

Macedonian Medical Master of Science Theses Defended in 2011

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Institute of Immunobiology and Human Genetics, Faculty of Medicine, Ss Cyril and Methodius University Skopje, Republic of Macedonia

Abstract

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Key words: Medical Publications; Medical research; Master of Sciences; Republic of Macedonia.

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Svetlana Madjunkova. Genetic predisposition for unsuccessful pregnancies [MSc thesis]. Skopje, Republic of Macedonia: Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

Spontaneous abortion (SA) is the most common pathology in obstetrics with incidence of 10-15% of clinically recognized pregnancies. Their occurrence in three consecutive pregnancies is defined as recurrent

We present English abstracts of MSc theses defended in 2011 at the Faculty of Medicine, Ss Cyril and Methodius University of 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, Republic of Macedonia.

At the Faculty of Medicine in Skopje twenty three (23) MSc theses were defended in 2011, eleven (11) MSc are without abstracts (47.8%) and eleven (11) MSc are without Key words (47.8%). Two MSc are not deposited in the Central Medical Library (Kristina Pavlovska, Defended: November 04, 2011 and Igor Kostov, Defended: November 16, 2011) and should be treated as none legally defended MSc. Editorial Board does not take any responsibility either for the content, nor the quality of the abstracts.

We conclude that the qualities of the Master of Sciences theses defended in 2011 at the Medical Faculty, Ss Cyril and Methodius University of Skopje, Republic of Macedonia are drastically lower than in the previous year.

SA with incidence of 0.5-3% in women trying to conceive. The etiology is diverse (uterine abnormalities, autoimmune, infections, endocrine, and genetic factors) but the major part of it (50-60%) remains idiopathic. Recent studies raise debates over several genetic factors that might be implicated in etiology of this important clinical problem.

The aims of this MSc thesis are 1) to investigate the

association of thrombophilic mutations in thrombophilic and folate related genes (Factor V Leiden (G1691A), Factor V H1299R, Factor II G20210A, Factor XIII V34L, PAI-I -675 5G/4G, FG-â -455G/A, MTHFR C677T, MTHFR A1298C, MTR A2756G, and MTRR A66G) with SA, 2) to study the association of the two MTHFR mutations (C677T and A1298C) with the risk of having a child with chromosomal aneuploidy, 3) to study the usefulness of the quantitative fluorescent (QF)-PCR method for detection of chromosomal aneuploidies in specimens from aborted tissue, 4) to determine the prevalence of chromosomal aneuploidies as a cause of SA, 5) to determine the parental origin of the extra chromosome in aneuploidies, 6) to determine the role of skewed X chromosome inactivation in etiology of SA and 7) to examine the prevalence of rearrangements in the AZFc region of the Y chromosome in the male partners and their association with SA.

A total of 244 women with SA (45 of Macedonian, 60 of Albanian and 139 of Slovenian ethnicity), 228 male partners, 73 matched controls, 47 women with child/fetus with chromosomal aneuploidy, 26 miscarried conspectuses and 38 couples with child/fetus with chromosomal aneuploidy were analyzed. Methodology included multiplex SNaPshot, multiplex QF-PCR, DNA sequencing and MLPA analyses. The distribution of investigated mutations in thrombophilia and folate related genes didn't show statistically significant difference but there was a trend showing higher frequency of Factor V H1299R, Factor II G20210A, PAI-I -675 5G/4G, FG-â -455G/A and MTR A2756G mutations in patients in comparison with the controls. Furthermore, this study did not confirm the suggested association of the two MTHFR mutations (C677T and A1298C) with the risk of having a child with chromosomal aneuploidy. Triploidy was the most common chromosomal abnormality in samples from aborted fetuses followed by trisomy 21 and monosomy of X chromosome. The origin of the extra chromosome was maternal in trisomic cases, paternal in cases with sex chromosome aneuploidy and in majority of triploidic cases (3/4).

In conclusion, the results of this thesis showed that QF-PCR analysis is a fast, inexpensive and accurate method for the detection of chromosomal abnormalities in material from aborted fetuses and for determination of paternal origin of the extra chromosome. They showed no statistical significance in association of thrombophilic mutations in thrombophilic and folate related genes, X inactivation patterns and AZFc rearrangements with SA as independent risk factors.

