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Macedonian Medical MSc

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Macedonian Medical Master of Science (MSc) Theses Defended in 2008

Faculty of Medicine, University "Ss Kiril and Metodij", Skopje, Republic of Macedonia

Key words:
Master of Science (MSc); Medical research; Republic of Macedonia.

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We present abstracts of MSc theses defended in 2008 at the Faculty of Medicine, University "Ss Kiril and Metodij", Skopje, Republic of Macedonia. English summaries are published as they are translated by authors and included in the final version of defended MSc. Macedonian Medical Master of Science (MSc) Theses are deposited in the Central Medical Library and National and University Library "St. Kliment Ohridski" in Skopje.

Editorial Borad do not take any responsibility either for the content, nor the quality of the abstracts.

At the Faculty of Medicine, 26 MSc theses were defended in 2008 and two of them have not been deposited in the Central Medical Library (7.7%), one from the Clinic for Anestesiology and one from the Institute of Medical and Experimental Physiology. Nine MSc theses are without abstarcts (34.6%) and 15 MSc theses are with abstracts (57.7%), from which only four are with structured abstracts (15.4%).

We have to mention that primary responsibility for the quality of the MSc theses belongs to the mentors, to the institutions they are representing, and to the Vice-Dean of science. All of them should be more actively involved in the preparation of Master of Science theses in order international standards to be achieved.

Asim Izairi. Determination of the lysozyme in the urine as a potential indicator for renal damage in patients treated with extracorporeal shock wave lithotripsy [MSc thesis]. *Skopje, Republic of Macedonia: Clinic for Urology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.*

Nowadays, the kidney and the drain-line stone are mostly treated with shock waves (ESWL-Extracorporeal Shock Wave Lithotripsy). It is known that this method indicates acute structural changes, almost at all treated kidneys. The morphological studies, by using nuclear magnetic resonance (MRI) and the quantitative radioisotopic raenography, have shown that 85% of all treated patients manifested one or more forms of renal damage. The hystopathologycal tests demonstrate changes in the renal tissue limited in and around the place exposed with shock waves, and the tubular cell putrescence of the membrane and cytoplasmatic lysozyme. These damages are result of releasing the lysozyme in the urine. By measuring the values of this enzyme, correlation could be found among the degree of damaging the renal tubules and its urine level. For this purpose we have designated this prospective clinical study done on two groups – 52 patients each, who are treated with lythotriptor by the Dornier MPL 900. In the first group, samples are taken from the urine before the treatment and later after 1 hour and 73 hours after the treatment. The second group, as controlled was also formed by 52 patients who have already had lysozymuria before the treatment. At these two groups of patients, after the treatment was noticed an increase of the values of the lysozyme by

statistical significance that is, there is a tubular damage after ESWL. After 72 hours of the treatment all values showed high level of normalization, it is about a transitorial damage and fast recovery of the renal parenchyma. From the results found out in our study came the following conclusions: a) The lysozyme in the urine is sensitive, fast performed and efficient parameter which is used for evaluation of the renal damage, indicated by ESWL; b) Damaging of the kidney parenchyma after ESWL treatment does exist and it is limited and short-lived; c) ESWL presents safe method in curing the kidney lythiasis and d) We suggest the lysozyme to be put on the list of the routine urinal indicators for tubular damage.

Key words: *lysozyme, urine, ESWL.*

Defended: February 25, 2008.

Mentor: Not available.

Slavica Arsova Hadzi-Angelkovska. Sexual dysfunctions in some psychiatric disorders [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Psychiatry, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

No abstract available.

Defended: March 3, 2008.

Mentor: Prof. Dr. Antoni Novotni.

Maja Jakimovska Dimitrovska. The importance of galactography in diagnosing and differentiating the intraductal processes in the breast [MSc thesis]. ***Skopje, Republic of Macedonia: Institute of Radiology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

This study evaluates the diagnostic value of galactography, which is being performed at The Institute of Radiology at The Faculty of Medicine in Skopje. Out of 77 female patients, 44 were examined and operated during the period between June 1998 and June 2005, at the clinic of Thoracocardiovascular Surgery. Clinic examination, echotomogarhy, mammography and cytological analysis of the nipple discharge were completed before the galactograhy. The galactography findings were compared with histopathologic diagnosis, being a gold standard, in order to evaluate the diagnostic value of the galactography. The average age of patients with intraductal papilloma was 50, with mastopathy 48, 6 and malignant disease 59 years. The benign intraductal papilloma appears in 63.6%, mastopathy changes of lactiferous ducts in 22.8% and malignant disease in 13.6%. As a method, galactography showed sensitivity (83.33%), specificity (100%), positive predictive value (11.36%), negative predictive value (2.27%) and accuracy (97.73%). As an imaging method, galactography has the most favorable conditions of showing the morphologic changes in ductal system of the breast. Our results suggest that galactography is the only method of diagnosing the intraductal processes in the breast. It is an important method that precisely identifies the lesions and enables the minimum removal of the breast tissue in a surgery.

Key words: *galactography, intraductal papilloma, nipple discharge, lactiferous duct.*

Defended: March 07, 2008.

Mentor: Prof. Dr. Damjan Dimchevski.

Valentina Talevska. Electroencephalographic examination et examiners with crime behavior treated in mental hospital in Demir Hisar [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Neurology, Psychiatric Hospital Demir Hisar, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Background. Forensic psychiatry is applied psychiatry for legal targets. Criminogenic factor is a significant element in criminal act being made by the examines and due to which he/she underwent psychiatric expertise. Most frequent criminal acts being made by the examinees, and were the subject in this study, are: murders, severe body injury, violent behavior, rape, family violence, robbery, disturbance of the general safety and the public law and order and forgery. These criminal acts were performed by the examinees with aggressive and nonaggressive behavior (34, 31). Terms such as aggression, violence, criminality and hostility were observed in this study. Crime has been defined as international breaking of law for crime. Some authors compared the risk growth for violent behavior in mental disturbances with other population (37, 38). Other authors, however, pointed to the fact that the possibility for violent behavior among the mentally disturbed patients was greater than the rest of the population (55, 61). From the sociopathologic point of view, murder is separated from the simple crime, or as Kapamadzija said, "play of moments" in which murder was imposed as "real" solution for conflict. Neuropsychological methods, before all the classical electroencephalography

(EEG) being introduced 50 years ago, still remains a pole, the basic method for epilepsy investigation, and lately it finds its application in psychiatry as well.

