XXXI. STUDENT SCIENTIFIC CONFERENCE

PROGRAM and ABSTRACTS

MARTIN
April 28, 2010
XXXI. Student Scientific Conference
Jessenius Faculty of Medicine
Comenius University
Martin

The conference is supported by Dr. Jozef Lettrich Foundation and Richter Gedeon RT

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Jessenius Faculty of Medicine, Comenius University, Martin

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Chairman of Organization Committee of Student Scientific Conference

Organization Committee

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Daniela Karasova, MSc.
Maria Tebelakova, PhDr.
Bjorn Redfors
Jan Strachan
PROGRAM AT GLANCE

Date: April 28, 2010
Place: Lecture halls A and B, JFM CU – Novomeskeho 7, MARTIN (next to the student hostel)
Registration: April 28, 2010; 7.30 – 8.00

Opening ceremony – Lecture Hall B; 8.00 – 8.15

Lecture hall A
– A1 Section of Preclinical Disciplines  8.15 – 9.45
– Coffee break
– A2 Section of Nursing  10.00 – 11.30
– Coffee break
– A3 Section of Non-Medical Study Programmes  11.45 – 13.15

Lecture hall B
– B1 Section of Clinical Disciplines  8.15 – 10.30
– Coffee break
– B2 International section: guest and international students  10.45 – 13.15

Closing ceremony – Lecture hall B; 13.30 – 14.00

Duration of lectures – 10 minutes, discussion – 5 minutes
All abstracts are available in English at www.jfmed.uniba.sk
PROGRAM IN DETAILS

Lecture hall A

SECTION OF PRECLINICAL DISCIPLINES

A1 (8.15 – 9.45)

Anna Antosikova and Erika Gondova: EXPRESSION OF ANTIAPOPTOTIC PROTEIN SURVIVIN IN BREAST LESIONS 9

Zuzana Genzorova: COURSE OF BONE MARROW INVOLVEMENT IN FOLLICULAR LYMPHOMA IN RELATION TO APPLIED THERAPY 10

Eva Hanuskova and Elena Veteskova: ATORVASTATIN IN THE CHEMOPREVENTION OF MAMMARY CARCINOGENESIS IN FEMALE RATS 11

Andrea Olejarova: ALLEL- SPECIFIC PCR AND DETECTION OF POINT MUTATION V600E OF BRAF GENE IN COLORECTAL CANCER 12

Ivan Prikryl: GASTROINTESTINAL STROMAL TUMOR: CONTRIBUTION OF PHENOTYPICAL AND GENOTYPICAL PARAMETERS ANALYSIS FOR THE DIAGNOSIS 13

Katarina Svirlochova: THE EFFECT OF INTRANASAL TRPV1 AGONIST CAPSAICIN CHALLENGE ON NEURONAL ACTIVATION IN THE GUINEA PIG BRAINSTEM – C- FOS STUDY 14

Coffee break (9.45 – 10.00)

SECTION OF NURSING

A2 (10.00 – 11.30)

Tatiana Jakubcova: HEALTH LITERACY IN SPECIFIC GROUPS OF CLIENTS 15

Barbora Hladekova: CAREGIVER BURDEN IN PROVIDING CARE OF RELATIVE WITH CHRONIC DISEASE 16

Zuzana Jackova: ASSESSMENT OF EXTREMITIES ISCHEMIA IN DIABETIC PATIENTS 17

Alexandra Siakelova: RISK FACTORS PREVALENCE IN PATIENTS WITH DIABETIC ULCERATION AND AMPUTATION 18
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helena Szokeova</td>
<td>NURSING DOCUMENTATION IN HOME CARE AGENCY</td>
<td>19</td>
</tr>
<tr>
<td>Alena Skutchanova</td>
<td>SURVIVING AND FATE OF PATIENTS AFTER TRAUMATIC BRAIN DAMAGE</td>
<td>20</td>
</tr>
<tr>
<td><strong>Coffee break</strong></td>
<td>(11.30 – 11.45)</td>
<td></td>
</tr>
<tr>
<td><strong>SECTION OF NON-MEDICAL STUDY PROGRAMMES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zuzana Babisova and Lubomir Uhrin</td>
<td>OPEN AND HIDDEN FORMS OF CHILD WORK FROM PUBLIC HEALTH POINT OF VIEW</td>
<td>21</td>
</tr>
<tr>
<td>Andrea Cadrikova</td>
<td>PREVENTION OF INFECTION IN A PATIENT WITH CENTRAL VENOUS CATHETER</td>
<td>22</td>
</tr>
<tr>
<td>Veronika Kalabusova</td>
<td>STANDARD OF CARE FOR A WOMAN IN FIRST STAGE OF DELIVERY</td>
<td>23</td>
</tr>
<tr>
<td>Alena Kostkova</td>
<td>COMPARISON OF INTENSITY PAIN DURING DELIVERY BETWEEN PRIMIPARAS AND MULTIPARAS</td>
<td>24</td>
</tr>
<tr>
<td>Daniela Polakova</td>
<td>POSITIVE AND NEGATIVE EMOTIONS IN PREGNANCY – WHAT IS THEIR MOST CAUSE</td>
<td>25</td>
</tr>
<tr>
<td>Paulina Struharova</td>
<td>PSYCHOPROPHYLACTIC TRAINING FOR CHILDBIRTH – ITS EFFECTIVENESS AND IMPORTANCE FOR MIDWIFERY</td>
<td>26</td>
</tr>
</tbody>
</table>
Veronika Sagiova: DETERMINATION OF HEART RATE VARIABILITY’S PARAMETERS, PARAMETERS OF PULMONARY FUNCTION AND EXHALED CARBON MONOXIDE IN BOYS WITH TYPE 1 DIABETES MELLITUS

Michal Kutka and Michaela Cyprichova: MAIN CAUSE OF REPEATED ATRIAL FIBRILATION

Anna Antosikova and Katarina Bukovinska: THE EFFECTIVENESS OF EARLY NON-INVASIVE SCREENING OF CONGENITAL HEART DISEASES IN NEWBORN

Erneyova Jana, Jesenakova Barbora and Lucanova Petronela: INFLAMMOMETRY IN THE MANAGEMENT OF BRONCHIAL ASTHMA IN CHILDREN

Miroslava Puckova and Michaela Podhorcova: IMPORTANCE OF INTRAABDOMINAL PRESSURE MEASURING IN PATIENTS AFTER LAPAROTOMY

Tatiana Postrkova and Katarina Potocka: HYPERGLYCEMIA AS A RISK FACTOR OF INTRAVENTRICULAR HAEMORRHAGE IN VERY LOW BIRTH WEIGHT INFANTS

Laura Guzikova: SLEEP DISORDERS AND THEIR PSYCHOPATOLOGICAL CORRELATES

Jozef Galbavy: THE EXPRESSION OF CAVEOLINE -1/CAV-1/ BY PATIENTS WITH RENAL CELL CARCINOMA

Matej Samos: APOLIPOPROTEIN E POLYMORPHISM, SUBCLINICAL INFLAMMATION AND LIPID LEVELS IN CORONAROGRAPHED PATIENTS

Coffee break (10.30 – 10.45)

Anniken Lynne Antonsen: USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN INFLAMMATORY BOWEL DISEASE. RESULTS FROM A HOSPITAL BASED REGISTRY IN SLOVAKIA

Karen Helene Froyland: SHORT-TERM EFFECTIVENESS OF
ATOMOXETINE ON CORE AND COMORBID ADHD SYMPTOMS

Martha Larsen: COMPARISON BETWEEN PUBLIC HEALTH IN NORWAY AND SLOVAKIA – ORIGINS AND PERSONAGES 38

Björn Redfors, Margareta Scharin-Täng, Azra Miljanovic and Elmir Omerovic: ECHOCARDIOGRAPHIC ASSESSMENT OF THE AREA AT RISK IN MICE 39

Julia Balogh and Zsuzsanna Varga: INVESTIGATIONS ON BETA ADRENERGIC RECEPTOR POLYMORPHISMS IN POST-INFARCT HEART FAILURE PATIENTS USING A NOVEL CARDIOVASCULAR DATA AND BIOBANK 40

Miroslava Htoutou Sedlakova and Vojtech Hanulik: THE POTENTIAL OF PHENOTYPIC METHODS FOR DETECTING ESBL- AND AMPC-TYPE BROAD-SPECTRUM BETA-LACTAMASES 41

Denisa Osinova: PERIOPERATIVE ANALGESIA 42

Tore Schjøttelvik, Ildiko Rostas and Veronika Sipos: NUTRITIONAL STATE-DEPENDENT ALTERATIONS IN THE EFFECTS OF CENTRAL ALPHA-MSH INFUSION IN ADULT RATS 43

Andras Toth: UTILIZATION OF G PROTEIN CHIMERAS TO CHARACTERIZE CANNABINOID RECEPTOR SIGNALING 44

Branislav Zagrapan: SELECTED PARAMETERS OF INSULIN SENSITIVITY IN HYPERTENSIVE PATIENTS AFTER THE CHANGE IN THERAPY FROM ANGIOTENSIN CONVERTING ENZYME INHIBITORS TO ANGIOTENSIN II TYPE I RECEPTOR BLOCKERS 45

AWARDING AND CLOSING CEREMONY
13.30 – 14.00
ABSTRACTS
Introduction: Survivin, the member of the IAP family, is a multifunctional protein that is highly expressed in most human malignant tumours and fetal tissues. It acts as an apoptosis inhibitor, plays a key role in cell division and enhances angiogenesis. There are large differences of survivin expression in malignant tumors and corresponding normal tissues. Therefore, it’s a potential tumor marker.