Key words: Not available.

Defended: March 28, 2011

Mentor: Not available

Gordana Taleska. Impact of one-lung ventilation on the size of intrapulmonary shunt at different anesthetic techniques [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Anesthesiology, Resuscitation and Intensive Care, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

Background and Goal of Study: The most favorable anesthetic technique for patients undergoing thoracotomy / thoracoscopy with one lung ventilation (OLV) has not been yet certainly established. The effect of intraoperative thoracic epidural anesthesia (TEA) with local anesthetics on hypoxic pulmonary vasoconstriction (HPV) and oxygenation during thoracic surgery and OLV still remains unclear. The aim of this study was to assess the venous admixture (shunt) during general anesthesia (GA) and OLV, in combination of TEA and GA with OLV, as well as to compare the values of the shunt obtained for the duration of both anesthetic techniques.

Material and Methods: In this prospective randomized clinical study sixty patients who had prolonged period of OLV for elective thoracic surgery were randomly allocated into two groups (n=30 each). In 30 patients (GA group), fentanyl/propofol/rocuronium anesthesia was used. Another 30 patients (TEA group) were anesthetized with fentanyl/propofol/rocuronium plus epidural thoracic bupivacaine 0.25%, 6-8 ml/h. A double-lumen endobronchial tube was inserted, and mechanical ventilation with 50% oxygen in air was used during the entire study. Arterial blood gases were recorded in a lateral decubitus position with two-long ventilation, at the beginning of OLV (OLV 0) and 10 and 30 min. (OLV 10, OLV 30, respectively) after initiating OLV in all patients. The monitoring was standard. Arterial oxygenation (PaO₂), arterial oxygen saturation (SaO₂) and venous admixture percentage (Qs/Qt %) were measured. For the purpose of this study, the quantitative value of Qs/Qt% was mathematically calculated by the blood gas analyzer AVL Compact 3. A p value 0.05 was taken to be statistically significant.

Results: When OLV was instituted arterial oxygenation decreased, whereas Qs/Qt increased, about 10 min. of the commencement, with improving of the oxygenation approximately half an hour afterwards. Statistically

significant difference ($p = 0.05$) occurred inside the groups regarding PaO_2 , SaO_2 and Qs/Qt in the different measuring. There were no statistically significant differences ($p.0,05$) between the two groups for PaO_2 at OLV 10 ($\text{GA}=13,75 \pm 5,84\text{kPa}$, $\text{TEA}=11,87 \pm 4,95\text{kPa}$) and OLV 30 ($\text{GA}= 15,66 \pm 6,62 \text{ kPa}$, $\text{TEA}=14,88 \pm 4,45\text{kPa}$); for SaO_2 at OLV 10($\text{GA}=93,52 \pm 6,03\%$, $\text{TEA}=92,92 \pm 5,2\%$) and OLV 30 ($\text{GA}=95,31 \pm 4,62\%$, $\text{TEA}=95,89 \pm 3,78\%$) and with values of Qs/Qt at OLV 10 ($\text{GA}=8,03 \pm 10,59\%$, $\text{TEA}=10,93 \pm 10,80\%$) and OLV 30 ($\text{GA}=3,94 \pm 6,21\%$, $\text{TEA}=4,8 \pm 7,58\%$).

Conclusions: Hypoxia during OLV with increase of Qs/Qt usually occurs after 10 min. of its initiation, for the period of general anesthesia, as well as combined general and thoracic epidural anesthesia. Following 30 min. of the beginning of OLV, the values of the Qs/Qt regularly decrease back to the normal quantities. both techniques, general anesthesia and general anesthesia combined with TEA are suitable for thoracic surgery when OLV is used, considering arterial oxygenation. There was no significant difference in PaO_2 and Qs/Qt during each administration.

Key words: *one-lung ventilation, thoracic surgery, venous admixture.*

Defended: March 30, 2011.

Mentor: Prof. Dr. Trajanka Trajkovska.