Aim. Purposes of the investigation were to: 1) determine the significance between the EEG changes in patients with criminogenic behavior and the patients from the control group; 2) investigate the ratio between the EEG findings of patients with criminogenic behaviors and the diagnostic entities according to the ICD-10, as well as timely registration of the EEG changes with initiates psychiatric treatment.

Material and methods. Investigated group consists of a total number of examinees with criminogenic behavior within a 2-year period, treated at the Psychiatric Hospital in Demir Hisar, the Forensic Unit, and for whom psychiatric expertises have been given on request of the Court. These are patients with criminogenic behavior (patients-doers of criminal acts: murders, serious body injury, violent behavior, family violence, and robbery, disturbance of the public law and order and forgery. These patients were assigned the measure for security: "keeping and treating in psychiatric hospital". They underwent EEG recordings, psychiatric examination, and also data from psychiatric expertises were taken into consideration. Patients were diagnosed according to ICD-10 classification. In statistical analysis, parametric and nonparametric tests were used aiming to determine the significance of difference, as well the eventual existence of any connection, and association, respectedly.

Control group consisted of examinees being treated in Psychiatric Hospital in Demir Hisar, with no criminogenic behaviors, hospitalized in the same period, with corresponding demographic and clinical data as the examinees. Patients' psychiatric examination, EEG recording, which was made in normal awaken condition and with activation of 3-minute hyperventilation were evaluated. The most frequent EEG abnormalities were specified (spikes, sharp waves, slow waves, spike-wave complexes). The EEG changes were classified (focal, diffuse). Focal changes were divided into frontal, temporal, parietal and occipital. EEG changes were correlated in patients with criminogenic behavior and without it, having various diagnoses. Differences of the EEG changes between the patients and the control group were determined. MMPI-201 test (Minnesota Multiphasic Personality Inventory) was made in all patients. Human figure drawing (Mahover, 1949), a projective technique which represents one of the most used psychodiagnostic technique, was applied.

Results. Investigated group consisted of 158 patients with criminogenic behavior, 144 (91.1%) men and 14 (8.9%) women. Greatest number, 44 (27.85%) of the patients committed homicide, the smallest number, 6 (3.79%) of the patients, rape. Normal EEG findings was recorded in 107 (67.72%) of the patients, and abnormal one in 51(32.28%). Patients with normal EEG for $X^2 = 63.7$ and $p<0.05$ were significantly older then the patients having normal EEG. Control group consisted of 158 patients who were not doers of the criminal act, 144 (90.51%) of which were men, and 14 (8.9%) women. Normal EEG finding was found in 143 (90.51%) patients, and abnormal one in 15 (9.49%). There was no significant association for $X^2 = 8.99$ and $p<0.05$ between the EEG finding and the diagnosis of the hospitalized patients from the control group.

Conclusions. 1.Representation of the criminogenic behavior in psychiatric entities has significantly higher values in male population; 2. Patients' age varies in the interval 35.59 ± 12.25 years in the examinees of the investigated group, and in the examinees from the control group the age varies in the interval 35.77 ± 12.27 years; 3. Greatest number -26 (16.46%) patients each, were hospitalized with the diagnoses: psychic disturbances and disturbances in relations with the family and the surroundings caused by the usage of the psychoactive substances (F11-19); schizophrenia, schizotype and delusional ideas (F20-29); as well as personality and behavior disturbances in adults (F60-69); 4. Of the total of 158 patients from forensic population, 138 (87.34%) had aggressive behavior, and 20 (12.66%) patients had non aggressive behavior; 5. Forty-four (27.85%) patients from forensic population of all criminal delicts committed murder, and the smallest number, 6 (3.79%) patients committed suicide; 6. Normal EEG finding was recorded in 107 (67.72%) patients and abnormal in 51 (32.28%) in forensic group. In examinees of the other population, Normal EEG finding was found in 143 (90.51%) patients, and abnormal in 15 (9.49%). - Greatest number of focal slow theta waves were localized parietally-right/left; - Greatest number of focal delta waves was localized frontally-right/left. In examinees from the control group, greatest number of focal slow theta waves was localized parietally-right/left; 7. Results from multidimensional test of personality prove the diagnosis of psychiatric entities; 8. Results from the investigation of the dynamic side of the personality indicate that the aggression dominates in both groups in relation to the other relations investigated; 9. Examined relations between the EEG finding and some parameters analyzed in the investigated and control groups: - There is no relationship between the EEG finding and the gender of the patients from the forensic

and other population; - Patients with abnormal EEG finding are significantly older then the patients with normal EEG finding; - In patients from forensic population with normal EEG finding, 24 patients (92.3%) dominated with mental disturbances and disturbances in relations with the family and surrounding, caused by application of psychoactive substances (F11-19), while in patients with abnormal finding dominated 13 (65%) with organic mental disorders (F00-09); - There was not established if there was any connection between the patients behaviors (aggressive and nonaggressive) and the EEG finding in the examiners from the forensic and the other population; -There is significant connection between the criminogenic behavior and the EEG finding; - Depression in forensic population has been more represented in patients with abnormal EEG finding; - There is significant connection between the dynamic side of personality and the EEG finding in forensic population that is not the case in other population; 10. Abnormal EEG finding has been significantly more registered in patients (32.28%) from the examined group than the patients (9.49%) from the control group; 11. Paranoia (for Z=3, 11 and p<0.01) and psychasthenia (for Z=6, 65 and p<0.001) have been significantly more represented in patients of the investigated group than the patients from the control group.

