substances released by bacteria, exhibiting antibacterial effect on other bacterial strains. Among many other colicins produced by E. coli, colicin M is the most effective against EHEC strain. Production of this recombinant protein in plants, is proven to be efficient. Plants are relatively new platform of recombinant protein production. However they are fast and more effective than other platforms. Plant expression systems are efficient and safe. Moreover they can produce proteins, which would be toxic for bacterial or mammalian cells. Due to their numerous assets, plants gained attention as platforms for biopharmaceuticals.

Aim: The aim of my work is to present the design of genetic cassettes encoding colicin M and to demonstrate possible medical applications of producing this recombinant protein in Nicotiana tabacum cell culture.

Materials and methods: Expression constructs were designed and build using GreenGate technology. This method is based on six modules (plant promoter, N-terminal tag, coding sequence, C-terminal tag, plant terminator and plant resistance cassette) and IIS restriction endonuclease, therefore enables simple creation of plant transformation constructs.

Results: Expression of colicin M in Nicotiana tabacum cv. BY-2 plant cells, could lead to safe and effective production of this proteins and therefore possibility of preventing EHEC infections by addition of purified colicin M to food or to animal feed. Moreover after purification, this protein could be used as a biopharmaceutical.

Conclusions: Colicin M could act both as food conservative and after purification as biopharmaceutical used to treat difficult E. coli infections. As a result mass production of colicin M in plants could provide an alternative for overused antibiotics.

Key words: genetic engineering, molecular biology, Enterohaemorrhagic E. coli (EHEC) infections, recombinant proteins from plants, antibiotics alternatives

Title: Minicircles - novel and highly effective tool in gene delivery.

Authors: Arkadiusz Goede[1], Maciej Gawroński[1], Adrian Krajewski[2], Tomasza Wandtke[1]

Affiliation: 1)Department of Gene Therapy, Faculty of Medicine,
Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz;
2) Department of Histology and Embriology, Faculty of Medicine,
Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Introduction: In recent years, there has been an increasing interest in gene therapy, which is primarily based on the delivery of therapeutic genetic material to the malfunctioning cells. For over years viral vectors were used for that purpose. However, despite their high efficacy, aforementioned vectors suffers from several major drawbacks. Therefore non-viral gene transfer is considered as a good alternative in this field, especially methods including bacterial plasmids as a vector for therapeutic genes. Particularly interesting approach is the usage of minicircles – modified plasmids devoid of bacterial backbone.

Aim: The aim of this paper is to compare the efficiency and safety of the minicircles with conventional plasmids and other vectors.

Materials and methods: Analysis of selected publications available in the scientific literature database.

Results: A large and growing body of literature has investigated the properties of minicircles, which showed lower immunogenicity mostly because of the deprivation of bacterial backbone during manufacturing process. As a result plasmid exists in transfected cells for elongated period of time and thus allows to achieve a longer transgene expression. Furthermore, in comparison with conventional plasmids minicircles are less often muted - feature that arises from their small size. The experimental data indicate that the minicircles, by being deprived of bacterial components, provide much more efficient transcription of the transgene, which results in higher level of its expression. Moreover, their small size enhance transfection efficiency, as the transmembrane transport is largely dependent on the size of the introduced molecules. Furthermore, due to the lack of the ability to integrate into the genome of the host, minicircles appear to be safer in vitro therapies in comparison with previously used vectors.

Conclusions: Minicircles seems to be to be an attractive alternative to currently used vectors both viral and non-viral. In numerous studies they show higher safety of use and a superior transfection efficiency in comparison to other vectors and express the introduced transgene in a highly efficient way. Properties of minicircles arises from their unique structure, which make them an ideal tool for gene therapy, in which the safety and efficient tansfection is as important as long-lasting expression of the therapeutic gene.

Key words: minicircles, gene therapy, gene delivery, vectors

Title: Direct transcriptional control by miRNAs.

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Introduction: Micro RNAs are well known from its post-transcriptional regulation of gene expression. The canonical mechanism involves targeting complementary 5'UTR region of mRNA and in consequence less efficient translation. Recent studies show that it is not only mechanism by which these small molecules affect the expression level. It appears that beyond silencing miRNAs are capable to activate gene expression. Moreover, miRNAs can fine-tune gene expression on transcriptional level, targeting gene promoters.

Aim: The aim of these review was to summarize current knowledge about miRNAs as a transcriptional factors. To date several promoter miRNAs were discovered. The mechanism involving control on transcriptional level, makes activation or silencing very effective. But the details of the process still unclear, but it is possible that promoter targeting miRNAs trigger epigenetic modifications or change conformation of double helix DNA and supports binding of the other transcription factors. It seems that promoter targeting miRNAs take part in many essenntial processes like cell cycle regulation and cell death. It has been shown that promoter targeting miRNAs are involved in a HIV-1infection.

Materials and methods: The analysis involves recent original papers concerning the biology, effect and future applications of promoter targeting miRNAs in health and disease.

Results: Our literature review shows that promoter targeting miRNAs are important elements of machinery which controls genes expression. Presently, the significance and the biological functions of promoter targeting miRNAs is poorly known. There are need for further investigations that may enhance our knowledge about processes in healthy and abnormal cells.

Conclusions: Transcriptional control is a new mechanism by which miRNAs can induce changes in gene expression. The details of process is poorly understood so further studies are needed for more precise understainding of these phenomenon.

Key words: miRNA, transcriptional control, gene expression, promoter targeting miRNAs.

Title: The endothelial cell culture – HUVEC line (human umbilical vein endothelial cells) under conditions of hyperglycemia.

Authors: Katarzyna Szot, Krzysztof Góralczyk, Danuta Rość

Affiliation: Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz/Department of Pathophysiology

Introduction: Hyperglycemia is the major causal factor in the development of endothelial dysfunction in diabetes mellitus. According to the World Health Organization, the number of people with diabetes has risen to 422 million in 2014. WHO projects that diabetes will be the 7th leading cause of death in 2030. Endothelial cells line the wall of blood vessels and therefore are on the front line of contact with the high concentration of glucose. Hyperglycemia per se causes endothelial dysfunction and is responsible for auto-oxidation process and non-enzymatic glycation which leads to the generation of reactive oxygen species. High glucose concentration induces the production of free radicals in the mitochondria. Hyperglycemia is also associated with increased of oxidative stress which damages cells and promotes apoptosis. DNA damage and irreversible changes in cytoskeletal organisation in endothelial cells at high glucose concentration are observed. The above-mentioned mechanisms contribute to disturbance of endothelial cell proliferation.

Aim: Aim of this study was to assess the influence of hyperglycemia on the proliferation of human umbilical vein endothelial cells.

Materials and methods: Endothelial cells (HUVEC line) were derived from human umbilical veins by the enzyme method using collagenase. Cells were cultured in M199 media supplemented with 20% fetal bovine serum (FBS), 100 U/ml penicillin (Gibco® products), and growth factors 50 µg/ml endothelial cell growth supplement (ECGS-Corning Inc. USA) and heparin. The cells were incubated at 37˚ C in humidified atmosphere with 5% CO2. In study group 30 mM/L glucose was added to the culture medium. The experiment was repeated three times with three independent cells isolations. The endothelial cells on the bottom were harvested by using trypsin and counted by Buerker hemocytometry in method using trypan blue and analyzed per number of vital cells in each well.

Results: The number of HUVECs was higher in the control group (Mean=6,58x105), while significant statistically lower number was observed in group cultured under hyperglycemic conditions (Mean=4,86x105) (P<0,0001).