Methods: We examined samples of 80 breast cancers and 38 fibroadenoma cases using immunohistochemical method (DAKO, Clone 12C4). We assessed the percentage of survivin-positive cells, the intensity of staining and the subcellular localization of survivin (nuclear, cytoplasmic or combined nuclear and cytoplasmic reaction). The X² test was used to demonstrate the differences between survivin expression in breast fibroadenoma and breast cancer. P value less than 0.05 was considered to indicate statistical significance.

Results: The X² confirms statistically significant differences in the subcellular localization of the survivin expression in breast cancers and breast fibroadenomas (p < 0.001). Majority of the breast cancer samples (45/80, 56.3%) showed combined nuclear and cytoplasmic survivin accumulation. However, in breast fibroadenomas no nuclear staining was seen, in 9/38 (23.7%) combined nuclear and cytoplasmic localization was found and 50% (19/38) of fibroadenomas showed cytoplasmic expression of survivin. Statistical analysis revealed significant differences in the intensity of survivin immunoreactivity between the samples of breast cancer and fibroadenoma (p < 0.05). But there was no significant difference between the percentage of survivin expressing cells within the breast fibroadenomas and cancers (p > 0.05).

Conclusion: The difference of subcellular location of survivin between benign and malignant lesions points at practical use of survivin detection (p < 0.001). We confirm the importance of nuclear staining of survivin antigen in breast cancer, which seems to be a notable diagnostic marker for estimation of the degree of neoplasia.
COURSE OF BONE MARROW INVOLVEMENT IN FOLLICULAR LYMPHOMA IN RELATION TO APPLIED THERAPY

Zuzana Genzorova

Department of Pathology, JFM CU and MFH

Tutor: Tomas Balharek, MD.

Introduction: Follicular lymphoma (FL) is the 2nd most common type of B-NHL. Efficiency of FL treatment has significantly changed when monoclonal anti-CD20 antibody (Rituximab) was included into therapeutic schemes.

Aims: In this study we assessed course of bone marrow (BM) involvement by FL in relation to applied therapy. BM biopsy is standard method used for the disease follow-up. Effects of conventional therapy and immunochemotherapy with Rituximab were compared.

Methods: We reviewed results of 205 BM trephine biopsies from 86 patients with bioptically verified diagnosis of FL.

Results: Pretreatment staging confirmed BM infiltration in 74 (86%) patients. After 1st cycle of chemotherapy, BM was negative in 64,3% (9/14) patients treated with conventional therapy and in 55,1% (27/49) patients treated with Rituximab. Improvement (incl. decrease or vanishing of morphologically apparent BM infiltration) was observed in 85,7% (12/14) patients treated conventionally and in 83,7% (41/49) patients treated with Rituximab. Worsening (incl. increase of BM infiltration or blastic transformation) was identified only in 2 patients treated with Rituximab (4,1%). Considering whole previously applied therapy, results obtained in the 2nd line posttreatment biopsies were more significant. After 2nd line of treatment, BM was negative only in 16,7% (1/6) cases treated with conventional therapy, whereas in patients treated with Rituximab it was negative in 52,4% (11/21) cases. Comparing pretreatment BM infiltration with the 2nd line posttherapeutic restaging, BM involvement improved in 50% (3/6) of patients treated conventionally and in 85,7% (18/21) treated with Rituximab. One half of patients treated conventionally got worsening of BM infiltration, compared to none of patients treated with Rituximab.

Conclusions: Results of this study confirmed that in terms of long-term prognosis the chemotherapy combining Rituximab achieves significantly better results than conventional treatment. This supports data from clinical trials showing that immunochemotherapy significantly improves survival of patients with FL.
ATORVASTATIN IN THE CHEMOPREVENTION OF MAMMARY CARCINOGENESIS IN FEMALE RATS

Eva Hanuskova and Elena Veteskova

Department of Medical Biology, JFM CU in Martin

Tutors: Assoc. Prof. Peter Kubatka, ScD., PhD and Assoc. Prof. Martin Pec, MD., PhD.

Introduction: Statins have an important role as hypolipidemic agents. The results of experimental studies have indicated the pleiotropic effects of statins in organism which include the influence on cell cycle, apoptosis or angiogenesis. These processes have a crucial role in carcinogenesis.

Methods: In this study, chemopreventive effects of atorvastatin in N-methyl-N-nitrosourea – induced mammary carcinogenesis in female rats were evaluated. Chemoprevention with atorvastatin started 8 days before carcinogen administration. Atorvastatin was dietary administered at two concentrations: 10 mg/kg (ATOR 10) and 100 mg/kg (ATOR 100) and subsequently continued 15 weeks, till the end of experiment.

Results: Basic parameters of experimental carcinogenesis, apoptosis gene mRNA expression in tumors and side effects after atorvastatin treatment in animals were assessed. Atorvastatin, in the ATOR 100 group, decreased tumor frequency by 80.5 % (P=0.0008) and tumor incidence by 49.5 % (P=0.015), as well as lengthened the latency period by 14 days (P=0.076) compared to control animals. The atorvastatin administered in lower dose in the group ATOR 10 was ineffective. In the specimens of mammary tumors, atorvastatin in the group ATOR 100, significantly decreased mRNA expression of Bcl-2 gene but did not influence Bax mRNA expression compared to control group. In both groups with atorvastatin, the changes of serum concentrations of total cholesterol, cholesterol of low – density lipoprotein fraction and triacylglycerols did not differ as compared to controls. A significant increase in the final body weight of animals in the group ATOR 10 compared to control group was found. The changes in food and water intake in rats after atorvastatin application were not observed among experimental groups.

Conclusions: This study is the first about the tumor-suppressive effect of atorvastatin in rat mammary carcinogenesis. Our results provided a rationale for the potential use of atorvastatin in women who need the treatment of hypercholesterolemia and as well are at high-risk for breast cancer. (305)
Introduction: Detection of point mutations is becoming increasingly important in the diagnosis of cancer, determining prognosis and treatment options of personalized therapy. Gold standard of molecular diagnosis is DNA sequencing. Methods for detecting mutations can be divided into those that detect the presence of well-defined changes such as allel-specific PCR (ARMS) and those that identify a fragment of DNA where change can occur (SSCP, HRM). The crucial factor in the application of methods is sensitivity that is why we selected ARMS to detect mutations in the BRAF gene. Recent clinical data have shown that in addition to mutations in the KRAS, gene mutation c.1799 - V600E in BRAF have predictive significance – causes resistance to treatment with monoclonal antibodies (anti-EGFR) – cetuximab and panitumumab. The signal transduction pathway ras-raf-MAPK is defective. Regulation of cell growth, differentiation, proliferation and apoptosis is disrupted. Mutation of KRAS and BRAF are never present simultaneously. Therefore we want to introduce detection of BRAF for supplement the diagnostic algorithm for detection KRAS in colorectal cancer.

Results: We designed primers to amplify the target sequences V600E in the BRAF gene. We used one pair of primers for classic PCR and another pair of primers for ARMS, than we tested appropriate TA in gradient PCR to optimize the PCR. As a control samples we used the cell line HT29 and COLO25 where we detected the mutation of BRAF gene with ARMS and the mutation was also confirmed by DNA sequencing. With the selected primers we analysed the 5 patients with confirmed KRAS mutations and 5 patients without this mutation. BRAF mutation wasn’t present. We analysed the other patients without KRAS mutations and in one case was detected V600E mutation. It confirms elimination of KRAS and BRAF mutation and that BRAF mutation has a lower percentage of prevalence.

Conclusion: We have introduced a method for detecting of point mutation in the BRAF gene, wich was confirmed by DNA sequencing of control samples. If it tests in larger group of patients, this method could be incorporated into the diagnostic algorithm for personalized therapy with anti-EGFR.
Introduction: Gastrointestinal stromal tumours (GISTs) are most common mesenchymal neoplasms of the gastrointestinal tract. GISTs originate from interstitial Cajal cells by mutation in KIT or PDGFRα genes, which lead to a decrease of apoptosis and increased proliferation of tumor cells. The biopsy diagnosis of GISTs is based on multiparametric evaluation of morphologic, phenotypic and genotypic data. For a diagnosis, either positive CD117 antigen expression and/or mutation of KIT/PDGFRα gene in setting of „typical“ morphology are required.

Objective: Analysis of available biopsy data of GISTs in the biopsy register of the department with the aim to evaluate their utility for a clinically relevant GIST diagnosis.

Methods/Materials: The study included 94 biopsies of 86 patients with GIST diagnosed histologically and phenotypically in the period 2006-2010, the diagnosis was supplemented by genetical analysis performed in Institute of Molecular Biology. We analyzed following parameters: gender, localisation, histological type, grading, phenotypical (CD117 and CD34 antigens) and genotypical parameters (mutations of individual KIT/PDGFRα exons).