Prevention from homicide, criminogenity, aggression and violence with: - Undertaking preventive measures from acute intoxications from alcohol and psychoactive substances; - Carefulness when applying nevroleptic therapy; - Application of psychotherapy, sociotherapy, pharmacotherapy, promotion of social acceptance and adequate family relations as well as adequate acceptance of the stress situations; - Sufficiently long treatment of patients, either hospitally or outpatientlly, including the services for mental health, obeying the rights of the mentally disordered individuals as well as preparation of the individuals for resocialization after the hospital treatment with further continuous treatment of such persons in centers for mental health; - On time and early discovery of factor which would cause relapses, as well as on time discovery of the existing risks for criminogenity; - Undertaking measures for overcoming the antisociality; - Usage of public information media aiming to inform the population for the eventual risk from existence of violent behavior; - Determination of the risk degree for violence, and especially to evaluate the development of relapses in three categories (general, violent and sexual) with aggression; - Information of the population that the neuropsychological dysfunctions could be the reason for violent and antisocial behavior, criminogenity and homicide; - In time and routine application of the EEG.

Key words: *forensics, criminogenic factor, EEG.*

Defended: March 17, 2008.

Mentor: Not available.

Ivan Barbov. Vascular dementia after stroke: correlation with risk factors and cerebral lesion [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Neurology, Psychiatric Hospital Demir Hisar, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Background: The causes and characteristic of cognitive impairment after stroke and the risk factors related to vascular dementia are still not well identified.

Purpose: To evaluate the cognitive capacities in a cohort of ishemic/hemorrghagic stroke survivors and to identify the clinical determinants of post stroke cognitive decline and dementia.

Methods: 100 consecutive patients admitted to a Neurological Clinic with a ischemic (76) or hemorrhagic (24) stroke were evaluated 6 and 12 months after the stroke with a neuropsychological battery that included a screening battery (the Mini Mental State examination – MMSE and the Hachinski Ischemic Score-HIS) and a comprehensive battery administrated to those who had a low score in the MMSE. Vascular dementia was defined according to the DSM IV and ICD 10 criteria.

Results: 100 patients were evaluated. Twelve months after the stroke 52 patients had no cognitive impairment; 38 with Mild Cognitive Impairment – MCI (19 had deficits in cognitive domains other then memory; 9 had focal memory deficits; 10 had memory deficits and impairment in one other cognitive domain); 10 had cognitive deficits compatible with dementia. Risk factors for vascular dementia are almost the same vascular risk factors for development of stroke. The most frequent risk factors in patients with dementia are hypertension (80%) and diabetes mellitus (60%). Lesion type, side and localization of the demented group were heterogeneous (7 ischemic strokes, 3 hemorrhagic; 1 left side lesions, 3 right side lesions, 5 bilateral infarctions, 1 with SAH).

Conclusions: patients with stroke develop MCI in the first 6 months after stroke and dementia after 1 year. Only 10% of patient's development vascular dementia. Our data suggests that impairment in cognitive do-

mains other than memory is the most frequent deficits found twelve months after the stroke. The causes of vascular dementia seem to be multiple, including multiple lesions, strategic lesion location and white matter changes.

Key words: *Not available.*

Defended: April 18, 2008.

Mentor: Prof. Dr. Ante Popovski.

Lidija Spirevska. Evaluation of the nutrition status with anthropolometrical parameters and dietary income in patients with cystic fibrosis [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Children Diseases, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Abstract not available.

Key words: *Not available.*

Defended: April 15, 2008.

Mentor. Not available.

Andrija Kartalov. Comparison of caudal block with bupivakain combined with total anesthesia in hernioplastica in children's [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Anestesiology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

MSc thesis not available.

Dejan Spasovski. N-acetyl-β-D-glucoseaminidaze indicator for evaluation of renal dysfunction in patients with rheumatoid arthritis treated with ketoprofen and methotreksat [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Rheumatology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Abstract not available.

Key words: *Not available.*

Defended: April 30, 2008.

Mentor: Prof. Dr. Jordan Chalovski.

Irena Chakalaroska. The effects of "biofeedback" to cognitive performances in high school population [MSc thesis]. ***Skopje, Republic of Macedonia: Hospital for Children Diseases, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Abstract not available.

Key words: *Not available.*

Defended: April 14, 2008.

Mentor: Prof. Dr. Nada Pop-Jordanova.

Biljana Kuzmanovska. Evaluation of the effects of insuflation of carbon dioxide under controlled pressure during laparoscopy on the parameters of acide-base balance and the blood gas analyzes [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Rheumatology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

The aim of this study is to evaluate the effects of insuflation of carbon dioxide under controlled pressure during laparoscopy on the parameters of acide-base balance and the blood gas analyzes, as well as the effect of duration of laparoscopy upon the mentioned parameters. Sixty patients, classified in groups 1 and 2 according to ASA were included in this study. The patients were divided in two groups, group A (n=30) was consisted of patients undergoing laparoscopic cholecystectomy, and group B (n=30) as a control group, consisted of patients undergoing laparotomic cholecystectomy. All the procedures were done under standardized general anesthesia with monitoring of vital functions, blood oxygen saturation and capnography. Measurements of the blood gases and the parameters of the acid-base balance were done three times in both groups. The first measurement was upon the anesthesia induction, in order to set the baseline values of the parameters in both groups. The second measurement was 30 minutes after the beginning of CO_2 insuflation and the third measurement was 30 minutes after CO_2 desulfation in the group undergoing laparoscopy. In the control group, the second measurement was 30 minutes after the beginning of the operation, and the third measurement was 30 minutes after the end of the operation. The results showed statistically significant increasing ($p<0.05$) of the values of the partial pressure of CO_2 in arterial blood in both second and the third measurements in parameters (pH, HCO_3, BE) showed statistically significant difference($p<0.05$) between the two groups in the second and the third measurement, indicating respiratory and mixed type acidosis in the laparoscopy group.