Conclusions: A lower number of endothelial cells cultured under hyperglycemic condition indicates the negative impact of high glucose concentration on the proliferation. High glucose concentration induce apoptosis and excess cell death in cultured vascular endothelial cells.

Key words: Endothelial cells, hyperglycemia, HUVEC

C3. Case reports – Non-surgical Session

1st prize in Case reports – Non-surgical Session

Title: An unexpected twist in a story of suspected lymphoma: Kikuchi-Fujimoto disease – a case report

Authors: Agata Szczurowska

Affiliation: Wrocław Medical University,
Department of General Radiology, Interventional Radiology and Neuroradiology;
University Hospital in Wrocław

Introduction: Lymphadenopathy is a common symptom of many pathological processes including infections, primary malignancies, metastases and autoimmune diseases. Kikuchi-Fujimoto disease (KFD) is a very rare and mysterious cause of lymph nodes enlargement affecting mainly young Asiatic females. So far only 11 cases of KFD have been described in Poland. Little is known about the pathogenesis of KFD. Hypotheses of infectious, autoimmune or hyperimmune causative agents have not been supported by scientific studies.

Case report: 23-year-old Caucasian male with a history of frequent respiratory tract infections in the previous 2 years was admitted to hospital with unilateral cervical lymphadenopathy, fever, night sweating, fatigue and weigh loss. On admission tenderness of the cervical lymph nodes and asymmetric palate tonsils enlargement were found. Due to characteristic clinical image and positive history of fatal oncological disease in his brother, a suspicion of haematological malignancy was set. Histopathological examination of an enlarged lymph node revealed areas of coagulative necrosis with abundant karyorrhectic debris with histiocytes and lymphocytes observed at the margin of the necrotic areas. This microscopic image led to an unexpected diagnosis of Kikuchi-Fujimoto disease. Symptomatic treatment including antipyretic drugs and fluid supplementation was maintained. All of the symptoms excluding tonsils enlargement retreated within two months.

Conclusions: In the differential diagnosis of cervical lymphadenopathy Kikuchi-Fujimoto disease should be taken into account. KFD may convincingly mimic symptoms typical for lymphoma.

Key words: Kikuchi-Fujimoto disease, lymphadenopathy

2nd prize in Case reports – Non-surgical Session

Title: Ocular and cerebral toxoplasmosis after ALLO-HSCT

Authors: Kania Daria, Frąckowski Łukasz, Zielańska Kaja

Affiliation: Students' Scientific Society at Department of Pediatric Hematology and Oncology, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz

Introduction: Immunosuppressive therapy and HSCT are the risk factors of Toxoplasma gondii (TG) infection, which is a result of reactivation or de-novo infection. Diagnostic and therapeutic difficulties of rapid, partial vision loss concerning patient after HSCT were presented.

Case report:11-year-old patient with AML-M0/M1 without CNS involvement, FLT3-, bone marrow M2 in D+15 of therapy, treated according to AML-BFM-2004 protocol. Before HSCT anti-TG antibodies IgM-, IgG+. Post-HSCT period complicated with EBV reactivation (2 doses of rituximab were given), intestinal aGVHD treated with budesonide. 9 months after HSCT he reported medial quadrant scotoma in right eye (RE). The ophthalmic examination of RE: effusion in vitreous obstructing fundus, around macula postinflammatory focus with edema of surrounding retina, in USG effusion in vitreous was observed. OCT image: thinning of the retina with edema around macula. Local treatment with NSAIDs and steroids without effect. In MRI of CNS atypical lesions were observed. CFS hyaline, pleocytosis 10/µl (lymph. 98%). PCR test of CFS excluded TG, Aspergillus, Candida, Borrelia, HSV1/2, VZV, CMV, EBV, HHV6, and JCV. In blood serum was detected anty-TG-IgG (gradual increase of avidity and decrease of antibody titer), Borrelia immunoblot IgG-positive. Ocular and cerebral boreliosis was diagnosed, treatment: ceftriaxone 50 mg/kg, 30 days, no improvement. Myelogram normal. Ocular recurrence of AML was suspected. Biopsy of vitreous of RE: in cytometry revealed mature T-lymphocytes without signs of hyperplasia; PCR method detected TG DNA. Ocular toxoplasmosis was diagnosed. Treated with clindamycin and sulfadiazine with pyrimethamine, after 2 weeks three 10-day courses of sulfadiazine with pyrimethamine (Fansidar) and methylprednisolone orally. Subjective improvement: constantly present linear scotoma not interfering everyday life. In ophthalmic control improvement: post-inflammatory dregs were smaller in vitreous, small cicatrices of retina and choroid. In MRI of CNS complete regression. Time passed from onset of symptoms to diagnosis: 4 months. Clinical improvement was observed after 1 month of proper treatment.

Conclusions: Diagnostic difficulties and no clinical improvement is indication to expand the diagnostics of invasive methods (vitreous biopsy). A small amount of material for microbiological tests is not a problem with PCR testing.

Key words: Ocular toxoplasmosis, Cerebral toxoplasmosis, ALLO-HSCT, Toxoplasma gondii, Vitreous biopsy, PCR testing

3rd prize in Case reports – Non-surgical Session

Title: Rapidly progressive diffuse systemic sclerosis treated with autologous peripheral blood stem cells transplant

Authors: Michał Olejarz, Wiktor Schmidt

Affiliation: Poznań University of Medical Sciences,
Department of Rheumatology, Metabolic, Bone and Connective Tissue Diseases

Introduction: Autoimmune disorders comprise a relatively new field in autologous hematopoietic peripheral blood stem cell transplantation (aPBSCT). The first transplants undertaken for these indications were initiated in the mid-1990s. The most common indications are multiple sclerosis and systemic sclerosis (SSc). In 2014 the final results from ASTIS trial demonstrated that aPBSCT confers better long-term survival than monthly intravenous cyclophosphamide pulses for the treatment of rapidly progressive SSc.

Case report: We present a case of 42-year-old female with rapidly progressive diffuse SSc treated with aPBSCT. She was diagnosed with SSc in 2005 due to typical skin lesions, advanced Raynaud phenomenon, slightly increased pulmonary blood pressure, interstitial lung disease, dysphagia and characteristic antibody profile. In spite of intensive immunosuppressive therapy with cyclophosphamide pulses the improvement of skin lesions was unsatisfactory and progression of interstitial lung disease was shown in HRCT. Prognosis was stated as poor and the patient was qualified to be treated with high dose-chemotheraphy with cyclophosphamide and anti-thymocyte globulin followed by aPBSCT. The procedure was successfully performed. However it was complicated with haemorrhagic cystitis which was treated conservatively. The patient didn't require immunosuppressive therapy during a five years follow-up. Improvement in exertion tolerance and skin lesions, decrease in pulmonary blood pressure, stabilization of interstitial lung disease were also observed.

Conclusions: Rapidly progressive diffuse SSc has poor prognosis. Mortality is estimated to be 40-50% in 5 years. aPBSCT is currently the most effective method in this condition, improving quality of life, organ function and enabling to reduce or discontinue immunosuppressive therapy. The method shows significant treatment-related mortality in early stages. Therefore it is crucial to perform comprehensive screening to exclude patients at high risk.

Key words: systemic sclerosis, peripheral blood stem cell transplantation, cyclophosphamide, quality of life

Title: Musculo-fascial relaxation in hollow foot therapy - a case report.