Results: 48 women and 38 men with GISTs localized in: intestine 47,9%, stomach 42 %, retroperitoneum 7,4%, lung 1,1%, spleen 1,1%. Histological type (n=94): 7 epitheloid, 13 mixed and 74 spindle cell type. Grading (n=94): very low and low risk 31, intermediate 22 and high risk 33, Gx-8. Phenotype (n=94): 18x CD34 negative, 3x CD117 negative, two of them were also CD34 negative. Genotype (n=74) - mutations in: a.) KIT: 36 x exon 11 and 5x exon 9 mutations, b.) PDGFRα. 7x exon18 mutations. Some analyses are ongoing. All CD117 negative cases showed WT/WT in all the analyzed exons.

Conclusion: In majority of the analyzed cases, the multiparametric evaluation was sufficient for a final diagnosis of GIST. In three cases (approx. 3%) the diagnosis was based on a morphological evaluation, while phenotypic and genotypic data supporting the diagnosis were not identified.
THE EFFECT OF INTRANASAL TRPV1 AGONIST CAPSAICIN CHALLENGE ON NEURONAL ACTIVATION IN THE GUINEA PIG BRAINSTEM - C- FOS STUDY

Katarina Svirlochova

Department of Pathophysiology, Jessenius Faculty of Medicine, Comenius University in Martin

Tutor: Assoc. Prof. Jana Plevkova, MD, PhD.

Expression of the immediate early gene – c fos a marker of neuronal activation was employed to localize brainstem neuronal populations responsible for processing of noxious stimuli from the nasal mucosa.

Eighteen spontaneously breathing, urethane /1.1 mg./kg/bw/ anaesthetized guinea pigs were used. Animals were fixed in supine position on a heated pad. Intranasal /i.n./ challenges were performed as follows: pure controls /n=4/ received no i.n. challenge, saline controls /n=6/ received i.n. 15 µl of saline warmed up to body temperature, and experimental group /n=8/ received i.n.15 µl of capsaicin (50 µM) into the both nostrils. After that, the survival time was from 1.5 to 2 hours. Animals were then deeply anaesthetized with sodium pentobarbitone, exsanguinated and transcardially perfused with heparinised saline /200/ ml warmed up to body temperature and then with paraformaldehyde fixative solution /200 ml/. The brainstems were removed, postfixed, and paraffin – embedded brainstem slices were processed immunohistochemically /C- fos kit, Calbiochem, Merck, SR/.

The levels of FLI (counts of Fos positive neurons) in pure controls, saline controls, and capsaicin group were compared. In capsaicin group the FLI was detected bilaterally in the solitary tract nucleus 0.5 mm caudal and 1.5 mm rostral to the obex, the area postrema, and the lateral reticular nucleus. Intensive FLI was identified in trigeminal nuclear complex, especially in subnucleus caudalis (Vc) and interpolaris (Vc). Mean number of Fos positive neurons per section was significantly higher in capsaicin group then that in pure controls or saline controls at the levels of Vi/Vc and Vc/C1 (p less 0.01). There was no significant difference in FLI between pure and saline controls. The FLI related to noxious stimulation of nasal mucosa with capsaicin in guinea pig was found in the brainstem areas related to respiratory and cardiovascular control.
HEALTH LITERACY IN SPECIFIC GROUPS OF CLIENTS

Tatiana Jakubcova

Institute of Nursing, JFM CU, Martin
Tutor: Michaela Dingova, Mgr.

Introduction: Nursing is focused on health literacy as a determinant of health, health outcomes and important aspect of patient education. Prevalence of low/marginal health literacy is not well documented in our settings; because of no practical method for identifying patients with low health literacy existed in Slovak language.

Objective and Methodology: The objective of paper was to identify differences in health literacy level and its partial components among respondents of three specific groups – patients in primary care, high school students and nurses depending on demographic factors. To measure the health literacy we used a Slovak version of Newest vital sign (NWS, Barry et al., Pfizer, 2005). The sample consisted of 145 respondents. We used analysis of variance to determine the differences in health literacy level on the basis of selected variables. We also evaluated the reliability of the Slovak version NWS.

Results: The Cronbach’s alpha coefficient of Slovak version was 0.65. We have confirmed the significant relationships between the total score of NWS and level of education and age in a group of primary care patients. We didn’t find significant differences in health literacy between the respondents depending on the sex.

Discussion and conclusion: The health literacy in the patients group in adult age is significantly influenced by the level of education and age. What is interested, we found out that students achieved better results than nurses. In this case we can presume that health literacy as a complex of numerical and literal skills is influenced more by general than professional knowledge. Slovak mutation of NWS is reliable instrument for measurement the health literacy in clinical as well as in public settings.
CAREGIVER BURDEN IN PROVIDING CARE OF RELATIVE WITH CHRONIC DISEASE

Barbora Hladekova

Institute of Nursing, JFM CU, Martin
Tutor: Serfelova Radka, Mgr.

Introduction: Caregiver for relative with chronic disease at home often describes burden. Caregiver burden has been defined as multidimensional response to physical, emotional, social and financial stressors associated with the caregiver experiences.

Author concerns in this study monitoring degree of the caregiver burden. 

Method and sample: For this work authors used standardized questionnaire Caregiver Strain Index (Robinson, 1983, p. 343–348).

This work included the sample size of 50 respondents, who provide home care of relative with chronic disease.

Results: Following analyses receives entry author found out, significant differences of the gender, age, period of providing care and of the relationship between caregiver and relative with chronic disease.

Conclusion: Results of our study accept the conclusion of several systematic reviews. Assessment of caregiver burden and realization nursing interventions can prevent development of burnout syndrome.
ASSESSMENT OF EXTREMITIES ISCHEMIA IN DIABETIC PATIENTS

Zuzana Jackova

Institute of Nursing, JFM CU, Martin
Tutor: Nemcova, Jana, PhDr., PhD.

**Introduction:** Ischemia is very serious risk factor of ulceration and amputation in diabetic patients. Even it should be lead very often to dying of patient. Ischemia of extremities in diabetic patients belongs to chronic complications of diabetes mellitus. The main cause of ischemia is poor circulation by obstruction of blood vessels.

**Methodics:** The aim of this work was to find the ischemia state of extremities in diabetic patients. The research was provided by the help of the physical examination and doppler’s method. We found risk of ischemia and charted it into documentation. The research was provided in Surgical wards of the Martin Faculty Hospital in 70 patients with diabetes mellitus type2.

**Results:** On the base of physical assessment and doppler’s examination we found correlation among ischemia and gender, ages, body mass index, compensation of diabetes and hypertension.

**Discussion:** This work proved that the diabetic patient with ischemia of extremities had higher prevalence risk factors of ischemia.

**Conclusion:** The result of this work was the finding that by early physical assessment and doppler examination we could reveal ischemia in diabetic patient what is the most important for preventative interventions.

(188)
RISK FACTORS PREVALENCE IN PATIENTS WITH DIABETIC ULCERATION AND AMPUTATION

Alexandra Siakelova

Institute of Nursing, JFM CU, Martin
Tutor: Nemcova, Jana, PhDr., PhD.

Introduction: Diabetic ulcerations and amputations of extremities are very serious chronic complications in diabetic patients. They have the influence not only of quality life of diabetic patients but they have social-economic impact on health care system. The main interest of multidisciplinary team is prevention. It is important to know risk factors what could lead to so serious complications and on that base to implement prophylactic interventions.

Methodics: The main aim of this work was to realize the retrospective study to find the prevalence of risk factors of diabetic ulceration and amputation in patients with Diabetes mellitus type 2. The research was provided in Surgical wards in Martin Faculty Hospital. We analysed one hundred patient’s records with diabetic foot ulcer and amputation.

Results: By retrospective analysis of patient’s records we should confirm the presence of risk factors as gender, ages, polyneuropathy, retinopathy, nephropathy, ischemia, infection, high body mass index and hypertension in our representative sample.

Discussion: This work proved that diabetic patients in our study had the risk factors which are the most responsible of diabetic ulcers and amputation.

Conclusion: The result of this work was finding the risk factors of diabetic ulcer and amputation and that is the most important to pay attention them in preventative measures.
Introduction: To keep a record nursing documentation is inseparable component of nursing work. It is definite as collection of lettering, graphical and other data by nurse and midwife.

Methodics: Target of our work was discovered that convection of nursing documentation in home health care agency is in coincidence with requirements given in Specialist regimentation by Health government of Slovak Republic about convection of health documentation. We used comprise analyse method. Collection was composing from 50 nursing documentations. Analyse of documentation was accomplished retrospective basically our constructional Enrolment leaf execution of comprise analyse with adjusted criterions.

Result: Over basically analyse obtained data was discovered that documentation in home health care agency not performed verify criterions of convection notes. In documentations were not clearly formulization target of care and consequential criterions. Interventions which were shown were insufficient write out. Assessment tools are use rarely.

Discussion: Endurance in nursing work, which consequential from care with big amount patients running the day may be negative exert influence up nursing documentation which is considerable coefficient quality provide care.

Conclusion: Enrolments to documentation should they doing consistently over basically of nursing cause phases, so as care, which nurse provides was fairly enrolmented.
SURVIVING AND FATE OF PATIENTS AFTER TRAUMATIC BRAIN DAMAGE

Alena Skutchanova

Clinic of Anesthesiology and Intensive Medicine, JFM CU, Martin
Tutor: Assoc. prof doc. MUDr. Beata Saniova, PhD.