The results showed statistically significant ($p<0.05$) increase of the values of partial pressure of CO_2 in the arterial blood and the values of BE, as well as decrease of the values of pH and the bicarbonates in the group (n=16) in which laparoscopy lasted longer than 60 minutes compared to the group (n=14) were laparoscopy lasted shorter than 60 minutes. In conclusion, we have shown that insuflation of carbon dioxide under controlled pressure during laparoscopy causes hypercapnia and acidosis of respiratory and mixed type. The duration of laparoscopy enhances the hypercapnia and acidosis.

Key words: *laparoscopy, hypercapnia, acidosis.*

Defended: April 16, 2008.

Mentor: Prof. Dr. Zorka Nikolova Todorova.

Katerina Spasovska. Adult community-acquired pneumonia in intensive care unit: epidemiology and risk factors for mortality [MSc thesis]. ***Skopje, Republic of Macedonia: Institute for Epidemiology and Biostatistics, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Background: Severe community-acquired pneumonia is serious, life-threatening infection with high mortality. Evaluation of epidemiological characteristics, adequate severity assessment and early prediction of adverse outcome are crucial for appropriate management of the disease.

Objectives: To determine epidemiological characteristics and to identify risk factors for mortality in patients with severe community-acquired pneumonia.

Material and methods: All adult patients with community-acquired pneumonia admitted to an intensive care during a 6 year period (2000-2006) were enrolled in the study. Data from clinical, biochemical, microbiological and radiological findings were evaluated. Risk factors for mortality were identified with logistic regression.

Results: One hundred and sixty seven patients were included in the analyses. The mean age 60.8 years and 52.5% were male. 31.9 % has a history of tobacco smoking. Co morbid condition was registered in 81.4%. Most patients at admission were febrile, with tachycardia and tachypnea. In 26.9% was registered altered mental status. High sedimentation rate, leucocytes, hyperglycemia, increased serum urea and hypoalbuminemia were the most common laboratory findings. 53, 5% of the patients had bilateral pulmonary involvement and 18% had pleural effusion. In 15, 9% the blood cultures were positive with S.aureus as most frequently pathogen, isolated in 8, and 4%. With serological analysis with IFA test identified positive IgM antibodies for M. pneumoniae and C.pneumoniae in 10% and 5% respectively. Severity assessment with Pneumonia Severity Index showed 58.6% of the patients classified in PSI high-risk classes and 31.4% had severe CAP according to CURB-65 score. Sepsis and acute renal failure were most frequent complications. The overall mortality was 31.1%. Multivariate logistic regression identified four factors associated with the poor prognosis: altered mental status O.R 7.92 (CI 2.64-23.73), bilateral pulmonary involvement O.R 9, 49 (CI 2.80-32.17), respiratory rate >30/min O.R 9.03 (CI 3.20-25.45) and serum urea > 10mmol/L O.R 2, 89 (CI 1.05-7.97)

Conclusion: Community-acquired pneumonia in patients admitted to an intensive care unit was associated with average age, comorbidity, bilateral pulmonary involvement, sepsis, acute renal failure and high mortality. Factors predicting poor prognosis on admission were altered mental status, respiratory rate > 30/min, serum urea > 10mmol/L and bilateral pneumonia. Evaluation of epidemiological characteristics, adequate severity assessment and early prediction of adverse outcome are crucial for appropriate management of the disease.

Key words: *community acquired pneumonia, intensive care unit, risk factors, prognosis, and mortality.*

Defended: April 15, 2008.

Mentor: Not available.

Liljana Kochankovska. The impact of the continued medical education on the knowledge, clinical skills and quality of health care services among the doctors in primary health care [Msc thesis]. ***Bitola, Republic of Macedonia: Medical Center, 2008.***

Abstract not available.

Defended: Not available.

Mentor: Not available.

Aleksandar Stankov.Forensic-medical aspects of stick wounds [MSc thesis]. ***Skopje, Republic of Macedonia: Institute for Forensic Medicine, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Abstract not available.

Defended: April 21, 2008.

Mentor: Prof. Dr. Zdravko Chakar.

Karkinski Dimitar. Efficiency of the specific immunotherapy with modified allergenic ecstracts from Dermatophagoides pteronyssinus and farinae [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Pulmology and Allergology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Abstract not available.

Defended: April 21, 2008.

Mentor: Prof. Dr. Dejan Dokikj.

Biljana Bojadzieva-Stojanoska. Anatomic variations in nasoethmoidal region [MSc thesis]. ***Skopje, Republic of Macedonia: Institute of Anatomy, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Profound knowledge of anatomy and anatomic variations in nasoethmoidal region is of benefit in everyday clinical practice for adequate interpretation of CT scans of paranasal sinuses. It also helps in safe performance of invasive diagnostic and interventional methods and furthermore, influences on the success of surgical treatment in patients with chronic rhino sinusitis, such as functional endoscopic sinus surgery (FESS). Paranasal sinuses are opened by ostia in the middle and upper nasal meatus, creating the anterior and posterior ostiomeatal complex (OMS). Anterior osteomeatal complex plays a key role in the etiology of sinusitis and in performing FESH. The most common anatomic variations are found as variants of ethmoidal labyrinth, middle nasal concha and nasal septum. Our investigation comprised CT scans of paranasal sinuses obtained from 100 randomly selected examinees aged between 17 and 67 years. The subjects underwent CT imaging at the Institute of Radiology, Medical Faculty in Skopje. Herewith are presented the normal characteristics of the lateral wall of the nasal cavity and nasal septum as well as prevalence of variations of ethmoidal cells, middle nasal concha and nasal septum. The analyses have shown that the most common anatomic variations in nasoethmoidal region were: agger nasi cells, deviations of nasal septum and concha bullosa. DSN was found in 52% of the examinees and it was absent in 48%. The most common type of deviation was type 5 on left (48%) and type 3 (29%) while type 3 on right (61%). Agger nasi cells were detected in 87% of the examinees on the left side and in 86% on the right side of the nasal cavity. Agger nasi cells were more frequently found bilaterally (in 86%) and unilaterally (in3%); whereas there were no agger nasi cells in only 11 % of the subjects. Association between the presence of concha bullosa and sinusitis was registered. There was a statistically significant dependence between the deviation of nasal septum type 3 and BCB ($x^2 = 6.05$ and $p=0.013883$). This research displays the clinical notions about the presence and importance of anatomic variations in nasoethmidal region.