Authors: Daria Cisoń, Łukasz Dembowski, Paulina Dudek, Natalia Zielińska

Affiliation: Students' Scientific Society at Department of Pediatric Hematology and Oncology, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz.
Tutors: K. Czyżewski MD, PhD, M. Richert-Przygońska MD, PhD

Introduction: Postural defects, including feet defects, are an epidemic of the XXI century. Among all of congenital defects of the musculoskeletal system occupy second place. Feet defects are on average at 23-26/ 10 000 born. One of the defects is hollowed feet, occuring In 3/ 10 000 born. In this position will be presented hollow feet treatment options beased on the idea of anatomy trains as a method of myofascial release.

Case report: The research material was a young Man . The patient was qualified for the group on a deliberate choice (recognition of foot defect). The study covered the period January-April 2015. The therapy used in the experiment was based on the myofascial relaxation according to the Visio of Meyers and Earsls'a presented in the book "Myofascial relaxation for the structural balance". The patient underwant 10 sessions of myofascial relaxation. Session were held on average twice a week and lasted from 30 minutes to one hour.

Conclusions: 1. Musculo-fascial therapy had a positive impact on the patient with the hollowed foot. 2. Techniques of working with the fascia reduced pain and fatigability of feet. Also contibuted positively to the range of motion and muscle strength. 3. The performed test does not allow for an assessment of all the indicators angle changes, however confiramed thesis that this type of therapy May affect more physiological setting of the axis of the lower extremities and pelvis.

Key words: hollow foot, musculo-fascial relaxation, hollow foot therapy

Title: Acute psychotic disorder of pregnant woman with Graves-Basedow disease. Multidisciplinary case study.

Authors: Aleksandra Kucza, Sara Szymczak, Maksymilian Młodyszewski

Affiliation: Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: Pregnancy is a time of physiological and hormonal changes. This specific situation might be associated with various psychiatric symptoms, such as depression, anxiety disorders, emotional liability, eating disorders and frank psychosis. The occurrence of new episodes of psychosis during pregnancy is extremely rare.

Case report: We present a multidisciplinary case study of a 28 years-old pregnant female patient with acute transient psychotic disorder accompanied by symptoms of schizophrenia and hyperthyroidism with danger of thyrotoxicosis storm. The patient's history of psychiatric disease showed absence of risk factors such as psychosis in previous pregnancy. Furthermore, she is a non-smoker and addicted neither to alcohol nor drugs. The patient was admitted to Clinic of Psychiatry in Torun where she was diagnosed with spectrum of psychiatric symptoms with suspicion of thyrotoxic crisis. Treatment with Olanzapine and Diazepam was prescribed. The patient was then referred to Clinic of Obstetrics and Gynecology in Bydgoszcz. After endocrynological consultation Graves-Basedow disease was diagnosed and thyrotoxicosis storm was suspected. After 3 weeks of hospitalization, the patient was admitted to Clinic of Psychiatry in Bydgoszcz where the overall somatic state and pregnancy became stable. Psychiatric anamnesis revealed the following symptoms: irregularities in routine behavior, minor incidence including shop-lifting, theft of the patient's parents-in-law's money or progressive agitation. The patient reported auditory hallucinations and delusions - she felt as if she was being watched through cameras or claimed she was being connected to a lie detector during the medical examination. The patient manifested no criticism of her own condition. Main drugs used in this patient's therapy were Olanzapine and Opipramol. Moreover Dopamine, Verapamil, Methylprednisolone and Thiamasole were admitted. The treatment suppressed hallucinations and delusions. In addition, the patient regained awareness of her physical condition.

Conclusions: Collaboration between specialists is necessary in multidisciplinary cases in order to establish appropriate care and treatment for patients. Our case demonstrates that it is fundamental for psychiatrics, gynecologists and endocrinologists to communicate properly. The assessment of the patient as a whole enables to dissolve diagnostic and therapeutic problems and holistic treatment of diseases.

Key words: psychotic disorder, pregnancy, schizophrenia, Greves-Basedow disease, hyperthyroidism

Title: Multiple adverse events in the course of treatment of precursor T-cell acute lymphoblastic leukemia – case report.

Authors: Michał Olejarz, Urszula Naumowicz

Affiliation: Poznań University of Medical Sciences, Department of Hematology

Introduction: Precursor T-cell acute lymphoblastic leukemia (T-ALL) is a malignant disease of the bone marrow and arises from precursor T lymphoblasts at varying stages of differentiation. It occurs mostly in children and young adults and comprises 15-25% of ALL. The survival rate of pediatric T-ALL is approximately 90%, however in adults the outcomes are much worse. Nowadays multidrug cytotoxic chemotherapy is a standard treatment in those patients and can be complicated by adverse events.

Case report: We report a case of a 30 year old man diagnosed with Philadelphia-negative precursor T-ALL. Flow cytometry showed a marrow blast count of 84%. Leukemic infiltrations were also found in the biopsy of the skin. The patient was treated with PALG ALL treatment's protocol. Control flow cytometry of bone marrow showed remission (minimal residual disease /MRD/ - negative), however the skin infiltrations remained and progressed thereafter. The FLAM regimen, nelarabine alone and combined with high-dose (HD) methotrexate with HD cytarabine and miniBEAM regimen were used as a form of salvage therapy. In the course of treatment many complications developed, among them very rare, like invasive aspergillosis of the lungs, spontaneous renal rupture, infiltration of back muscle with destruction of thoracic vertebrae and ribs, paresis of right leg. Some of them were successfully managed. The allogeneic stem cell transplantation from non-familiar donor was planned but due to progressive disease was not performed. The patient is qualified for palliative therapy now.

Conclusions: T-ALL is a severe disease often resistant to chemotherapy that is why new and effective therapeutic options are needed. As many complications can occur during the treatment of haematological malignancies, cooperation of various medical specialists is crucial.

Key words: precursor T-Cell acute lymphoblastic leukemia, leukemic infiltration, aspergillosis, spontaneous renal rupture

Title: Analysis of the impact of classical massage on back pain in women with large breasts.

Authors: Zielińska Natalia, Cisoń Daria, Dembowski Łukasz, Dudek Paula

Affiliation: Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Introduction: Backache is according to the Institute of Physiotherapy, University of Rzeszow most common ailment of human movement system, which reaches up to 80% of the population. Underestimation of the problem can lead to deepen of the issue, and even make a permanent disability. This will have a negative impact on patient quality of life. Presented studies can affect the perception of massage therapy, as a main element of the fight against back pain.

Case report: The research material is a woman qualified for the study on the basis of intentional selection. The study covered the period from February to May 2015 year. The patient underwent 10 treatments of classical massage of the back. Sessions were held on average 2-3 times a week and lasted from 30 to 50 minutes. After the third session, the patient fell ill with smallpox, which resulted month break in studies. After recovery full of health, the sessions were continued.

Conclusions: 1. Therapy of classical massage decreased the patient's back pain. 2. The techniques used in the therapy need to improve the ranges of motion in sections of the spine and the spine of the patient. 3. The study did not allow to determine the influence of classical massage on muscle strength and muscle mass. 4. Actions therapy led to improvement of body posture of the patient, thanks to the relaxation of overly tense muscles.

Key words: classical massage, back pain, women with large breasts

D1. Internal Medicine Session

1st prize in Internal Medicine Session

Title: Evaluation of the students' and graduates' of Wroclaw universities and colleges awareness about air pollution occurring in the Lower Silesia region

Authors: Anna Gładka, Piotr Cierpikowski, Mateusz Patyk

Affiliation: Department of Otolaryngology, Head and Neck Surgery, Wroclaw Medical University

Introduction: The air in Lower Silesia region is one of the most polluted in the Europe. It has undeniable negative impact on health. It is estimated, that air pollution is responsible for 44 000 deaths in our country each year.