The objective of my research is investigation and description of further life of patients with traumatic brain damage. My investigation implies two patients from Intensive medicine department Martin with multiple injury and either diffuse axonal contusion of brain, both now about three years after injury. As I know and pursue these people for long time, my data consist mostly from my personal surveys and their own and their near ones opinion, filled in with case records and examination records.

The result is the picture of life of these people, gradual development of their state from injury until now and the way how the residual damage change them and affected previous life style of them and their near ones. As soon as in both cases the treatment was fully exhausted, on the picture of patient lives the research provides the feedback of long–term effectiveness of treatment multiple injured patients with several brain injury.

(153)
The definition of child work encounters each work, even minimally payed work, performed by a person younger than 18 years. Despite of international agreements of International Labour Organization and the Declaration on children rights (UN, 1973), child work florishes in the world. It is estimated that in the present there are some 200 million children working worldwide at risk working environments, with harmful risk factors and frequent injuries.

The authors analyse forced work of children at silk-worm raising, at plantations, in different industries etc. Child work is often related to poverty, striving for life, physical punishment, sexual abusing and leads to persistant damage of psychological and physical development.

The authors pay attention to hidden forms of work of the children in the member states of the European Union, USA and others. We present possibilities for banning the child work and examples how to reach a reduction of some forms of exploitation of children by work by an active attitude (e.g. at commercial companies).
PREVENTION OF INFECTION IN A PATIENT WITH CENTRAL VENOUS CATHETER

Andrea Cadrikova

Institute of Non – Medical Study Programmes, JFM CU, Martin
Tutor: Simona Kelcikova, Mgr., PhD.

Introduction: Infection of the central venous catheter and the bloodstream is a frequent and dangerous complication in patients with intravenous line. Catheter – related infections constitute about 12% of all nosocomial infections according to statistics. 90% of them are associated with infection that is caused by insertion of the central venous catheter (CVC). At the insertion and the care of CVC, the important parts of prevention are adherence to preventive measures and barrier precautions.

Methods: The objectives of our study are finding and comparing the level of knowledge, skills and habits of nurses in the field of CVC referenced to risk of infection rise and auditing the form of documentation in selected clinics of MFN (The Teaching Hospital of Martin) due to recommendations of Center for Diseases Control (CDC) and global processual standards. We used questionnaire to find out the level of knowledge about the risk of infections rise sources in a patient, preventive measures and barrier precautions for care of CVC, habits of nurses, who carry out the nursing care of patients with a CVC. We objectified direct nurses’ habits and data recording in clinic. Suitable conditions for CVC care were verified (disinfectants, providing suitable conditions, availability and using of barrier instruments and others).

The score of all 23 items of the questionnaire was evaluated by analysis, converted to percent scale and evaluated according to classification scale. We rated the numbers of phenomenon’s presence in absolute and relative value.

Results: The level of the knowledge of nurses was acceptable in the field of infection prevention in patient with CVC – nurses achieved the mean score of knowledge 69% (D). We found small differences in examined phenomenon by comparing the results from questionnaire and from observation. The habits of nurses were different within the clinics in MFN and they weren’t according to CDC’s references and processual standards. We found the most limitations in using the barrier precautions.

Discussion: Obtained information of nurses’ knowledge and their habits will help us to focus on the area that we observed the most faults in. Based on the results of the research the systematic education of nurses who are working in clinical practice is necessary according to the recommendations of CDC for injure elimination of patient because of the lack of knowledge and the incorrect habits.

Conclusion: Considering the detected facts there are still reserves and wide possibilities in the cognitive and behavioural field, how to improve the prevention in a patient with CVC infection. It is necessary to make arrangements from side of management as well as nurses in self-assessment and professional self-discipline in realization of nursing interventions according to CDC’s references and processual standards.
STANDARD OF CARE FOR A WOMAN IN FIRST STAGE OF DELIVERY

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Objective: To determine whether in the practice of midwifery respects framework process standard No. 62 – FIRST STAGE OF DELIVERY fully.

Material and methods: A survey was conducted from 11th January to 11th March 2010 on Delivery room of Gynaecology - Obstetric clinic in MFN. A sample of survey consisted of 22 pregnant women with physiological process of delivery situated in the first stage. As a method of collecting empirical data, we used structured observation of a woman and the activities of midwives using a form developed for the purpose of this review and study of documentation. Form ASSESSMENT OF STANDARD IN THE FIRST STAGE OF DELIVERY has developed by an official standard in the SR and was supplemented by some additional parameters. The form was divided on criteria of structure and process criteria. The obtained data are processed in Microsoft Word tables.

Results: Criteria of structure (Š1 - Š4) which monitor physical, organizational and personal necessary conditions are in full compliance with the standard. Criteria of process (P1 - P14) define the specific interventions of midwife. They were in most of the match in conformity with the standard. The biggest differences were observed in P1 and P5 (P1 - in 13 cases a woman was not advised with the course of first stage of delivery, P5 - obstetric examination was carried out in 17 cases but only partially, vaginal examination was not realized by midwife in any case).

Conclusion: Midwives implement care for a woman in first stage of delivery largely by the official standard, but also use interventions which are not recorded in the standard. Conversely, some of the procedures contained in the standard they do not realized.

(286)
Objective: Determine, whether there is a significant difference in pain intensity during childbirth between primiparas and multiparas.

Material and methods: A sample survey consisted of 30 primiparas and 30 multiparas with vaginal childbirth. As a method of collecting empirical data, we used a questionnaire that we developed for this study after careful study of literature. The questionnaire contained 14 questions focusing on childbirth, 4 identification questions and the NPIS. Questions were semi-open, almost always with the possibility of marking multiple responses. The questionnaire was assessed by an ethics committee and subsequently distributed in MFN in postpartum department, in the period from January to March this year. The return was 94%. The data obtained, we subsequently processed in program Microsoft Excel. Results are presented in absolute terms. We used quantitative analysis using descriptive statistics.

Results: Using the VAS was by statistical t-test found no significant difference in pain intensity between primiparas and multiparas (t=0,345). The intensity of pain by primiparas was on average M=7,65, SD=2,19 and by multiparas M=7,82, SD=1,67. In this study 28 of women identified as most important mitigating factor during delivery consciousness, that the moment their child is born. The second major factor was the presence near the person, which said 23 respondents. The physical symptoms are most frequently occurred in 23 cases, sweating and in 20 shivering. The worst psychological factors worsening delivery 38 respondents said fear about the health of the child and 25 fear of childbirth. The most common factors, that deteriorating delivery were 24 respondents said physical exhaustion and 23 postpartum procedures. 46 women identified fatigue as the most common manifestation during childbirth.

Conclusion: The primiparas and multiparas the samples did not reveal significant difference in pain intensity and assessment of mitigating factors and worsening during childbirth.
Introduction: Pregnancy is a physiological process, that proceeds by the most women without serious complication. It is a period, which begins with sylepsis by sperm and ends with the begin of the delivery. The organism of a woman changes because of the pregnancy, it must conform to the contingency. The pregnancy is succeeded not only by somatic, but also by psychical changes, which can effect on a pregnant woman positively or negatively.

Methodology: The target of the work was to find out, how lives a woman the pregnancy, what she thinks is positive or negative during the pregnancy. The explorational file formed 60 pregnant women, visiting the gynecological ambulance, from which was in the first, second and third trimester for 20 respondents. We used the empirical method of the collection of information – questionnaire of own structure, which was made on the basis of the target and aim of the bachelor work. The questionnaire contained 11 questions and 5 subquestions. We added in the questionnaire general knowledge, pregnancy changes, emotional life and identifying data.

Results: Questions were aimed on concrete positive or negative emotions but also on physical changes during the pregnancy. The cause of negative emotions was for example not always true and unprofessional information from the internet, fear of delivery, physical changes associated with pregnancy. They take for the most positive, that they will have their own child.

Conclusion: Already from the begin of the pregnancy appear psychical changes, mostly fast and unexpected changes of mood. At the side of psyche dominated the positives, from the negatives appeared mostly moodiness, increased irritation, fear of delivery. The cause of positive emotions is for example attention and family support and preparations for the arrival of the kid. In our file, the respondents felt happy. Their biggest backing in pregnancy was the partner or the parents.
Objectives: The purpose of introduced research was to evaluate information level, skills and attitudes, as well as satisfaction in women participating psychoprophylactic training for childbirth (PPT), considering their age, education level and parity.

Methods: Respondent consists of 86 women, hospitalized after childbirth in Obstetrics and Gynecology Clinic in Trenčín, answered the author-created questionnaire from January to March 2010. Studied characteristics (age, education level, parity, body weight increase during pregnancy) were compared between women participated and not participating in PPT. Chi-square distribution and Student’s t-test state the statistical significance of measured differences.

Results: 55.8% of women participated in PPT; more frequently were respondeents with higher education level and those at first childbirth. Among them, 89.6% declared usefulness of PPT knowledge- the information about process of childbirth. 81.25% of teemers delivered spontaneously.

From overall amount of respondents, 44,19% did not participate on PPT - considerable majority of them with lower education level – (upper) secondary education (23,68%). Differences in deliveries were discovered; there appeared to be higher rate of operational deliveries were more frequent among women without PPT 21.05% .