Key words: *paranasal sinuses, anatomic variations, nasoethmoidal region, sinusitis.*

Defended: April 23, 2008.

Mentor: Prof. Dr. Marija Papazova.

Dimitar Trajkov. Helicobacter pillory and carcinoma of the gaster [MSc thesis]. ***Skopje, Republic of Macedonia: Gastroenterohepathology Clinic, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008***

Abstract not available.

Defended: April 16, 2008.

Mentor: Prof. Dr. Vasko Vasilevski.

Rada Ackovska. The influence of the visual-motoric maturity in educational process in children with damage hearing [MSc thesis]. ***Skopje, Republic of Macedonia: Institute of Medical and Experimental Phisology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

MSc thesis not available.

Ksenija Bogoeva. HbA1c influence on vascular complications in diabetes [MSc thesis]. ***Skopje, Republic of Macedonia: Endocrinology Clinic, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

From the period starting in 2004 until 2006 on the territory of Republic of Macedonia 2980 people with Diabetes type 2 were recruited. These people were recruited from 23 centers in 20 towns varying from the age 30 to 70. Over the course of the two years the patients were monitored by five visits conducted by

their primary doctors and diabetes specialists. The recruited groups of patients underwent an oral anti-diabetic therapy and insulin therapy.

The aims of the research were to gain general knowledge about situation with diabetes in Macedonia, to determine the influence the tight glucose control has on the HbA1c and the latter's influence on the vascular complications as well as to ascertain the presence, incidence, and the course of diabetic complications of micro-vascular or macro-vascular type at people with type 2 Diabetes.

The analysis of the acquired data's demonstrates a significant statistical decline of HbA1c from the starting average value taken during the first visit from 9.43% to 7.1%, at the last visit. These analyses also demonstrate a significant decline of values of glycemia taken on empty stomach from the first to the fifth visit, i.e. from 11.8 mmol/l to 7.4 mmol/l, as well as decline of the values of postprandial glycemia measured 2 hours after lunch, from the starting value of 13.9 mmol/l to 9.2 mmol/l.

As a support to the improved glycemic control, the decrease of the values of HbA1c, the intensive insulin therapy and as part of the continuous education of the persons with diabetes is also the data's gained from the research that demonstrate stabilization and decrease of the number of micro and macro vascular complications in people with diabetes monitored through the course of this research. What is specifically important is the significant decline of values of the parameters relevant for development of vascular complications that have been monitored through examinations of the fundus of the eye, the presence of the microalbuminuria, monitoring the level of the lipids and degraded products, as well as the ECG changes.

As a conclusion of the two years long monitoring process of the recruited patients, value of HbA1c is the basic parameter in controlling diabetes and prognosis of the vascular complications. Low values of HbA1c lead to decrease of vascular complications in diabetes, especially of rethinopathy and neuropathy, as well as in decreasing the risk of cardiovascular diseases.

Key words: *Diabetes Mellitus, HbA1c, retinopathy, neuropathy, vascular complications, intensified insulin therapy.*

Defended: November 21, 2008.

Mentor: Prof. Dr. Chedomir Dimitrovski.

Prgova Biljana. The value of radiology methods in the diagnosis and TNM staging of malignant tumors of esophagus [MSc thesis]. ***Skopje, Republic of Macedonia: Institute of Radiology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

The malignant tumors of the esophagus are diseases with poor prognosis. The five years' survival, according to statistical data, was reported at 20% of all affected patients.

The modern imaging techniques enable an early detection and determining the stadium of illness. The early tumor detection denotes a possibility for a curative chirurgical intervention.

The goal of this study has been: the correlation between the roentgen and endoscopic investigations; the comparison of the standard CT examination with a modified one and the estimation of the possibility for an improved survey of the esophagus carcinoma. The investigation is also aimed at confirming the role of the CT as a competent radiology method for determining the staging of the disease, by applying the system of TNM classification.

The study covered more than 60 patients from both genders at the age above 30, i.e. specially selected hospital or ambulance-treated patients. The first radiologists' methods which were applied for the investigation of the esophagus were- esophagography. Endoscopic examination is also imposed at patients with pathological findings. A CT examination was done on patients with a confirmed malignant diagnosis. The CT examination was performed in a standard or modified way, by the application of glucagon and water as a contrast. The investigation referred to patients having an already stated diagnosis, separated into two groups. The groups were formed on basis of the previously defined specific main features characteristic for each investigated patient (statistical units). The results from both homologous groups have been tested by using statistical methods.

The performed examination given in this elaborate contributes to the confirmation that the modified CT examination enables a greater accuracy in the determination of the T stadium of the disease. It also confirms that CT is a precise radiology method for determining the stadium of disease, which influences the further treatment.

Key words: *esophagus, modified Ct examination, glucagon.*

Defended: November 18, 2008.

Mentor: Prof. Dr. Antonio Gligorievski.

Irena Mitevska. Diagnostic value of viable myocardium in patients with ischemic cardiomiopathy and coronary artery bypass revascularization [MSc thesis]. ***Skopje, Republic of Macedonia: Cardiology Clinic, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Surgical revascularization of patients with severe ischemic heart failure remains still a clinical challenge. Prognosis in these patients is very much related to the degree of the left ventricular dysfunction.

Left ventricular dysfunction can be caused by irreversible damage of the heart muscle after previous myocardial infarction (necrosis), myocardial ischemia, myocardial stunning or myocardial hibernation, which is cause by chronic hypoperfusion, as a cause of chronic, significant coronary artery disease (CAD). Hibernated myocardium, which has regional and global left ventricular (LV) function recovery, is one time complete revascularization of the jeopardized hibernated myocardium. Coronary artery bypass surgery (CABG) is one of the treatment choices in patients with ischemic cardiomiopathy, low ejection fraction and multivessel CAD. This is the cause explanation of the great clinical interest for detection of visble myocardium before planed CABG, which leads to proper selection and risk stratification of this high risk population, which would have the greatest benefit from revascularization. This has lead to the development of great number of noninvasive methods for the detection of viable myocardium.