Aim: The aim of this study was to evaluate the students' and graduates' of Wroclaws' universities awareness about air pollution occurring in the Wroclaw.

Materials and methods: We conducted a survey using an original questionnaire containing questions about demographic data and air pollution. 68.8% of the 232 people who answered the survey were female, 31.2% male. The average age was 26.5 years old.

Results: 43.4% of people who answered the questionnaire felt that the air in Wrocław is more polluted than in other European cities, 36.6% indicated the opposite answer. A majority (58.5%) incorrectly indicated the means of communication as the main source of smog. The fact that households are the main cause of smog was known to only 24.5% of respondents. 61.6% of them answered that the air is most polluted in the winter months, which is actually true. 99% indicated that polluted air has a bad effect on health. The most of respondents know about the air pollution level from the internet. The level of this information for 61% of respondents is bad or very bad.

Conclusions: Awareness of the air pollution among students of Wroclaw universities is clearly insufficient. Therefore we should consider the implementation of an education program for the Wroclaw universities to know more about air quality and possible negative effects on health.

Key words: air pollution, knowledge, Wroclaw universities

2nd prize in Internal Medicine Session

Title: Which conditions expose the patients' transplanted kidneys to greater risk of inferior functionality and graft rejection?

Authors: Emil Kania, Gabriela Sosnowska

Affiliation: Klinika Chirurgii Naczyń i Transplantacji, Uniwersytecki Szpital Kliniczny w Bialymstoku

Introduction: Successful kidney transplantation is renal replacement therapy of choice for the most patients with end-stage renal disease. Most of the patients undergo dialyses before the transplantation. The type of dialysis influences patient's condition, life quality and outcome after the kidney transplantation. Due to renal ischemia, which occurs during kidney transplantation, delayed or slow graft function might develop as undesirable outcome.

Aim: The aim of the study was to confirm relations between various preoperative factors and the early outcome after kidney transplantation.

Materials and methods: Data of 159 patients after kidney transplantation in one transplantation center in years 2007-2014 was retrospectively analysed. The factors that have been concerned are the following: age and gender of the patients, incidence of diabetes, dialysis modality applied before the transplantation and duration of those dialyses. The result of kidney transplantation was assessed by levels of serum creatinine in first day, tenth day after transplantation and at the discharge from hospital and occurrence of delayed graft function (DGF), which is defined as a need of additional dialyses in first week after the procedure and it is associated with adverse outcome.

Results: 121 patients were under hemodialysis (HD) before the operation, 27 had peritoneal dialysis (PD) and 11 were operated pre-emptively. DGF occurred in 30 patients in HD group (24,8%) and in 1 patient in PD group (3,7%). Mean serum creatinine levels in tenth day was 2,92 mg/dl (HD) vs 2,01 mg/dl (PD), at discharge 1,89 mg/dl vs 1,56 mg. DGF occurred in 11 patients with diabetes (42,3%) and in 24 patients without diabetes (18,0%). Hospital stay was longer in HD group than PD: 21,8 vs 18,2 days and in patients with diabetes: 25,5 vs 20,5 days.

Conclusions: Peritoneal dialysis is associated with better early results and better outcome compared with hemodialysis. Appropriate attention should be paid to every patient with diabetes and hypertension, because those conditions correlates with wide range of side effects and higher risk of graft rejection.

Key words: kidney transplantation, diabetes, hypertension, dialysis, chronic renal disease

3rd prize in Internal Medicine Session

Title: What do we know about the primary immunodeficiency diseases?

Authors: Agata Kasica[1], Iwona Betka[1], Izabela Górska[1], Agnieszka Bodzioch[1], Marzena Lenart[2] , Magdalena Rutkowska-Zapała[2]

Affiliation: 1) Faculty of Pharmacy, Division of Medical Diagnostics, Jagiellonian University Medical College, Krakow, Poland;
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Introduction: Primary immunodeficiency diseases (PIDs) are a group of chronic disorders that are caused by hereditary or genetic defects, in which part of the body's immune system is missing or functions improperly. According to latest report of The International Union of Immunological Societies (IUIS) PID expert committee (EC), PIDs are rapidly expanding field of medicine including nearly 300 single-gene inborn errors of immunity. The average frequency of PIDs in the general population is approximately 2,500 live-born infants, but it depends from the type of deficiency and studied population. Most of them are well characterized monogenic diseases but there are also some with largely obscure causes as Common Variable Immunodeficiency.

Aim: In our work we wanted to evaluate the level of knowledge about PIDs of students and graduates of medical universities. Having into mind the incidence of PIDs in our population, this knowledge in medical community is very important and necessary to appropriately diagnose and properly treat. The purpose of our work is to explore if the future of Polish health service have sufficient knowledge of incidence, symptoms and methods of diagnostics PIDs.

Materials and methods: Medical students' and graduates' from whole country answered a questionnaire containing 17 questions about primary immunodeficiencies.

Results: Medical students' and graduates' knowledge of the tested subject is varied and imperfect. Many of them don't know the symptoms of PIDs and how to diagnose these diseases. It's important that most of the surveyed people have contact with the patient, and as a result of insufficient knowledge about PIDs they may not be able to account PID as a reason of patients' illness whereby apply unsuccessfully treatment. Additionally omission of PIDs during diagnosing can lead to serious conditions of patient's health if they are left untreated. The alarming fact is that not only the questions of the mechanism make problem but also the clinical aspects of the diseases, suggesting that the medical community still knows too little about PIDs.

Conclusions: In summary, there is a continual need to promote knowledge of PID among the medical staff, as physicians, pharmacists and laboratory diagnosticians.

Key words: PID, primary immunodeficiencies, survey

Title: Stress reduction through listening music during gastroscopy and colonoscopy.

Authors: Remigiusz Sokołowski[1], Natalia Sokołowska[2], Karolina Klimkiewicz[2] , Agnieszka Kwiatkowska[3,4]

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2) Department of Hygiene, Epidemiology, and Ergonomics,
Department of Ergonomics and Exercise Physiology;
3) Department of Music Therapy;
4) Department of Gastroenterology and Nutrition Disorders;
Collegium in Bydgoszcz, Nicolaus Copernicus University

Introduction: Music has been used for centuries to treat certain medical conditions, especially mental illness and emotional disorders. In the literature there is the term Anglo-Saxon Music Medicine, where the therapeutic agent is music. Many authors recommend patients listen to music before and during the execution of unpleasant for them to research and treatments for example by endoscopy, where the patient often feels fear of pain.

Aim: Analysis of the impact of music on arterial pressure and heart rate in patients undergoing endoscopy.

Materials and methods: Study was conducted at the Department of Gastroenterology and Nutrition Disorders Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University. The study included 90 people aged 19-80 years old (55.6% women). The participants have been subjected to endoscopy: colonoscopy n=51(57%); gastroscopy n=39(43%). The research group (n = 45) was subjected to the intervention of the music but control group (n = 45) was without the intervention of the music. Was conducted the measurement systolic pressures, diastolic pressure and heart rate before and after the intervention. Statistical analysis was performed U Mann Whitney using Statistica 12.5.