Valerija Kirova Uroshevic. Assessment of therapeutic effects of corticosteroids in treatment of mumps orchiepididimitis [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Infectious Diseases and Febrile Conditions, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

In an open, randomized, controlled study carried out at the Clinic of Infectious Diseases and febrile Conditions in Skopje, the therapeutic efficiency has been compared of two anti-inflammatory medications in treatment of Mumps orchiepididimitis during the Mumps Outbreak (November 2008- December 2009). In this study 70 patients with Mumps orchiepididimitis were processed, divided in two groups. Patients in the first group received Prednisolone 60 mg/24 for six day course (by reducing the dose), and the second group received Ketoprofen 300mg/24 for six days. The median age among the patients in both groups was almost equal, 22,43 in the first versus 21,45 in the second group. Bilateral orchitis was presented in 6 patients (8,55%). Data on testicular size during the

hospital stay in four measurements showed no significant evidence between the two groups. During the follow up, an ultrasound of testicles has been performed. The statistical evidence has not been found of ultrasound findings among the two group ($z=0,528$, $p=0,5971$). The values of FSH were determined after the third month of the acute illness. Although slightly elevated values were determined in 35% of the patients, the statistical evidence has not been registered between the two groups ($p=0,9528$). The results suggest that both treatment are equally efficient in treatment of Mumps orchiepididimitis.

Key words: *Mumps; orchiepididimitis; outbreak; treatment; outcome; FSH; ultrasound.*

Defended: April 05, 2011.

Mentor: Prof. Dr. Zvonko Milenkovic.

Valentina Velkovska Nakova. Influence of subclinical hyperteroidism on some atherosclerotic risk factors [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Endocrinology, Diabetes and Metabolic Disorders, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

Objective: Overt hypothyroidism is associated with atherosclerosis. The effect of subclinical hypothyroidism (SCH) on atherosclerotic risk factors is controversy. The aim of this study was to assess whether SCH, especially mild from, is associated with adequate clinical manifestation, dyslipidaemia arterial hypertension, carotid lesions, and changes in thyroid echogenicity on ultrasound.

Material and Methods: At the Department of Endocrinology Diabetes and Metabolic Disorders, Skopje, R. Macedonia, we examined 69 consecutive patients with SCH and 30 healthy controls in a period from 01.09.2008 to 01.08.2010. SCH was defined as an elevated thyrotropin ($4,2 < \text{TSH} < 20,0 \text{ m U/l}$) and normal free thyroxine (fT4) level ($10,3-24,45 \text{ pmol/l}$). None of the patients had been previously treated with thyroxine or antihypertensive therapy. In all participants we offered health related questionnaire and determined body mass index (BMI), TSH, fT4, antibodies to thyroid peroxidase (TPOabs), total lipids, total cholesterol, high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), triglycerides, blood pressure, pulse, thyroid ultrasound, mean and maximal carotid intimamedia thickness (kIMT and max kIMT). SCH group we divided in two groups according to TSH values, under

and above 10,0mU/l.

Results: SCH patients were significantly different from their matched controls in prevalence of clinical manifestations, thyroid hypoechogenicity, TPOabs, mean values of triglycerides, total cholesterol/HDL-C ratio, and kIMT (27% vs. 11%, 66,7% vs. 11,1%, 68,3% vs. 12,5%, 1,70 vs. 1,18mmol/l, 4,44 vs. 3,76, 0,61 vs. 0,56mm, respectively, in all cases $p < 0,05$). Individual analysis revealed that percentages of patients with SCH having arterial hypertension (35,4), hypertriglyceridaemia (33,8%), elevated total cholesterol/HDL-C (23,7%), LDL-C/HDL-C (28,8%) ratios, and carotid plaques (10,1%) were higher than the percentages in controls. Also, mean values of triglycerides and total cholesterol/HDL-C ratio (1,8 vs. 1,18mmol/l, 4,58 vs. 3,76, respectively, $p < 0,05$) and percentages of patients having arterial hypertension (33,9%), hypertriglyceridaemia (33,9%), elevated total cholesterol/HDL-C (26,5%), LDL-C/HDL-C (30,6%) ratios were increased in mild form of SCH compared to controls. No significant differences in analyzed variables were noted between TPOabs positive and negative patients. TSH positively correlated with kIMT, whereas fT4 negatively correlated with kIMT and max kIMT. Linear multiple regression analysis demonstrated that diastolic blood pressure and triglycerides were independent predictors for kIMT, whereas fT4 for max kIMT.