Myocardial perfusion scintigraphy (MPS) is a technique that is routinely performed in the all day clinical practice, mostly for detection, prognosis and risk stratification of patients with suspected or known CAD. Due to the better visualization and radioisometric characteristics of Tc-99m sestamibi, thanks to the technologic modalities and protocols enabled by MPS, today this radiotracer is widely use for detection of viable myocardium.

The aims of this postgraduate thesis was to assess the diagnostic value of myocardial viability and quantitative perfusion and function MPS parameters in correlation with the improvement of regional and global left ventricular function after CABG, to assess the time period needed for recovery of left ventricular function after revascularization and to evaluate the predictive value of the size of viable myocardium in relation to the clinical and angiographic variables and their impact on symptomatic and functional improvement after CABG.

In your study we have included and prospectively followed 85 patients with ischemic cardiomyopathy and left ventricular ejection fraction (LVEF) <40%, which had angiographic indications for CABG. ECG-synchronized MPS Gated SPECT study with rest/nitrate and nitrate/dypiridamole protocol was performed preoperatively in all patients, aimed for detection of viable myocardium and prediction of the benefits of revascularization in these patients. The patients were divided in two groups based on the amount of viable hibernated myocardium: Gr.1 48 patients with > 4 viable segments before CABG and Gr.2 37 patients with < 4viable segments. The control MPS study was performed 10-18 months after CABG. Until that period all patients were clinically followed.

Our results showed that MPS Gated SPECT has high sensitivity and specificity, as well as positive and negative predictive value for detection of viable myocardium and prediction of regional and global recovery of left ventricular function after CABG. There are some differences in the diagnostic power of the method depending of the vascular the territory and used protocol.

Viability index and the number of nonviable segments were independent and incremental predictors for the improvement of left ventricular function after CABG, when compared to the clinical and angiographic parameters.

Multivariable analysis for the prediction of functional NYHA class improvement after CABG, which included MPS, clinical and angiographic variables, found following MPS parameters to have independent and incremental values: the number of nonviable segments before CABG, the number of total perfusion defect before CABG, rest end systolic left ventricular volume before CABG and perfusion summed score before CABG.

The patients with >4 viable segments of the 17 segment model have improved LVEF, heart failure symptoms and chest pain after CABG. Patient with < 4 viable segments had lower probability for improvement of left ventricular function after CABG or the same can be absent.

We have proved that revascularization of viable myocardium has also another positive effects, which not always are connected with the improvement of LVEF. Those benefits consists of improvement in the symptoms of heart failure, diminishing ongoing LV remodeling, as well as reduction of jeopardized myo-

cardium and prevention of malignant ventricular arrhythmias. Complete revascularization of all jeopardized regions is imperative for achievements of above mentioned final goals.

MPS has proved as valuable noninvasive method for preoperative patient selection, risk stratification and follow up of patients with ischemic cardiomyopathy after CABG.

Quantitative MPS perfusion and functional parameters are excellent markers of myocardial viability and predictors of postoperative improvement in regional and global LV function.

Patients with ischemic heart failure, multivessel CAD and regions of chronic hibernated myocardium need longer period for improvement of LV function after CABG.

Key words: *Not available.*

Defended: November 26, 2008.

Mentor: Research Ass. Prof. Jelena Maksimovikj-Pavlovikj, MD, PhD

Tanturovski Dragan. Epidemiological characteristics of treated patients with invasive carcinoma of the uterine cervix in Republic of Macedonia (2000-2006) [MSc thesis]. *Skopje, Republic of Macedonia: Institute of Epidemiology and Biostatistics, Faculty of Medicine, University"Ss Kiril and Metodij"; 2008.*

Invasive cancer of the uterine cervix is a serious medical problem for a large portion of the female population around the world. An estimated 466 thousand new cases are registered and 231 thousand women die each year, 80% of which are in the undeveloped and developing countries. In the Republic of Macedonia, the invasive cancer of the uterine cervix is the second most common neoplasm in the female population right after breast cancer, with 248 newly registered cases in 2003, comprising 8.8% of all the registered neoplasms.

The main objective of this retrospective epidemiological study was to determine the epidemiological characteristics of the patients treated for invasive cancer of the uterine cervix which in order to facilitate the determination of the extent of the problem, the identification of possible risk groups and the planning of an adequate screening program which would primarily target the population at risk and subsequently the entire female population on the territory of the Republic of Macedonia.

This retrospective, descriptive epidemiological study included 1406 patients treated for invasive carcinoma of the uterine cervix on the territory of the Republic of Macedonia in the period between 2000-2006. The data was collected from the patient histories, the databases of the institutions that conducted the treatment and/or made the diagnosis and the Cancer Registry databases of the Republic Institute for Health Protection. The collected data was then processed in Microsoft Excel to form a database with all the relevant variables. The data was statistically processed using a standardized statistical software package.

A total of 1630 cases of invasive cervical cancer were registered in Macedonia for the period 200-2006. The study included 1406 treated patients or 86.26%. The mean incidence rate was 22.97 per 100000 women. The mean age for the women in the series was 48 ± 12 (range 17-88, mean 47). The group of women between 15-49 years was represented more frequently, but the difference was not statistically significant. However, there were notable statistically significant differences in the representation of the Macedonian and Serbian nationalities (85%) and the Albanian, Turkish and other nationalities (15%), between the Christina and Islamic denominations (86% and 14% respectively), as well as the different levels of education: low level of education (45%) and high level of education (55%) and the different marital status (87% married and 13% single). Most of the diagnoses were made in the Department of Histopathology and Clinical Cytology at the Institute of Radiotherapy and Oncology, Medical Faculty, Skopje, Macedonia (74.89%). As one could expect, the most frequent hystopathological type was the squamous cell carcinoma (80.73%), followed by the adenocarcinoma(11.81%). More than a half of the patients (58.73%) received some form of operative treatment, and for 38% of the patients that was the only and final treatment; 22.40% of the patients received only radiotherapy and 18.85% received a combination of chemotherapy and radiotherapy. From the comparison of the number of gynecologists working in primary health care and the number of women treated for invasive cervical cancer in the different regions, one could conclude that in the regions with a higher number of gynecologists per 100000 women, the number of treated patients was lower and vice-versa. The only exception is the region covered by the Department of Health Protection Strumica, where in spite of the high number of gynecologists working in the primary health care, the number of registered treated patients was the highest.