Results: The mean difference systolic pressure before and after intervention-colonoscopy in the control and research groups was 17,7 mmHg (95%CI 14,6-20,8) and 7,9 mmHg (95%CI 5,5-10,4) (p<0,001). The mean difference diastolic pressure before and after intervention in the research and control groups was 5,5 mmHg (95%CI 1,9-9,0) and 3,1 mmHg (95%CI 1,2-5,0) (p=0,22). The mean difference heart rate before and after intervention in the research and control groups was 8,0 bpm (95%CI 5,3-10,7) and 3,2 bpm (95%CI 2,2-4,6) (p=0,001). The mean difference systolic pressure before and after intervention-gastroscopy in the control and research groups was 15,7 mmHg (95%CI 12,5-18,8) and 4,1 mmHg (95%CI (-)0,6-8,6) (p<0,001). The mean difference diastolic pressure before and after intervention in the research and control groups was 5,7 mmHg (95%CI 2,4-8,9) and 4,1 mmHg (95%CI 2,1-6,1) (p=0,5). The mean difference heart rate before and after intervention in the research and control groups was 7,0 bpm (95%CI 5,2-8,1) and 3,8 bpm (95%CI 1,5-6,1) (p=0,03).

Conclusions: Participants listening to music while endoscopy (gastroscopy and colonoscopy)had a significantly lower difference systolic pressure and heart rate before and after the intervention than participants who were subjected to the standard procedure. The difference in in diastolic pressure was similar in both groups. Listening to music during endoscopic procedures can reduce stress in patients during the study.

Key words: gastroscopy, colonoscopy, music therapy

Title: Evaluation of renal function in patients with hypertension.

Authors: Urszula Naumowicz, Jacek Klasiński, Michał Nowak

Affiliation: Poznan University of Medical Sciences
Department of Internal Medicine, Metabolic Diseases and Hipertensiology

Introduction: Evaluation of the albumin/creatinine ratio (ACR) is used in monitoring of early organ complications in arterial hypertension, while Glomerular Filtration Rate(GFR) is a other useful parameter for evaluation of kidney function in this disease.

Aim: The aim of the study was to evaluate kidney function in patients with arterial hypertension by analyzing ACR and GFR.

Materials and methods: We analyzed a group of 59 patients diagnosed with arterial hypertension. Our patients were not diagnosed with diabetes and did not show any abnormalities in urinalysis. Urine samples were collected for the measurement of albumin concentrations, which were expressed as ACR. GFR was assessed with the use of Cockcroft-Gault formula and the Modification of Diet in Renal Diseases formula.

Results: ACR values <30 mg/g were found in 52 patients (88,1%), 30≤ACR<300 mg/g in 7 patients (11,9%) and >300 mg/g in none of our patients. The mean ACR was 14,65 ± 27,12 mg/g. ACR was correlated with body mass index (BMI), systolic blood pressure and with amount of administered antihypertensive drugs. ACR did not correlate with sex, age, diastolic blood pressure or eGFR. SBP was correlated with amount of administered antihypertensive drugs.

Conclusions: Urinary albumin excretion among patients with hypertension is higher in the group with obesity or bad hypertension control. It is important to popularize ACR evaluation among all patients with Hypertension, as it is a simple, cheap and important test.

Key words: renal Function, hipertensiology, albumin/creatinine ratio, glomerular filtration rate, antihypertensive drugs

Title: Crural ulcerations in the course of connective tissue diseases.

Authors: Edwin Kuźnik, Paweł Stępniewski, Magdalena Stępniewska, Jowita Halupczok-Żyła, Hanna Sikorska-Szaflik,

Affiliation: Wrocław Medical University, PhD Students' Scientific Club Biomed

Introduction: Over 80% crural ulcerations results from the venous system diseases, mostly because of superficial venous valve insufficiency. Trophic lesions of the shin may occur in course of connective tissue diseases, mainly systemic vasculitis.

Aim: The aim of the study was to present the epidemiology, pathogenesis, clinical presentation, diagnosis, and management of the crural ulcerations in course of connective tissue diseases.

Materials and methods: We performed a literature research covering the period between 1st January 2005 to 30th April 2016. The search was conducted using the PubMed database.

Results: The main skin lesions observed in the course of systemic vasculitis are raised purpuric changes, and shallow ulcers, fewer patients report the occurrence of ulceration penetrating into the deep tissue, making it harder to heal and cause considerable pain. Crural ulcerations occur particularly in the course of granulomatosis with vasculitis, polyarteritis nodosa, temporal arteritis, cryoglobulinemia, and leukocytoclastic vasculitis. The diagnosis of leg ulcers requires to exclude venous or ischemic component made by ultrasound evaluation. It is necessary to perform a full panel of immunological tests. Skin-muscle biopsy is the gold standard in the diagnosis of systemic vasculitis. The basic element of pharmacotherapy is the correct treatment of the underlying disease with the use of immunosuppressive drugs in the form of oral or intravenous pulse(corticosteroids, cyclophosphamide). In cases of bacterial superinfection antibiotics should be used. In the local treatment it is used a mechanical wound cleansing and specialistic wound dressings.

Conclusions: To distinguish venous from those of different etiology is very important because of the radically different therapy approach. Treatment of leg ulcers in the course of systemic diseases is a long process, requiring comprehensive involvement of many specialists and not always bringing success. Due to the variety of units of clinical diseases that may occur leg ulcers, it is advisable to carry out a thorough diagnosis and initiation of treatment in specialized departments (like dermatological, rheumatological or wound healing).

Key words: vasculitis, crural ulcerations

Title: Rare cause of chronic ischemia of the hand – thenar hammer syndrome.

Authors: Paweł Stępniewski, Edwin Kuźnik, Magdalena Stępniewska, Jowita Halupczok-Żyła, Hanna Sikorska-Szaflik

Affiliation: Wrocław Medical University / PhD Biomed Scientific Club

Introduction: Thenar hammer syndrome (THS) is a very rare cause of finger ischemia. Due to chronic recurrence of activities provoking tightening of radial artery to the bones of wrist by thenar muscles (the hammer striking in anvil mechanism) or repeated injuries of thenar area with subsequent damaging of the blood vessel, arterial thrombosis or aneurysm in the distal part of radial artery may occur.It results with insufficient blood supply in I and II finger, which in acute cases may be the cause of necrosis or amputation of the ischemic area.

Aim: The analysis of the epidemiology, pathogenesis, clinical presentation, diagnosis, and management of the disease.

Materials and methods: The English language literature was reviewed for articles about the cases of THS. The search was conducted using the PubMed database.

Results: Data gathered from the literature suggests that the disease is mainly observed in blue collar workers, who perform regular and monotonous jobs with the use of tools being held in hands (charwomans, bricklayers, carpenters) or sportsmen who are exposed to chronic and frequent injuries of thenar area (tennis, golf, baseball players). Symptoms depend on the size of pathological changes observed in the artery and consist of physical claudication ; numbness, stiffening and paresthesis of the first and second fingers due to the close vicinity of radial nerve ; necrosis of the fingers. Additionally the more often occurence of secondary Raynauld syndrome hinders proper diagnosis. Diagnostics of THS consists of ultrasound imaging of the upper limb arteries with the duplex-doppler option, CT and/or MR with vascular option and arteriography („the golden standard") which confirms the diagnosis and exact location of the pathology inside the artery. The treatment may be pharmacological or surgical. The basic element of therapy is the use of oral vasodilatator drugs or intravenal infusions (pentoxifilline, prostaglandin E1) Additionally the use of antiplatelet drugs and sometimes low-molecular-weight heparine is necessary. With sustaining symptoms the surgical treatment may be needed (thrombectomy, local periarterial symphatectomy, reconstructive surgery).

Conclusions: Thenar hammer syndrome is more often diagnosed mainly because of the accessibility of the diagnostic imaging tools. In most cases the use of proper treatment avoids the risk of finger amputation. Putting the pathology on the list of occupational diseases and increasing the awareness of the workers potentially exposed to THS should be considered.