Conclusion: SCH is associated with hypertriglyceridaemia, elevated total cholesterol/HDL-C ratio, increase in kIMT, and decreased echogenicity. Also mild SCH from is associated with hypertriglyceridaemia and elevated total cholesterol/HDL-c ratio. Finally, SCH have direct effects on kIMT independently of classical risk factors for atherosclerosis. The presence of thyroid autoimmunity does not influence on atherosclerotic risk factors. SCH is associated with clinical manifestations for hypothyroidism and TSH above 7mU/l should be cut-off value for hormone treatment.

Key words: *subclinical hypothyroidism; atherosclerosis; dyslipidaemia; arterial hypertension; carotid intima-media thickness; ultrasound echogenicity.*

Defended: April 04, 2011.

Mentor: Not available.

Kalina Gjorgjievska. Antihypertensive effect of aliskiren, a new rennin inhibitor compared with ACE inhibitor and angiotensin II receptor blocker in

different experimental hypertension models in rats [MSc thesis]. Skopje, Republic of Macedonia: Institute of Preclinical and Clinical Pharmacology with Toxicology, Faculty of Medicine, University "SSs Cyril and Methodius"; 2011.

Use of drugs that inhibit the rennin-angiotensin system is an effective way to intervene in the pathogenesis of cardiovascular and renal disorders. The idea of blocking the rennin system at its origin by inhibition of rennin has existed for more 30 years. At present, a new generation of rennin inhibitors is available with its first representative aliskiren as a non-peptide orally active rennin inhibitor approved for treatment of hypertension. The aims of this study were to compare the antihypertensive effect of aliskiren to the already available therapeutic options for treatment of hypertension: ACE inhibitors (enalapril) and angiotensin-receptor blockers (valsartan) in different experimental hypertension models; to explain the effect of aliskiren, enalapril and valsartan on the RAAS in spontaneously hypertensive and renal hypertensive rats and to evaluate the possible protective effect on the hypertensive changes of the aorta, hearth and kidneys. The obtained results have show that aliskiren significantly decreases blood pressure when administered in SHR and RHR rats in a period of 4 weeks. The antihypertensive effect of aliskiren in SHR and RHR is accompanied by decrease of PRA and Ang II compared to the control group of rats and insignificantly decrease of diuresis. In addition a certain morphological changes in the renal arteriolar vessels were noted. The antihypertensive effects of aliskiren in RHR is accompanied by decrease of albuminuria. Compared to the effects of enalapril and valsartan, in our study, in a treatment period of 4 weeks, aliskiren has a minor effect on blood pressure, RAAS, decrease of albuminuria, diuresis and pathomorphological changes of aorta, hearth and kidneys.

Key words: *aliskiren; RAAS; enalapril; valsartan; blood pressure; PRA; Ang II; albuminuria; SHR; RHR.*

Defended: April 06, 2011.

Mentor: Not available.

Vanja Djambazova Trajkovska. Blood loss during suprapubic prostatectomy in patients conducted in spinal versus general anesthesia [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Anesthesiology, Resuscitation and Intensive Care, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

Subject: Comparison of intra operative blood loss during suprapubic prostatectomy in patients conducted in spinal versus general anesthesia. Analysis of transfusion needs and speed of recovery in both group of patients.

Patients and methods: The study included 60 patients, men with ASA status 2 during suprapubic (open) prostatectomy because of benign prostate hyperplasia. Patients were divided in two groups: Group 1, N=30 patients conducted in general anesthesia, and Group 2, N=30 patients conducted in spinal anesthesia. The following parameters were analyzed: changes in laboratory (hemoglobin and hematocrit pre-and post-operatively), intraoperative blood loss (volume of liquid in the aspirator that removes the volume of physiological solution used for rinsing and the weight difference of used innocent measured preoperatively) and perioperative need for blood derivatives. Compared and analyzed and clinical parameters (MAP, HR, SaO₂) and speed of recovery through: first mobilization, the first bowel passage and days of hospitalization.