Discussion: Results showed an importance of PPT for pregnant women. Especially in women at first childbirth, high-quality PPT can reduce incidence of birthing complications. Cooperation between maternity wards and providers of PPT seems to be important. PPT courses must be performed under expert guidance of certified midwives and included into standard health-care services.

Conclusion: The basis of findings allows us to assert, that PPT for pregnant is inseparable part of prenatal care.
DETERMINATION OF HEART RATE VARIABILITY’S PARAMETERS, PARAMETERS OF PULMONARY FUNCTION AND EXHALED CARBON MONOXIDE IN BOYS WITH TYPE 1 DIABETES MELLITUS

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INTRODUCTION: Diabetes mellitus type 1 (DM1) is chronic metabolic disease which influences every organ system. Hyperglycemia and genetic factors play the crucial role in development of diabetic complications. Oxidative stress, as the imbalance between generation of reactive oxygen species (ROS) and activity of antioxidant systems, affects many metabolic processes and plays role in the pathogenesis of the DM and its complications.

AIM: To compare pulmonary function test and examination of exhaled carbon monoxide (eCO) between boys with DM 1 and healthy subjects.

METHODS: Heart rate variability (HRV), spirometry, examination of exhaled carbon monoxide (eCO) and basic anthropometric parameters were examined in boys with DM 1 and healthy subjects. HRV was evaluated by Ewing battery of cardiovascular tests by system VariaPuls TF4 (Sima Media, Olomouc, CR) in standard conditions. Pulmonary functions were examined by Koko DigiDoser spirometry (nSpire Health, Louisiana, USA). eCO, marker of oxidative stress, was set by MICRO-4 Smokerlyser (Bedfont Scientific Ltd, Rochester, UK) by one-breath maneuver. The results were statistically processed by system SYSTAT.

RESULTS: 52 boys - 29 with DM 1 (age 4 – 18) and 23 healthy subjects (age 6-19) were involved to the study. Boys with DM1 had significantly lower parameters of HRV and lower body mass index (BMI) compared to the healthy boys. Diabetic patients had significantly lower forced vital capacity (FVC) (median 3.68 l, IQR 2.48-4.21 vs. 4.51 l median, IQR 2.77-5.36, p=0.01) and lower forced expiratory volume in one second (FEV 1) compared to the healthy boys (median 3.11 l, IQR 2.09-3.54 vs. median 4.51 l, IQR 2.43-4.69, p=0.001). In the case of eCO no significant difference was found between diabetic and healthy boys.

CONCLUSION: Pulmonary function testing seems to be appropriate method for evaluation of chronic diabetic complications. Further studies need to be evaluated to confirm the importance of eCO examination related to the DM1.
MAIN CAUSE OF REPEATED ATRIAL FIBRILATION

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Introduction. Atrial fibrilation (AF) belongs to the most frequent form of heart rhythm disorders with frequent recidivatation. It is a source of many complications resulting in limited quality of patient's life. According the literature the most frequent causes of recidivation of atrial fibrilation (RAF) are hyperthyreosis, hypothyreosis with substitutional therapy, vagotonia, cardiosurgery, embolisation to pulmonary artery, other lung diseases, hypertension, ischemic heart disease, valvular heart diseases, pericarditis, heart failure, left atrium dilatation, proarhythmogenic effect of antiarhythmics, and some others.

Aims. The retrospective study was devoted to find out:
1. The most frequent causes of RAF, and 2. Frequency of RAF in group of patients from IJ, Clinic of Internal Medicine I MTH/JFM CU in Martin.

Methods. Analysis of medical records of 40 patients (27 M, 13 F; age: from 31 to 90 yrs) who were repeatedly hospitalized at the mentioned setting, and they contain all data necessary for obtaining relevant results. We were looking for main causes leading to induction of RAF, and for identification of RAF frequency.

Results. The total amount of RAF in defined group of patients was 131, the highest number of RAF in one patient was 12, the lowest 2, average 3 RAF per one patient. Totally 12 diseases/pathological processes were recognized as probable causes of RAF in defined group of patients. The most frequent from them were: systemic arterial hypertension (36/131), dilatation of left atrium (26/131), and ischemic heart disease (25/131). Other important causes were: preceding cardiosurgery (9/131), and lung pathology (9/131). More than 75% of RAF were in patients over sixty.

Conclusion. We have found that the most frequent probable causes leading to RAF in the studied group of patients were systemic arterial hypertension, dilatation of left atrium, and ischemic heart disease.
THE EFFECTIVENESS OF EARLY NON-INVASIVE SCREENING OF CONGENITAL HEART DISEASES IN NEWBORN

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Introduction: Congenital heart diseases (CHD) are one of the most frequent congenital malformations. The incidence is 9 of every 1000 live births. Approximately one quarter of these children have critical congenital heart disease, requiring surgical therapy. Despite their high occurrence diagnostics of CHD is challenging. Newborns with CHD may be discharged as „healthy newborns“ as they have only minimal or even absent clinical symptoms.

Objective: Pulse oximetry has been proposed to be a non-invasive screening method to identify asymptomatic newborns with CHD.

Methods: The study was conducted as a prospective multi-centre longitudinal study in the region of Perinatal centre Martin from November 2009 to February 2010. Postductal saturation was measured in all term newborns on the left upper limb at the age of 6, 18, 24 and 30 hours. If the pulse oximetry measured arterial oxygen saturation was persistently less than 95%, echocardiography was performed and these infants were under close observation.

Results: Pulse oximetry was performed in 2043 newborns. Twenty-eight infants (1.37%) had the postductal saturation less than 95% at the age of 6-12 hours. Seven of these infants (25%) had repeatedly measured saturation less than 95% at the age of 18 hours. In five of them CHD was diagnosed and two of them suffered from pneumonia. Despite the postductal saturation above 95%, the CHD was diagnosed in 3 infants.

Conclusion: The pulse oximetry screening, when used together with a careful physical examination can enhance the possibility of early diagnosis of CHD and may potentially decrease the delay in the diagnosis of critical congenital heart disease.
INFLAMMOMETRY IN THE MANAGEMENT OF BRONCHIAL ASTHMA IN CHILDREN

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Introduction: Bronchial asthma (BA) is the most frequent chronic respiratory disease in children. According to the clinical control, BA can be divided into fully clinically controlled, partially clinically controlled and uncontrolled (with the exacerbations). The control over the disease can be evaluated through the standardized questionnaires (Asthma control test®, ACT), lung function testing and indirectly according to the use of short acting β₂-agonists. Recently, various inflammometric tests were introduced into clinical practice for the assessment of the degree of the airway inflammation. One of these tests is the measurement of fractioned exhaled nitric oxide (FE\textsubscript{NO}).

Patients and methods: Our study group consisted of 29 children during acute exacerbation of bronchial asthma (aged 12.16±3.69 years). In all of these children, the anti-asthmatic therapy was intensified with the increase of the dose of inhaled corticosteroid. All the children underwent the panel of the tests: the measurement of FE\textsubscript{NO} (NIOX Mino®, Aerocrine, Stockholm, Sweden), basic lung function testing (KoKo DigiDoser-Spirometer; nSpire Health Inc., Louisville, USA) and fulfilled standardized ACT. The tests were performed two times – during the first examination and as follow-up after 10-14 days.

Results: Acute asthmatic exacerbation was accompanied by the increase of FE\textsubscript{NO} in comparison with the children during stable clinically controlled phase (67.00±8.01 ppb vs. 29.17±3.86 ppb, p<0.001). 84 % children had atopic asthma. We found significant mild negative correlation between FE\textsubscript{NO} and total score in ACT ($r^2 = -0.029$, p<0.001). After the intensified therapy we observed significant decline of FE\textsubscript{NO} (67.00±8.01 ppb vs. 29.17±3.86 ppb, p<0.001) and the increase of total score in ACT (20.53 points vs. 23.37 points, p<0.001). Spirometric indices also improved: FEV1 (93.00±4.03 vs. 103.17±1.98 % predicted, p = 0.009) and PEF25-75% (83.17±5.31 vs. 99.25±2.93 % predicted, p = 0.002).

Conclusion: The measurement of exhaled nitric oxide together with Asthma control test presents an important and reproducible tool for the evaluation of the clinical control of asthma in children. They can be also used for the assessment of the effect of applied therapy with its further correction.

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IMPORTANCE OF INTRAABDOMINAL PRESSURE MEASURING IN PATIENTS AFTER LAPAROTOMY

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Introduction: Intraabdominal hypertension (IAH) is often observed in surgical patients after laparotomy hospitalised at intensive care units (ICU). It is characterised by increased intraabdominal pressure over 12 mmHg and it is manifested with cardiovascular, pulmonary, renal, splanchnic and neurological symptomatology. The most severe form of IAH is compartment syndrome with potential multiorgan failure. Patients with IAH can be easily identified by measuring tension in the urinary bladder.

Objective: monitoring of intraabdominal pressure in surgical patients hospitalised at ICU after laparotomy using bladder tension measuring

Method: Prospective study in the group of 32 patients after laparotomy. Comparison and correlation of kidney and lungs functions parameters (hour urination, plasma level of creatinine, partial pressure of O2 and CO2 in the blood, pH of the blood, oxygen saturation in the blood, tidal volum measurring) with intraabdominal pressure taken immediately after operation (0 hour) and in 12, 24 and 48 hours after operation.