Key words: ischemia, thenar hammer syndrome, hand

D2. Physiotherapy & Sports Medicine Session

1st prize in Physiotherapy & Sports Medicine Session

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

Authors: Krzysztof Szmyt, Sylwia Sławek

Affiliation: Poznan University of Medical Sciences,
Department of General and Endocrinological Surgery and Gastrointestinal Oncology

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

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

Materials and methods: A study group consisted of 39 volunteers aged 22-58 years, who participated in the alpine expedition (≥3000 meters above sea level). Patients were divided into subgroups according to age: I - ≤35 years, II- > 35 years. Among the whole study group, the top ten alpinists were selected as additional subgroup – professionals, who in the past successfully crossed the height of 7000 meters above sea level. Buccal cell samples were used for genotyping. ACE gene polymorphism was determined by polymerase chain reaction amplification followed by agarose gel electrophoresis. The level of adaptation to alpine environmental conditions was assessed on the basis of questionnaires. Another tool for the assessment was the Lake Louise scale for people who are at high altitudes.

Results: The I/I genotype was present in 1 alpinist, I/D genotype was present in 23 alpinists and D/D was present in 15 alpinists. The genotype frequencies of ACE alleles were in Hardy-Weinberg equilibrium. There was no significant difference in the well-being of athletes before and after mountaineering between subgroups. Also, the fact that the alpinist was an amateur or a professional had no effect on the differences in well-being of athletes before as well as after mountaineering. There was no significant differences in the well-being of athletes with various ACE genotypes, both before ($p=0.22$) and after mountaineering ($p=0.99$).

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

Key words: Angiotensin converting enzyme, high mountaineering, gene polymorphism

2nd prize in Physiotherapy & Sports Medicine Session

Title: Lactate concentration changes in exercise and after exercise relative to the peak oxygen uptake among race walkers of the National Team.

Authors: Monika Nawrocka[1], Łukasz Frąkowski[2], Daria Kania[2]

Affiliation: 1) Department of Statistics, Methodology and Computer Science, Academy of Physical Education in the name of George Kukuczki in Katowice;
2) Collegium Medicum Nicholas Copernicus University in Bydgoszcz

Introduction: The role of the physiological system in relation to the aerobic exercise is particularly important especially in the post-exercise recovery. From the point of view of physical and reactions occurring during and immediately after, the most important parameters to determine the functional capabilities of the organism are: lactate concentration and oxygen uptake.

Aim: The aim of the study was to determine changes in the concentration of lactate during exercise and after exercise as well as its impact on peak oxygen consumption.

Materials and methods: Research includes 6 athletes professionally training race walking belonging to Senior of the National Team. The study included 3 women and 3 men.
All tests were performed in the morning, before the effort was downloaded material to perform blood counts and measurements were made of the body [Body Height-BH], [Body Mass-BM].

Conclusions: Own research results and numerous scientific studies show a relationship between after effort reaction analyzed physiological parameters between level of endurance and applied system training (Kraemer et al. 1990, 1991, Fry et al. 1993, Bosco et al. 2000, Hakkinen et al. 2000, Kraemer and Ratamess 2005).

Key words: endurance, race walking, peak oxygen uptake, lactate

3rd prize in Physiotherapy & Sports Medicine Session

Title: Evaluation of diet and consumption frequency of selected products by Young Athletes playing football in Bydgoszcz.

Authors: Monika Ameryk

Affiliation: Department of Gastroenterology and Nutrition Disorders, Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

Introduction: Proper diet should be an important element of the training process of children and young people. Eating habits of Young Athletes are more complex than habits of untrained peers and adults. Proper selection of products is providing all the necessary nutrients for the correct growth of the organism, optimal athletic performance and recovery after physical exertion. Early education of nutrition habits brings benefits in terms of performance and healthy adulthood.

Aim: Characterize and evaluate the nutritional habits of Young Athletes playing football.

Materials and methods: The study group included 100 boys (11-16 years old) playing football in sports club in Bydgoszcz. Way of eating and frequency of consumption of 33 products was assessed using a modified questionnaire - KOMPAN. On the basis of the information, index of healthy diet and unhealthy diet was determined. Analyses were performed in the Statistica 12.5.

Results: In the study group only 30% of boys ate five meals per day. Eating all meals at fixed times was observed only in 16% of the players. Almost 30% of the players had a snack once a day. The fast food intake once a week was observed in 90% of the players. Adding sugar to drinks also proved to be a negative habit in as much as 88% of respondents. It has been shown that one out of ten children consumed sweets several times a week, and every fifth player had sweets once each day. Consumption of isotonic drinks in the study group was reported in nearly 50% of people. Eating fish proved to be a positive habit in as much as 86% of boys who consumed them once a week. Consumption of light bread with a frequency of several times a day was observed in 52% of the players, dark bread in only less than 4%. Consumption of buckwheat several times a week was declared by only 20% of players. White meat was eaten several times a week by 66.3% of boys, whereas red meat was consumed by only 35.6%. The number of fish eaten at the same frequency was significantly lower - only 5.7% of the players. As little as 20% of boys showed moderate intensity characteristics of health-oriented diet. Small intensity of the characteristics of an unhealthy diet was found in 90% of Young Athletes which seems preferable.

Conclusions: Results of this study indicate the legitimacy of nutrition education for the Young Athletes playing football in order to improve abnormal eating and to introduce proper habits which would result in higher physical activity.

Key words: Young Athletes, nutrition, education, eating habits, footballers

Title: Repertory of the latest research concerning rehabilitation for patients with Parkinson's Disease.

Authors: Julita Jarecka

Affiliation: Nicolaus Copernicus University, Collegium Medicum, Department of Geriatrics

Introduction: Parkinson's disease (PD) is after Alzheimer's disease the second most common neurodegenerative disorders with the frequency of occurrence at about 0,3% in the population of industrialized countries. Despite physiotherapy brings significant clinical benefits for Parkinson's disease patients, the rates of referrals for physiotherapy are usually below optimal level. Many patients treated only by pharmacotherapy are condemned to progressive deepening disability resulting from gait disability, growing postural unsteadiness and as a result leading to increase frequency of falls and limit in independency in carrying out of one's everyday duties.

Aim: Coming to conclusion about practical application of physiotherapy in rehabilitation of PD patients in clinical practice.

Materials and methods: Analysis of recent articles relating rehabilitation in PD.

Results: The positive effects of exercise intervention was observed on balance improvement, gait ability and falls reduction against control group treated only by pharmacology or placebo. In other study concerning 100 patients with mild or moderate PD proved that no significant differences were observed between groups (10-weeks HiBalance program or control group) in regarding gait performance during dual-tasking. However the patients of the training group showed improved results of physical activity levels and activities of daily living. The positive effects concerning proprioception and sensory processing important for posture control in PD patients using PD SAFExTM training were also reported. For example all participants of training group significantly improved balance control especially with closed eyes.

Conclusions: The results of the latest researches confirmed that physiotherapy should be valuable supplementation of treatment for Parkinson's disease patients.

Key words: Parkinson's disease, rehabilitation, physiotherapy, falls, gait, balance

Title: Involutional changes of the foot architecture of the elderly

Authors: Marta Podhorecka[1], Karolina Klimkiewicz[1], Natalia Sokołowska[1], Kornelia Kędziora Kornatowska[1], Remigiusz Sokołowski[2]

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Introduction:. Involutional changes of the foot contribute to the dysfunction of static and dynamic locomotor. 14-41% of people over the age of 50 have problems within the feet, and after 65 years of age, 30-87%. Deformities and ailments pain are the most common problems within the feet.

Aim: To assess the type of involutional changes occurring in the feet architecture among the elderly over 60 years old compared with adults between 20 and 40 years old.