The noted significant differences in the representation of the different demographic groups in the examined series of patients treated for invasive carcinoma of the uterine cervix point to an increased risk of invasive cervical cancer in these populations. The Republic of Macedonia is considered to be a developing country, which in a period of transition is not able to implement an organized screening program for the entire female population mainly due to financial constraints. The current practice of opportunistic screening can yield only minimal results in lowering the incidence of the invasive carcinoma of the uterine cervix. The identification and recognition of the demographic groups with an increased risk of developing invasive cervical carcinoma enables the creation of a screening program that would include the groups with an increased risk as the initial step towards the implementation of a systemic screening for invasive carcinoma of the uterine cervix for the entire female population in the republic of Macedonia.

Key words: *invasive cervical carcinoma, epidemiology, treated patients, demographic characteristics, groups at risk.*

Defended: December 3, 2008.

Mentor: Prof. Dr. Dragan Danilovski.

Adela Stefanija. Certain biochemical and clinical parameters for HELLP-Score in determination of the HELP Syndrome [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Gynecology and Obstetrics, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Abstract not available

Defended: November 12, 2009.

Mentor: Prof. Dr. Gordana Adamova.

Palchevski Zlatko. Comparation of the techniques of ultra sound knife conisation compared with the routine, conventional surgical technique in the early treatment of preneoplastic cervix uteri lesions [MSc thesis]. ***Skopje, Republic of Macedonia: Clinic for Gynecology and Obstetrics, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

Background. Considerable evidence suggests an apparent trend of decrease in the incidence of the invasive cervical carcinoma in the developed countries. However, similar results are achieved in all communities where successful detection and early treatment of preneoplastic cervix uteri lesions is employed.

Aim. The aim of this prospective study was to highlight the importance of ultra sound knife conisation compared with the routine, conventional surgical technique taking in consideration the efficacy and the final effect for both methods.

Material and method. In total 80 patients surgically treated in the two year period were divided into two groups of 40 patients each, according to the conisation technique. The efficacy of the surgical treatment was assessed by the bleeding intensity, the duration of the procedure and early complications. The final effect of the both methods was evaluated through the volume of the extracted con, as well as interpretation of the margins and the influence of their thermal damage on the definitive histopathological diagnosis.

Results. The data analysis showed statistically significant differences between the two conisation methods compared by duration, bleeding during the intervention, surgical material used, and volume of extracted cons as well as postoperative pain. However, the analysis of post-surgical complications and histopathological interpretation of the margins showed statistically non-significant differences between both techniques.

Conclusion. The study promoted the ultrasound conisation as an excellent technique with a good base for histopathological examination of the specimens, small invasiveness, and satisfactory "cosmetic" results and enhances the patients to recover promptly. With the appropriate patients' selection, this useful and popular surgical approach can be recommended as a method of choice over the variety of excision techniques. However, the cold knife conisation is still remaining as a "gold standard" method in particular cases.

Key words: *conisation, ultrasound knife, "cold knife" precursor lesion, hystopathologycal finding.*

Defended: November 17, 2008.

Mentor: Prof. Dr. Marijan Stojovski.

Jasmina Trojacanec. The effects of prostacyclin (PGI_2) and enalapril (ACE inhibitor) in the treatment of diabetic nephropathy experimentally induced with streptozocin [MSc thesis]. ***Skopje, Republic of Macedonia: Institute for Pharmacology, Faculty of Medicine, University "Ss Kiril and***

Metodij"; 2008.

Diabetic nephropathy is one of the most severe diabetic complications and at the same time the cause for increased morbidity and mortality in these patients. The etiopathogenesis of this complication has still not been completely elucidated, bur includes morphological, pathological-anatomic and biochemical metabolic disorders. It is considered that disorders of endothelial modular function might be critical and initial factor in the development of diabetic vascular complications. There is neither specific nor adequately efficient therapy for this disease. Based on pharmacodynamic effects of prostacyclin (PGI_2) and its analogues and known renal protective effects of ACE inhibitors, it could be said that they may be useful in the treatment of diabetic nephropathy. Having in mind that increased values of endoethelin-1 (ET-1) have been found in patients with diabetes, and especially in those with diabetic nephropathy, it is assumed that ET-1 may play an important role in development of diabetic nephropathy.

The main aims of this study were to assess the effects of prostacyclin (PGI_2) and enalapril (ACE inhibitor) in the treatment of diabetic nephropathy experimentally induced with streptozocin by monitoring variations in renal function and the role of endoethelin-1 in development and progression of diabetic nephropathy.

Diabetes was induced in normotensive Wistar strain rats by single i.p. administration of streptozocin (STZ) (60 mg/kg/b.w.) caused a significant increase of endothelin-1 plasma concentrations associated with distinct signs and symptoms of diabetic nephropathy (proteinuria, microalbuminuria, increased serum level of urea and creatinine, polyuria, increased NAG activity in urine). Microscopic findings in the kidney showed glomerulopathy characterized by thickening of the glomerular basement membrane, mesangial matrix expansion, arteriolar hyalinosis and insudative proteinaceous deposits occluding some capillary, which might be caused by diabetic nephropathy.