Closure: Intraabdominal pressure measurring should be a routine method for monitoring in every patient at ICU. Early detection of IAH can helps start with the immediate surgical or non-surgical treatment and avoid pregression to severe IAH or compartment syndrome, which can by terminated with death.
HYPERGLYCEMIA AS A RISK FACTOR OF INTRAVENTRICULAR HAEMORRHAGE IN VERY LOW BIRTH WEIGHT INFANTS

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Introduction: Many studies in adult and pediatric non diabetic critical ill patients confirm tight association between the blood glucose concentration and their adverse outcomes. In very low birth weight (VLBW) infants, early neonatal hyperglycemia is associated with increased risk of morbidity and mortality. Neonatal hyperglycemia as a consequence of intraventricular haemorrhagea (IVH) is well known. Hyperglycemia is a risk factor for many neonatal diseseases, IVH could be one of them.

Aim: The aim of our study was to assess the correlation between high blood sugar levels and IVH in VLBW infants.

Methods: Retrospective analyse of clinical records of VLBW (birth weight <1500 g) infants admitted in years 2006-2008 on NICU JMF Martin. Their laboratory, respiratory and nutrition parameters and ultrasound scans of the first 7 days of live were reviewed. There were excluded infants with inborn defects and died during the first 24 hours. Results were statistically analyzed.

Results: During that period, 158 infants were admitted, 12 were excluded. Of those 146 infants there were 78 male and 68 female, 14 died. Average gestation week was 29 and average birth weight 1087 g, average length of stay was 54,9 days. IVH was present in 30 cases. There was significant difference between group with IVH and without IVH in initial glycemia (9,67 mmol/l, SD±4,55 vs. 7,08 mmol/l, SD±3,37, p<0,05), peak glycemia (10,09 mmol/l, SD±3,73 vs.8,8 mmol/l, SD±3,33, p<0,05), average glycemia (8,79 mmol/l, SD±1,77 vs. 5,91 mmol/l, SD±1,05, p<0,001). Peak glycemia more than 8,3 mmol/l was present in 84,2% of all infants.

Conclusion: Our analysis indicates that high blood glucose is in VLBW infants is common and initial, average and highest glycemia in infants with IVH was significantly higher than in those without IVH. That suggests that prevention and treatment of hyperglycemia may improve the outcomes of VLBW infants.
SLEEP DISORDERS AND THEIR PSYCHOPATOLOGICAL CORRELATES

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Background: Sleep disorders are common in adulthood and often undiagnosed and untreated and they are frequently connected with various psychopathological symptoms.

Aim and methods: Identification of sleep disturbances and depressive symptoms in general population using Beck depression inventory and modified Circscreen.

Results: Study sample consists of 100 randomly chosen adults. Sleep disturbances and depressive symptoms averaged subclinical and mild intensity. We found out significant differences in insomnia, night mares and depressive symptoms (sadness, guilt, hopelessness) between men and women. Insomnia correlated with sadness. Average sleep time correlated with hopelessness and past failure. Initial insomnia also correlated with loss of interest in activities and terminal insomnia correlated with anhedonia, guilt, fatigue and decreased appetite. Excessive daytime sleepiness correlated with hopelessness, self-dislike, loss of energy and fatigue.

Conclusion: Identification of sleep problems and depressive symptoms in general population is important because these symptoms can be the first signs of mental disorder. Differential diagnosis should be focused on primary depression with secondary sleep disturbances and primary sleep disorder with secondary depression.
THE EXPRESSION OF CAVEOLINE -1/CAV-1/ BY PATIENTS WITH RENAL CELL CARCINOMA

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Aims of study: The aim of this study is to explore the role of Caveoline -1/Cav-1/, a molecule, which is a specific protein integrated into caveolae – a membrane structure, which shows to play a important role in angiogenesis of renal cell carcinoma (RCC).

Methods: We used the method of Western blot to detect proteins in our samples of tumor tissues (T) by focusing on Cav-1 and its levels of expression in tumor tissue and control tissue(C).

Results: We analyzed the expression of Cav-1 in 25 samples (64% males, 36% females) from patients with RCC obtained by radical nephrectomy. Results were compared with Fuhrman’s grading of RCC and TNM classification of RCC, their association to pathological stage(T stage). T1 stage 13 samples, T2 stage 2 samples, T3 stage 9 samples. Grading, G1: 7 samples, G2: 10 samples, G3: 6 samples, G4: 1 sample. Histologically were processed 22 clear RCCs samples, 2 papillary RCC variants and one cyst sample. The expression of cav-1 was specific only for clear cell RCC, not for other subtypes of RCC. We found significant overexpression of cav-1 in tumors (C = 100 ± 32,08%, T = 2886,95 ± 673,90%, p<0,01). We observed significant overexpression cav-1 in <T1 TNM classification (<T1 control = 80,99 ± 28,77 %, <T1 tumor =2652,84 ± 677%, p<0,01) and in G1, G2 Fuhrman’s grading compared with control (G1 control = 44,09 ± 39,72%, G1 tumor = 3832,41 ± 1099,80%, p<0,01, G2 control =132,49 ± 30,53%, G2 tumor = 2780,53 ± 1419,20%, p<0,01).

Conclusions: Overexpression of the cav-1 is specific for clear cell carcinoma subtypes RCC. Overexpression of Cav-1 is tight to earlier stages. Other steps of the study will more explore the role of Cav-1 in the pathology of RCC.

(282)
APOLIPOPROTEIN E POLYMORPHISM, SUBCLINICAL INFLAMMATION AND LIPID LEVELS IN CORONAROGRAPHED PATIENTS

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Introduction: The Apolipoprotein E gene polymorphism (ApoE) is a recognised susceptibility gene of atherosclerosis. However the relationship between ApoE genotype, serum ultrasensitive C-reactive protein (usCRP) concentrations, other acute phase proteins (APPs) concentrations, serum lipid levels and severity of coronary heart disease (CHD) has not yet been clearly defined. The aim of study was to establish ApoE genotype, APPs and lipids concentrations and to compare them with the severity of proved CHD.

Material and method: The group consisted of 98 coronarographed patients and 156 healthy controls, coronary angiography was evaluated using standard criteria. ApoE was analysed by polymerase chain reaction. UsCRP, total cholesterol (TC) and triacylglycerols (TAG) were examined prior to coronarography, as well as 3 years after, together with other APPs, HDL cholesterol and LDL-cholesterol. The results were evaluated according to severity of CHD and APPs concentrations.

Results: The ApoE4-allele frequency in coronarographed was 20,41% (vs.) 12,5% in controls; a significant difference (p<0,001). We have found higher ApoE4-allele frequency in severe CHD (sev.CHD) patients when compared with controls, but not when with nonsevere CHD (nonsev.CHD) (sev.CHD/controls: 19,04%vs12,5%;n.s.,sev.CHD/nonsev.CHD: 19,04%vs.22,86%;p<0,05). ApoE4-allele holders did not differ significantly in TC levels neighter prior to coronarography, nor at second examination (TC1:ApoE4+/ApoE4-:5,16±1,19vs.5,49±1,53 mmol/l;n.s.///TC2:ApoE4+/ApoE4-:5,21±1,56vs.5,25±1,35 mmol/l;n.s.). Significantly higher usCRP concentration at first examination were found in sev.CHD, whereas after 3 years were those nonsignificantly higher (usCRP2):(usCRP1:sev.CHD/nonsev.CHD:4,78±6,77vs.2,36±2,45mg/l;p<0,05///usCRP2: sev.CHD/nonsev.CHD:3,66±3,62vs.2,79±2,47mg/l;n.s.). We have also found significantly higher Alpha2-macroglobulin concentrations in sev.CHD (0,218±0,121vs.0,171±0,071g/l;p<0,05). No correlation in usCRP and APPs with ApoE genotype neither in all group, nor in sev.CHD patients was observed.

Conclusion: We have found significantly higher ApoE4-allele frequency in coronarographed patients, without correlation with CHD severity. Significantly higher usCRP concentration in sev.CHD was detected, without direct apparent correlation with ApoE genotype.
USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE IN INFLAMMATORY BOWEL DISEASE. RESULTS FROM A HOSPITAL BASED REGISTRY IN SLOVAKIA

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INTRODUCTION: Previous studies have indicated a trend towards increasing reliance on complementary and alternative medicine (CAM) in inflammatory bowel disease (IBD). The use of CAM in IBD patients in Eastern Europe is largely unknown.

AIMS & METHODS: The aim was to determine the proportion of and satisfaction with CAM treatment amongst IBD patients recruited from a university hospital registry in Slovakia. Patients with ulcerative colitis (UC) and Crohn's disease (CD), identified by the hospital registry, were interviewed by telephone using a structured questionnaire. They reported on CAM use in general, CAM use for the last six month and satisfaction with the treatment.

RESULTS: One hundred and three patients, 53% females, 46 with ulcerative colitis (UC) and 57 with Crohn’s disease (CD), were included. The mean age in the UC group was 49.7 (SD 14.1) years compared to 38.6 (SD 13.5) years in the CD group (p<0.001). Thirty-five percent (35/103) reported CAM use. More women (47.2%) than men (18.8%) reported CAM use (p=0.002). No difference in CAM use was observed between UC and CD (30% vs 37%). Ninety-four percent (33/35) reported CAM use during the last six months. Out of these, 80% (25/31) had used CAM regularly (more than 4 times). Herbals, homeopathy and praying were reported by 31%, 28% and 17%, respectively. Only 5% reported use of acupuncture. With regard to the question on satisfaction with CAM treatment, 6 % answered "not at all", 64 % answered "to some extent" while 30 % were "mostly or very satisfied".