Materials and methods: Community–based study was attended by 186 participants, 98 in research group - RG - (74 women, 24 men) and 88 in the control group - CG - (59 women, 29 male). The inclusion criterion was age. The exclusion criteria were: surgeries within the feet, osteoarthritis and lack of independence in movement. There was a foot analysis performed among individuals enrolled in the study with the use of CQ-ST device, destined for computer evaluation of domed and arch structures of feet.The reason being comparison between RG and CG in the matter of the characteristics of normal distribution according to the used Student's t-test, and otherwise, the Mann-Whitney U test.

Results: Average length of feet for RG is 228+/-17.7mm and for CG is 232.7+/-20mm($p<0.05$). Average hallux valgus angle ALFA for RG is 10.4+/-9° and for CG is 0.3+/-6° ($p<0.05$). Average Clark's angle for RG is 36.6+/-10° and for CG is 44.6+/-10,40 ($p<0.05$).

Conclusions: Involutional changes become apparent with age, and are an indispensable consequence of the aging process of the body. Research group have a smaller length of the foot, Increased values of the hallux valgosity angle and lowering of Clark's angle.

Key words: Clark's angle, values of the hallux valgosity angle, Involutional changes, elderly, foot,

Title: Assessment of knowledge about the function of the pelvic floor muscles among women.

Authors: Karolina Klimkiewicz[1], Marta Podhorecka[1], Natalia Sokołowska[1], Remigiusz Sokołowski[2]

Affiliation: 1) Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz,
2) Department of Hygiene, Epidemiology and Ergonomics, Division of Ergonomics and ExercisePhysiology, Collegium Medicum NCU in Bydgoszcz

Introduction: Disorders of urinary incontinence and disorders of pelvic organs are becoming more common ailment among women. According to statistics, this problem affects 17-60% of the female population. Increasingly, this problem affects young women before 30 years of age. It is therefore important to educate women in the pelvic floor muscle training.

Aim: The aim of this study was to assess the knowledge of the Kegel muscle function among women.

Materials and methods: The study was conducted on 30 ladies in the Post-Secondary School of Medical Sciences. Nicolaus Copernicus on the technique of massage and dental assistants and Post-Secondary School COSINUS in Torun, the technique of administration and management including a study of 30 females. To evaluate the knowledge was used the author's questionnaire, which consisted of 27 questions. For statistical calculations used Levene's test of homogeneity of variance, and Equality of Means Test (T test) to determine the statistical significance of the results.

Results: Mean score obtained by women who gave birth at 50.79% (+ -18.91), while the women who never bore 65.81% (+ -17.83). T test: $p<0,05$. The average result of women regularly practicing physical activity is 63.67% (+ -17.01), while the women who do not practice this activity 54.04% (+ -18.84), T test : $p<0,05$. The differences are statistically significant.

Conclusions: According to research women who have given birth (regardless of the method of delivery) have less knowledge of the pelvic floor muscles than those who never bore. Moreover it can be argued that women regularly practicing physical activity have a greater knowledge of the Kegel muscles than those who do not practice this activity.

Key words: Kegel muscles, urinary incontinence, pelvic floor muscles, women, knowledge

Title: Arthroscopic plastic of the anterior cruciate ligament.

Authors: Kastsiukovich S., Anosov V.

Affiliation: Grodno State Medical University; Department of Traumatology and Orthopedics

Introduction: Anterior cruciate ligament (ACL) keeps the tibia from shifting anteriorly and medially. When it ruptures anterior-internal instability of lower leg is revealed, which reduces ability of support of lower extremity and leads to joint instability, coordinated load violation. Currently, arthroscopic plastic by autograft from the middle third of the patellar tendon with bone blocks at the ends (btb - "bone-tendon-bone"), and hamstrings of latching channel formed in the femur and tibia are the most effective and widely used throughout the world ways of treatment for patients with full or partial damage ½ and more the thickness of ACL.

Aim: Study of the efficiency of the application the arthroscopic plastic by autografts damaged ACL knee, allowing to achieve the stabilization of the knee joint.

Materials and methods: Materials of the study were the results of treatment of 30 patients with ACL injury who had surgery in the trauma ward №1 «Grodno City Emergency Clinical Hospital» from 2013 to 2015. Among all surveyed on gender quantitatively dominated by men – 26 (86,7%), women – 4 (13,3%) aged from 20 to 69 years.

Results: ACL reconstruction in 24 (80,0%) patients was made by patellar tendon graft with autologous fragments transplantation of cortical area of the patella and the tibial tuberosity, in 1 (3,3%) person above-mentioned surgery combined with internal lateral ligament plastic by gracilis muscle tendon. In these surgical interventions proximal fixation was carried by the "press-fit" of the autologous bone fragment in the femoral canal, the distal fixation – by interferential titanium screws. ACL reconstruction in 2 (6,7%) patients was made by semitendinosus tendons and gracilis muscles, in 3 (10,0%) patients with partial ACL damage – by semitendinosus muscle tendon. In these surgical interventions a proximal and distal fixation were carried by interferential titanium screws. Thus, autologous bone fragment fixation in the femoral canal by "press-fit" was performed in 25 (83,3%) patients, by interference screws - in 5 (16,7%) patients. Locking in tibial channel was made by interference screws in 30 (100,0%) operated. The necessary stabilization of the knee joint was achieved in all patients after surgery.

Conclusions: Arthroscopic ACL autografts reconstruction by the patellar tendon with bone blocks, as well as by hamstring is a highly effective surgery, allowing to achieve the stabilization of the knee joint and improve functional activity in patients.

Key words: Anterior, cruciate, ligament, arthroscopic, plastic

D3. Neurology, Neurosurgery & Psychiatrics Session

1st prize in Neurology, Neurosurgery & Psychiatrics Session

Title: Cerebral venous sinus thrombosis - a single-center experience.

Authors: Sylwia Sławek, Krzysztof Szmyt

Affiliation: Department of General and Vascular Surgery, Poznan University of Medical Sciences

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

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

Materials and methods: Study group consisted of 24 women aged from 26 to 68 years with confirmed CVT. All demographic data, presenting features, neurologic examination findings, imaging findings and lab tests findings, including, D-dimers, antiphospholipid antibodies (APLA), and genetic tests assessing the presence of A1691G mutation of V factor gene or G20210A mutation of prothrombin gene were recorded. Patients were divided into 3 subgroups depending on the presence of coagulation disorders: 1-with coagulation disorders, 2-with inherited thrombophilia and 3-without coagulation disorders.

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

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

Key words: Cerebral venous thrombosis, thrombophilia, stroke, cranial sinus

2nd prize in Neurology, Neurosurgery & Psychiatrics Session

Title: Family planning in women with multiple sclerosis in Polish population.

Authors: Paweł Bartnik, Aleksandra Wielgoś, Joanna Kacperczyk, Katarzyna Pisarz

Affiliation: 1st Chair and Department of Obstetrics & Gynecology

Introduction: Multiple sclerosis (MS) is a chronic disease, which affects mostly women and usually has an early onset in reproductive age. Due to recent progress in treatment patients maintain a high quality of life for a long period which creates opportunities for possible parenthood.

Aim: To analyze different aspects of family planning in female patients with MS.

Materials and methods: It was a cross-sectional study. Data was collected via an anonymous survey distributed among patients with MS hospitalized at the Department of Neurology, Medical University of Warsaw and online via the official means of Polish Society of Multiple Sclerosis and Urszula Jaworska Foundation. The exclusion criteria included: menopause, severe disability (Expanded Disability Status Scale (EDSS) 6.5+), progressive form of MS and sexual orientation other than heterosexual. The survey consisted of demographic questions, questions assessing features of MS, current and past MS-related drug history, prevalence and severity of depression and fatigue and family planning.