Four week treatment with prostacyclin (p.o.) at dose of 0.1 mg/kg/b.w./daily or enalapril (p.o.) at dose of 5 mg/kg/b.w./daily in STZ-DM rats resulted in significant reduction of endoethelin-1 plasma concentrations and improved signs and symptoms of diabetic nephropathy with improvement in the microscopic changes.

In STZ-DM rats, increased ET-1 levels were associated with increased of urinary proteins, albumins and NAG levels and serum levels of urea and creatinine, and these levels were decreased by PGI_2 or enalapril.

The findings obtained have confirmed that endothelin-1 may play an important role in development and progression of diabetic nephropathy and ACE inhibitors, enalapril, and PGI_2 may alleviate and delay the progression of diabetic nephropathy. Comparative statistical analyses didn't show any significant differences between the treated groups (STZ+ENA vs. STZ+PGI_2) in reduction of ET-1 concentration and improvement of signs and symptoms of diabetic nephropathy.

Key words: *endothelin-1, streptozocin, enalapril, prostacyclin, ET-1, diabetic nephropathy, rats.*

Defended: December 29, 2008.

Mentor: Prof. Dr. Stojmir Petrov

Biljana Crcareva. Scintigraphic evaluation of the experimentally caused infection and inflammations [MSc thesis]. ***Skopje, Republic of Macedonia: Institute for Pathophisiology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

The long term use of well-established radiopharmaceuticals for visualization of infection and inflammation was a motive to initiate an experimental study in which we wanted to take an advantage of the well-known radiopharmaceutical ^{99m}Tc hIgG, previously not used at our clinic. Additional motive was the necessity of a pharmaceutical, which can potentially have a clinical application in the everyday use in the fields of infection and inflammation. We have established experimental model of infection and inflammation in which bacteria were injected in one group and collagen was injected in the other experimental group of rats. After the inflammatory changes occurred, a scintographic evaluation with ^{99m}Tc hIgG was performed. The results demonstrated, that ^{99m}Tc hIgG has an excellent sensitivity as a radiopharmaceutical, correlating with the results from the literature. With the use of ^{99m}Tc hIgG we got a new diagnostic procedure, which we hope will have valuable contribution in the everyday clinical practice.

Key words: *Not available.*

Defended: December 30, 2008.

Mentor: Not available.

Emilija Atansovska. The effects of agonists to peroxisome-proliferator activated recptors (PPAR)

in an animal model of the metabolic syndrome [MSc thesis]. ***Skopje, Republic of Macedonia: Institute for Farmacology, Faculty of Medicine, University "Ss Kiril and Metodij"; 2008.***

The increased prevalence of the metabolic syndrome calls for development of therapeutic strategies directed to the set of metabolic impairments that constitute this syndrome. The central place of the insulin resistance and abdominal obesity, as well as the possible role of hypoadiponectinemia in the development of the metabolic syndrome suggest that the use of peroxisome-proliferator activated receptor (PPAR) agonists could offer an efficient treatment of the metabolic syndrome as a whole. The aim of this study was to evaluate the effects of fenofibrate (PPAR-alpha agonist), rosiglitazone (PPAR-gamma agonist) and their combination on metabolic parameters and adipose tissue distribution in an animal model of the metabolic syndrome.

Metabolic syndrome was induced in 64 male Wistar rats by adding a fructose in drinking water (10% solution) for 12 weeks. During the last 4 weeks, 16 rats were treated with fenofibrate (100 mg/kg/day), 16 were administered rosiglitazone (5 mg/kg/day), and 16 were treated with fenofibrate + rosiglitazone, while the remaining 16 did not receive any medication (fructose group). Another control group of 16 rats consumed standard rat chow and water for 12 weeks.

Chronic fructose administration induced a significant increase in systolic blood pressure (SBP), serum triglycerides (TG), free fatty acids (FFA), insulin, plasma glucose, AUC0-120 (during oral glucose tolerance test-OGTT), but decreased serum adiponectin and HDL concentrations compared with the control group.

Treatment with rosiglitazone over the final 4 weeks caused a significant improvement of the metabolic profile, as assessed by reduction of: SBP, serum TG, FFA, insulin, AUC0-120, plasma glucose and index of insulin resistance HOMA, but without significant changes in serum HDL concentrations. Rosiglitazone induced a significant (twofold) increase of serum adiponectin concentrations. A correlation between adiponectin levels and the components of the metabolic syndrome was established, thus suggesting that the regulation of synthesis of this adipocytokine plays an important role in the mechanism of action of PPAR-gamma agonists. Rosiglitazone promoted weight gain, but induced a body fat redistribution from visceral (perirenal+epididymal) towards subcutaneous depots, that additionally contributes to the improvement of the insulin sensitivity during PPAR-gamma activation.

Treatment with fenofibrate significantly reduced serum TG, FFA and increased HDL. Additionally, fenofibrate improved the insulin sensitivity, as assessed by a decrease of serum insulin concentration, AUC0-120 and a reduction of the HOMA index, but with no significant changes in plasma glucose, serum adiponectin, and SBP compared with the fructose group. Fenofibrate significantly decreased the body weight, which was accompanied by a reduction of the weight of all measured fat pads, that beside its well established hypolypidemic effects, probably plays a role in the detected reduction of the insulin resistance and the improvement of the metabolic syndrome.

The combined treatment with rosiglitazione and fenofibrate united the beneficial effects of PPAR-alpha and –gamma activation and caused a most significant improvement of the metabolic syndrome parameters compared with the monotherapy with either of these agents. Additionally, the combined treatment with rosiglitazione and fenofibrate succeeded to attenuate the effects of increased body weight gain that was registered during monotherapy with the PPAr-gamma agonist and reduced the weight of all fat pads. Additional studies are needed for a complete elucidation of the role and importance of the PPAR agonists as potential molecular targets for the treatment of the metabolic syndrome and its consequences.

Key words: *rosiglitazione, fenofibrate, PPAR, adiponectin, metabolic syndrome, insulin resistance, fructose.*

Defended: December 31, 2008.

Mentor: Doc. Dr. Nikola Labachevski.