CONCLUSION: In the present registry-based study, one third of the patients reported CAM use. Significantly more women than men reported CAM use but no difference between diagnoses was found. Almost all patients had used CAM the last six months. Approximately one-third (30%) of those who had used CAM were "mostly or very satisfied" with the treatment. For medical specialists it is important to know whom and why their patients’ seek CAM and thereby to explore their patients unsatisfied needs.
SHORT-TERM EFFECTIVENESS OF ATOMOXETINE ON CORE AND COMORBID ADHD SYMPTOMS

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Tutors: Veronika Husarova, MD; assoc. prof. Igor Ondrejka, MD, PhD.

Aim: To assess the short-term effectiveness of atomoxetine on the core and comorbid symptoms of ADHD and to compare the effectiveness of the treatment in the connection with the gender and comorbidities.

Methods: 47 ADHD patients (40 male, 7 female) aged 10±2.31 years were examined. Parents were given The Child Attention Problem scale (CAP) and Conners Parent Questionnaire (CPQ) scale before and after 8 weeks of treatment with ATX. The Kolmogorov-Smirnov test and the Wilcoxon tests were used.

Results: The statistically significant results were found in the improvement of the global score and subscale scores (p<0.05) of CAP and the global score and the subscale scores (p<0.05) of CPQ in the assessment of the overall group of patients. While males showed the statistically significant improvement in both global score scales and all subscales except VI–subscale of CPQ, females showed statistically significant improvement in both global score scales and III – subscale of CPQ (p<0.05). Patients both with and without comorbidities showed statistically significant improvement in global and subscale score of CAP and the global score and subscale I, III and IV scores of CPQ (P<0.05), patients with comorbidities showed statistically significant improvement in the II, V and VIII subscale scores. The statistically significant difference was found between children with and without comorbidities in the distribution of the parameter subscale III–hyperactivity/impulsivity of CPQ after ATX treatment (K-S test: d(K1)=8.83, d(K0)=5.58, p<.025).

Conclusion: Atomoxetine is effective in the treatment of ADHD symptoms. In males, the symptoms of conduct disorders, anxiety, learning problems, psychosomatics, antisocial behaviour and muscular tension were improved following the treatment with ATX. The symptoms of anxiety, psychosomatics and muscular tension were improved in the group of patients with comorbidities. Patients without comorbidities showed better improvement of the hyperactivity/impulsivity symptom following 8 weeks of the treatment with ATX.
COMPARISON BETWEEN PUBLIC HEALTH IN NORWAY AND SLOVAKIA – ORIGINS AND PERSONAGES

Martha Larsen

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Tutor: Lukas Murajda MD, PhD.

Background: As a Norwegian student at the Jessenius Faculty of Medicine, Comenius University in Martin, Slovakia, I wanted to compare the public health in the two countries and I found it interesting to look at the origins and personages.

Objective: Key points in the Norwegian and Slovak society related to public health and some personages who contributed to development of public health in each.

Methods: Non-systematic literature search in Norwegian professional journals, internet and via personal contact with the National Public Health Institute in Norway.

Results: Both Norway and Slovakia have undergone substantial changes and implemented reforms of the healthcare system. Norway has large reserves of petroleum and natural gas and this led to a boom of the economy in the 1960s and this is one of the reasons why Norway today has one of the highest standards of living in the world. The decentralization of healthcare has been a goal in both countries. In Norway the introduction of activity-based funding has been followed by a substantial increase in the number of cases treated and a reduction in waiting lists. In Slovakia the system of diagnosis-related groups is still not implemented, although it should be put into force in 2010. Among the person who influenced public health in Norway and Slovakia, we would like to mention at least Dr. Bidenkap, who greatly contributed to utilization of hygienic measures for safe drinking water in Norway and Dr. Srobar, who contributed to organization of public health in Slovakia as a member of the first Czecho-Slovak government.
ECHOCARDIOGRAPHIC ASSESSMENT OF THE AREA AT RISK IN MICE

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Background: The area at risk (AAR) is the entire myocardial perfusion bed distal to an occluded coronary artery and consists of myocardium in danger of infarction. The infarct-size-to-area-at-risk ratio is the most important determinant of the final infarct size. This variable is mandatory in all experimental studies of infarct-size limitation. AAR is traditionally evaluated histologically which necessitate sacrifice of the animals and precludes long-term follow-up. We sought to validate echocardiography as a means for non-invasive in-vivo evaluation of the AAR in mice.

Material and methods: A myocardial infarction was introduced in 15 male C57BL/6 mice by ligation of the left anterior coronary artery. Echocardiography was performed using a high-frequency 15-MHz linear transducer (CL 15-7, Philip Medical System, Best) connected to a HDI 5000 ultrasound system (ATL, Philip Medical System). Assessment of regional wall motion abnormalities was performed 10 minutes after occlusion of the coronary artery and was immediately followed by histological evaluation of AAR using a standard staining procedure. Evans blue was injected into the abdominal vessels in order to delineate the perfused myocardium. The hearts were excised, frozen overnight, cut into transverse sections (1-2mm) and scanned. The AAR was determined by planimetry. Echocardiographic data were analyzed by an experienced echocardiographer blinded to the histological data.

Results: The mean ± SEM for AAR evaluated by echocardiography was 39.3 ± 2.3 % and 41.7 ± 2.1 for histology (p = 0.44). Bland-Altman analysis have shown acceptable agreement between the two methods.

Conclusion: Echocardiography may offer reliable evaluation of the AAR in mouse models of myocardial infarction. This method may be practically useful for non-invasive evaluation of the AAR in experimental models of myocardial infarction, e.g. for studies of infarct-size limitation.
Introduction: Beta receptor antagonists are frontline drugs of ischaemic heart failure. Their effect may be influenced by single nucleotid polymorphisms (SNP) of the rector gene. Beta-1 adrenergic receptor (ADRB1) 389 SNP is associated with left vetricular dysfunction during heart failure and recent investigations also showed association with the ADRB1 49 SNP. Beta blocker treatment was more effectiv in heart failure patients carrying the Glu versus Gln allelic variant of the ADRB2 27 SNP.

Methods: Beta blocker naive patients with first acute ST-segment elevation myocardial infarction and decreased left ventricular ejection fraction (<40%) have been enrolled and followed for 1 year using ECG, echocardiography, 6 minutes walking test and Ntpro-BNP. Genotype analysis has been performed using Restriction Fragment Length Polymorphism method and RT-PCR.

Results: Fifty nine patients have been enrolled and followed in the study (age: 66.9±1.9, mean±SEM) and 1-year mortality was 22.4%. Systolic ejection fraction increased from 37.1±1.0% to 44.9±1.9% at 1-year follow up. Proportion of patients homozygous for the ADRB1 389 SNP minor allel was 4.8% (Gly389), for the ADRB1 49 SNP 0% (Gly49) and for the ADRB2 27 SNP 14.5% (27Glu). There was no gender difference between genotypes. Patients presented diastolic dysfunction and E/A of the mitral inflow showed a more restrictive pattern in patients carrying the 389Gly allelic variant compared to 389Arg homozygous patients. Allelic freqency of the ADRB1 49 minor variant was lower, than the published caucasian population data (4.0% versus 21.8%, P<0.003; NCBI SNP database). ADRB2 27 SNP minor allel homozygous patients compared to Gln carriers showed lower plasma level of NTpro-BNP (835±179 versus 1458±213 pg/ml, respectively, P<0.03).

Conclusion: ADRB type1 389 and type2 27 receptor polymorphisms were associated with the progression of heart failure in post-infarct patients. Frequency of the ADRB1 Gly49 allel was lower among these patients, than in the published population database.

(300)
THE POTENTIAL OF PHENOTYPIC METHODS FOR DETECTING ESBL- AND AMPC-TYPE BROAD-SPECTRUM BETA-LACTAMASES

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Introduction: At present, enterobacteria producing broad-spectrum beta-lactamases belong to the feared bacterial pathogens. Of particular clinical importance are ESBL and AmpC enzymes increasing the risk of failure of antibiotic therapy and related morbidity and mortality. Their laboratory detection is still a problem, especially in the case of AmpC enzymes. The aim of the work was to compare the sensitivity of selected phenotypic methods for detecting their production.

Methods: A total of 106 strains of the Enterobacteriaceae family were tested, in which molecular biology methods confirmed the presence of genes encoding ESBL (85 strains) or AmpC (21 strains). The strains were identified using the Phoenix automated system (Becton Dickinson). In ESBL-positive strains, the sensitivity of the ESBL E-test (AB Biodisk) and the modified double-disk synergy test (DDST) was evaluated. AmpC strains were tested by the modified AmpC disk method using 3-aminophenylboronic acid. For simultaneous detection of ESBL and AmpC, the microdilution method and determination of minimum inhibitory concentrations (MICs) with a modified set of antimicrobial agents, including combinations with sulbactam, tazobactam and 3-aminophenylboronic acid, were used. Furthermore, the accuracy of determination of ESBL and AmpC production by the Phoenix automated system was tested.