Results: 80.23% of 177 respondents declared current use of at least one contraception method and among them 34.17% used hormonal contraception. 45.24% respondents declared intention for future pregnancy. Among them, 27.17% have not discussed it with any physician, 9.13% were discouraged by either gynecologist or neurologist and 19.08% discussed it with a physician and obtained approval. Patients interested in pregnancy were more often nulliparous ($p<.001$), had significantly higher EDSS score ($p=.01$), were less depressed ($p=.03$), less fatigued ($p=.02$), lived in bigger town ($p=.03$) and were younger ($p<.001$). Patients interested in future pregnancy did not differ in terms of recent and past drug history, education level, marital status.

Conclusions: There is a large group of patients with MS interested in pregnancy and most of them were not identified by their physicians. Young, nulliparous patients with relatively low advancement of the disease are most interested in future pregnancy.

Key words: Multiple sclerosis, family planning, contraception

3rd prize in Neurology, Neurosurgery & Psychiatrics Session

Title: Impact of coloring and physical exercises on the average level of brain waves.

Authors: Katarzyna Mikołajczyk

Affiliation: Uniwersytet Technologiczno- Przyrodniczy w Bydgoszczy, Wydział Inżynierii Mechanicznej

Introduction: There are many factors that affect the learning process. The most important are: attention, motivation and emotions. All of them are also linked to the average level of brain waves. Especially level of the high alpha, high beta and low gamma, has a great influence on learning. It is good to know what is the impact of some activities, for example coloring and physical exercises, on brain's work, because it can help to improve our personal learning.

Aim: Research, using simple EEG (NeuroSky), the impact of coloring and physical exercises at the average level of brain waves.

Materials and methods: The study was subjected to three people in the age of 16, 24 and 25. It was divided into five parts, each lasted fifteen minutes. First, third and last part consisted of learning English words. Second part consisted of coloring. Fourth part consisted of doing some kind of physical exercises, it was important that no sudden movements of the head should were performed during their duration.The measurement of EEG was collected for 75 minutes using NeuroSky and eegID application and then developed using Excel.

Results: Collected data showed that the average level of all the interesting waves (high alpha, high beta and low gamma) was higher after part consisting of coloring than before. There was no such relationship for the part relating to the exercises. However, for each examined person, average level of brain waves was the lowest on the start of study and the highest on the end. The study showed that some kind of activities have possitive impact on brain's work and showed that it is worth considering whether, instead of 15 minutes of learning by rote better to paint something or go for a short walk.

Conclusions: Better knowledge about influence of some kind of activities on learning can help to improve the teaching- learning process. In aim of it, it would be worthwhile to carry out studies on a larger, more diverse group of people and compare the results obtained by the beneficiaries of the neurofeedback training and people who didn't use it.

Key words: EEG, brain waves, learning process

Title: Surgical treatment of chronic subdural hematoma in the elderly

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Introduction: Chronic subdural hematoma (CSDH) is one of the most common clinical entities in daily neurosurgical practice. The diagnosis and treatment are well established, but recurrence, complications, and factors related to these problems, especially in the elderly, are not completely understood.

Aim: This study evaluated the clinical features, radiological findings, and surgical results in a large series of the patients treated at the same institution.

Materials and methods: 102 patients (60 male and 42 female) with CSDH were treated by burr hole craniostomy with closed system drainage from January 2012 through March 2016. Causes, clinical and computed tomographic findings, surgical results, re-expansion of brain after surgery, and hematoma recurrence were statistically analyzed to elucidate the potential risks of CSDH.

Results: Most patients (75 %) had good recovery, 15% showed no change, and 10% worsened. 15 patients died, three due to disseminated intravascular coagulation. Recurrence of hematoma was recognized in 16 patients at 1 to 8 weeks after the first operation.

Conclusions: Old age, preexisting cerebral infarction, and persistence of subdural air after surgery were significantly correlated with poor brain re-expansion. Careful hemostasis and complete replacement of subdural hematoma by normal saline to prevent influx of air into the subdural space will further improve the surgical outcome for patients with CSDH.

Key words: chronic subdural hematoma, outcome, recurrence, re-expansion, surgical complications

Title: B12 levels in patients with mild neurocognitive disorder after 60 years.

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Introduction: The new diagnostic criteria in the DSM-5 e xtract major neurocognitive disorder (NCD) being determinant of dementia and mild NCD considered minor cognitive impairment without dementia, similar to the commonly used concept of mild cognitive impairment (MCI). Vitamin B12 plays a key role in the proper functioning of the nervous system, taking part in the process of myelination of neurons of the spinal cord and cerebral cortex. Its deficiency can cause NCD.

Aim: Comparing the level of vitamin B12 in reference values in patients with NCD after 60 years old.

Materials and methods: The study was conducted at the Department and Clinic of Geriatrics Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University. The study included 112 people 2 distinguished research groups: i) a group of mild neurocognitive disorders - NCD mild (n = 69); ii) a control group without NCD – non NCD (n = 53). The mean ages were 78,74 years for mild NCD, 75,09 years for non NCD. The 72 of patients were woman (59%). The study included detailed inclusion and exclusion criteria. For statistical analysis we used U Mann Whitney in the Statiscica 12.5 software.

Results: Mean level of B12 for mild NCD was 314,7 pg/ml (95%CI 286,6-342,8) and for non NCD was 359,2 pg/ml (95%CI 314,2-404,2). The level of B12 at mild NCD was statistical significant compare to non NCD (p=0,044).

Conclusions: Vitamin B12 levels In the patients' serum suffering from mild is significantly lower than in patients without NCD despite the normal ranges of reference. It is suggested to conduct more numerous research sample of people over the age of 60 in order to verify the reference values of vitamin B12 in this age group. Values within the normal reference range may indicate the beginning of mild NCD.

Key words: neurocognitive disorders, vitamine B12, geriatrics

Title: Epidural hematoma in the pediatric population – case study.

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Introduction: Head injuries are the main causes of death and acquired neurological disorders. Differently than adults mileage head injury in the pediatric population means that in this group it happens bridge unexpected complications. Given the lack of specific clinical symptoms of epidural hematoma in the pediatric population is a major challenge for both diagnostic and therapeutic.

Aim: The authors present a case and proceedings in a child 6 years old after a head injury diagnosed in the study imaging epidural hematoma.

Materials and methods: To ER hit a six-year girl after falling from a height of approx. 1.5 meters the day before, without loss of consciousness. In an interview with headache, vomiting for 24 hours. The study neurological deficits and there were no deviations. Made computed tomography of the head revealed epidural hematoma in the left frontal region thickness up to 11mm without displacement of the midline frontal bone fracture, temporal and parietal left. The girl was immediately qualified for surgery.

Results: After surgery, the child GCS of 15 points, without deficits and deviations in neurological examination. In the 4th day after surgery performed CT control, which revealed a total regressions of bleeding in the brain. In 5 days after treatment the child was discharged home in a state of neurological and local good.

Conclusions: 1. Epidural hematomas relatively rare in children. 2. Given the lack of specific clinical symptoms epidural hematoma in the pediatric population is a major challenge for both diagnostic and therapeutic. 3. The present case report demonstrates the validity of performing CT in all reporting to the ER due to head injury. 4. Qualification for surgical treatment should be based primarily on the clinical condition

Key words: cephalo-cerebral trauma, epidural hematoma, pediatric population