Results: The sensitivity of detection of ESBL by the Phoenix automated system was high (99%); however, it only reached 38% in the group of AmpC-positive strains. High sensitivity was achieved by tests specific for particular types of broad-spectrum beta-lactamases: the sensitivity of the ESBL E-test was 95%; the modified DDST yielded 100% sensitivity for ESBL producers and the AmpC test correctly detected 95% of AmpC-positive strains. The sensitivity of the modified microdilution method was 87% and 95% for ESBL and AmpC beta-lactamases, respectively.

Conclusion: It is clear that the detection of broad-spectrum beta-lactamases must be based on specific phenotypic methods such as, in particular, the modified DDST, ESBL E-test and AmpC disk method and the microdilution method with a modified set of antibiotic agents.
PERIOPERATIVE ANALGESIA

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**Introduction:** Transmission of pain signals, evoked by tissue damage, leads to sensitization of central and peripheral nerve pathways conducting painful stimuli. Pre-emptive analgesia is a treatment that starts before the occurrence of painful stimuli to prevent a formation of sensitization. The combination of paracetamol with weak opioids, has significantly higher analgesic potential than the maximum of individual doses of these drugs used separately.

**Objective:** The aim of our study was to measure the effect on postsurgical pain and subsequent use of analgetics in patients preoperatively medicated by combination of paracetamol 1000mg with codeine 60mg.

**Methods:** Our prospective randomized, double-blind study compared the rate, strength of pain and postoperative analgetics consumption in the two examined groups of patients indicated to the operations of abdominal hernia, struectomy, curettage and vaginal hysterectomy. Patients were divided into two randomized groups. Group 1 was medicated by placebo, group 2 by combination of paracetamol with codeine, 1 hour before surgery. Patients described the strength of pain by using visual analogic pain scale, subsequently we analyzed analgetics consumption after specified time intervals and then we re-evaluated the differences between the groups.

**Results:** Study included 20 patients. Group 1 contained 11 patients: 8 women and 3 men. The average age of group was 52.3. Average consumption of analgesics: Dipidolor: 7.9 mg/24 hours and Novalgin: 111.1 mg/24 hours. The average intensity of pain: 1.hour-2.6; 2.hour-2.4; 6.hour-2.2; 12.hour-1.7; 24.hour-1.3.

Group 2 contained 9 patients: 6 women and 3 men. The average age of group was 55.3. Average consumption of analgesics: Dipidolor: 10.5 mg/24 hour and Novalgin 444.4 mg/24 hours. The average intensity of pain: 1.hour-3.4; 2.hour-3.0; 6.hour-2.7; 12.hour-2.2; 24.hours-1.4.

**Conclusion:** Preoperative usage of analgesic leads to decrease of postsurgical pain perception in the whole monitored time, significantly in the first hour. Preliminary results show that administration of analgetics preoperatively is important to reduce postoperative analgetics consumption.
NUTRITIONAL STATE-DEPENDENT ALTERATIONS IN THE EFFECTS OF CENTRAL ALPHA-MSH INFUSION IN ADULT RATS

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Introduction: Melanocortins (MC) play an important role in the long-term regulation of energy balance. MCs have a co-ordinated catabolic effect: they decrease food intake (FI), increase metabolic rate (MR) and reduce body weight (BW). We have previously shown that the catabolic effects of a central leptin infusion vary in different nutritional states. Leptin acts in the arcuate nucleus stimulating the MC system via activation of alpha-melanocyte stimulating hormone (αMSH) and inhibiting anabolic neuropeptides. The aim of this study was to observe whether the activity of the MC system changes similarly to that of leptin in different nutritional states.

Methods: Parameters of energy balance [FI, BW, core temperature (Tc), heart rate (HR)] of three groups of 6-month old male Wistar rats [calorie-restricted (CR6), normally fed (NF6) and a high-fat diet-induced obese (HF6) group] were recorded in a biotelemetric system (VitalView) during a 7-day (1 µg/µl/h) intracerebroventricular infusion of αMSH using Alzet osmotic minipumps. Data were averaged for 12-h periods. For statistical analysis of the data, repeated-measures ANOVA was used.

Results: The MC-induced transient drop in FI was most pronounced in HF6, less in NF6 rats and weakest in the CR6 group. A consequent BW loss occurred in NF6, CR6, but not in HF6 rats. A simultaneous increase in the mean daytime Tc and HR was observed in all groups (indicating a rise in daytime MR). These changes were most pronounced in the CR6, but also remarkable in the NF6 and HF6 groups.

Conclusions: In contrast to the leptin effects, some of the αMSH-induced catabolic effects were maintained in obese HF6 animals. In CR6 rats, where leptin failed to decrease BW, αMSH caused a significant weight loss. Our data suggest that despite obesity-induced leptin resistance, MC-responsiveness is maintained for core temperature and heart rate.
Recently, there is growing evidence that stimulation of some 7-transmembrane receptors (7TMRs) can lead to the activation of more than one G-protein subtype \((G_{i/o}, G_{q/11}, G_s, G_{12/13})\). This is probably the case also with the cannabinoid receptors. The most well-characterized cannabinoid receptors are \(CB_1\) and \(CB_2\), which couple mainly to \(G_{i/o}\) proteins. Another 7TMR, GPR55 has been suggested to be a novel cannabinoid receptor.

Our goal was to establish an experimental system for monitoring G-protein activation in real time and at the level of the G-proteins. To examine the different G-protein subtypes we constructed G-alpha chimeras. The specificity of receptor-G-protein coupling is largely determined by the C-terminal 5 amino acids of the G-alpha subunit, thus, in our chimeras we changed these amino acids of the \(G_\alpha_o\) to the corresponding residues of \(G_\alpha_q\), \(G_\alpha_s\) and \(G_\alpha_{12}\). We measured G-protein activation using bioluminescence resonance energy transfer (BRET). In this assay, when the fluorescent-tagged \(\alpha\) and \(\beta\gamma\) subunits dissociate from each other, the BRET-signal decreases, which is proportional to the degree of activation. We transfected CHO cells with Renilla luciferase-tagged chimeric or wild type \(G_\alpha_o\) subunit, eYFP-tagged \(\beta_1\gamma_{11}\) subunit and with the receptor.

We successfully tested our system on several receptors, including \(M_2\) and \(M_3\) muscarinic, and \(\beta_2\) adrenergic receptors. Stimulation of the \(CB_1\) receptor with cannabinoid agonists led to a decrease of the BRET-signal in case of all studied G-proteins \((G_o, G_q, G_s, G_{12})\). Cannabinoid antagonist treatment led to an increase in the BRET-signal compared to the initial level in the case of \(G_o\) and \(G_{12}\) proteins, which reflects to basal activity of the receptor. However, \(CB_2\) activated only \(G_o\) and basal activity could also be detected only with this subtype. Stimulation of GPR55 with different cannabinoid ligands did not alter the BRET-signal with any of the studied G-proteins.
SELECTED PARAMETERS OF INSULIN SENSITIVITY IN HYPERTENSIVE PATIENTS AFTER THE CHANGE IN THERAPY FROM ANGIOTENSIN CONVERTING ENZYME INHIBITORS TO ANGIOTENSIN II TYPE I RECEPTOR BLOCKERS

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Introduction: Candesartan, angiotensin II receptor (AT1) antagonist, has been used as an effective antihypertensive drug for several years. In addition to the antihypertensive actions, data from animal models showed fat tissue mass lowering effects, adipose tissue hypotrophy and reduction in adipocyte size of the drug (1). Furthermore, AT1 antagonists have been shown to improve insulin sensitivity and reduce inflammation, the mechanisms implicated in prevention or retardation of coronary heart disease (2, 3). In the present pilot study, we investigated effects of candesartan cilexetil therapy on changes in adiposity and glucose metabolism in subjects with primary hypertension.

Methods: Fourteen (N=14) men aged 33-64 years with primary hypertension (European Society of Hypertension/European Society of Cardiology Grade 1 and 2) treated with angiotensin-converting enzyme inhibitors (ACEI) participated in the study. The patients were studied before and six months after ACEI were replaced with candesartan cilexetil in treatment of hypertension, while any other additional antihypertensive medication remained unchanged. The following procedures were performed before and after the change in hypertension treatment:

• anthropometric measurements including height, weight, body fat % (Omron BF306, Omron Healthcare Europe B.V., The Netherlands), waist/hip ratio),
• blood pressure and heart rate measurements,
• adipocyte size measurements from subcutaneous adipose tissue biopsy as previously described (1, 4),
• the oral glucose tolerance test (OGTT), in which 75g of glucose dissolved in 200ml of liquid were given after an overnight fast; venous blood samples were withdrawn from antecubital vein before and every 15min after the start of OGTT up to 120min; blood samples withdrawn at the start of the examination before any other procedures were conducted were used for determination of fasting levels of glucose, insulin and C-peptide

Plasma glucose was measured by glucose oxidase method. Insulin and C-peptide was measured by immunoradiometric assay (Immunotech, France). Plasma samples of one patient were excluded from the study due to poor compliance with overnight fast requirements.

The study was approved by the local ethics committee and informed consent was obtained from all participants prior to examination.

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