Results: No statistically significant difference between demographic data and laboratory values in two groups. Reduction in blood test is greater in patients in general anesthesia guided ($p < 0,05$). Intraoperative blood loss in spinal patients is $848,33 \pm 125,59$ ml, and in general $1054,00 \pm 171,49$ ml. During the operation conducted in OA, patients received $420,00 \pm 142,39$ ml of blood, and SA $163,33 \pm 177,59$ ml blood. Group 1 (OA) received the first bowel passage $4,20 \pm 0,85$ day, and group 2 (SA) $2,87 \pm 0,63$ day. Patients in Group 1 became mobilized $2,67 \pm 0,48$ day, Group 2 $2,17 \pm 0,38$ day. The patients in group 1 were hospitalized for $7,90 \pm 0,66$ days, and patients in group 2 were hospitalized for $7,27 \pm 0,45$ days.

Conclusions: Anesthesia of choice for suprapubic prostatectomy is spinal anesthesia. Patients guided in spinal anesthesia have smaller intra-operative blood loss, less reduction in blood picture and smaller need for blood products. Recovery (first bowel passage, first mobilization and duration of hospitalization) was faster in patients conducted in spinal anesthesia. There is no statistically significant difference between the volume of fluids that embraced both groups of patients during surgery.

Key words: *spinal anesthesia; general anesthesia blood loss; open prostatectomy.*

Defended: April 08, 2011.

Mentor: Prof. Dr. Jordan Nojkov.

Marina Temelkovska Stevanovska. Comparison the "3 - in - 1" block and fascia iliaca compartment block versus the systemic analgesia in patients with hip fracture [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Anesthesiology, Resuscitation and Intensive Care, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

Background: Patients with hip fracture are usually older than age of 65 years. They need early mobilization in postoperative period. That's why they need efficient postoperative analgesia. The systemic postoperative analgesia is most common used. In most of cases this kind of analgesia is insufficient. Peripheral nerve blocks are most efficient and surgically depending most specific option for postoperative analgesia.

Goal: The aim of this study was to compare the effect of continuous "3 - in - 1" versus single fascia iliaca compartment block, as a postoperative analgesia and to compare the methods with the systemic analgesia in elderly patients with hip fracture.

Methods: Ninety patients with hip fracture older than 65 years were included and were randomly assigned to three groups of 30 patients, depending of type of postoperative analgesia: SA group - the patients received systemic analgesia (niflam and tramadol respectively) according to pain intensity: "3 - in - 1" group - postoperatively catheter was placed in patient's femoral region, in order to receive 20 bupivacaine 0,25% and afterwards continuously 0,25% bupivacaine, 0,1ml/kg/h, in the next 48 hours; and FIC group - the patients received a fascia iliaca compartment block with 0,25% bupivacaine 0,5ml/kg. In all patients pain intensity was measured in rest and passive leg movement by using VDS (0 - 4) in few intervals: 1, 2, 12, 24, 36, and 48 hours after pain intervention. The amount of supplemental analgesia was measured, and also the time when the patient needed it for first time. Sensory and motor block were registered in "3 - in - 1" and FIC groups in the same intervals. Subjective patient's impression for quality of analgesia as well as the side effects were measured.

Results: This study showed that values of VDS are significantly lower in patients with "3 - in - 1" and fascia iliaca compartment block in rest and movement in all periods, versus patients with systemic analgesia for $p < 0,05$, except at first postoperative hour. Patients with both of peripheral blocks for lower extremity, received significantly lower amount of supplemental analgesia, versus SA group ($p < 0,05$). Investigation of sensory block showed efficient block performing in "3 - in - 1" and

FIC group, while the leg's movement motor block was negative in both groups. Patients from the "3 - in - 1" and FIC group in higher percent evaluated the quality of the analgesia as excellent and good, versus patients from SA group. Side effect that were registered were nausea, dizziness and sedation, statistically significantly more frequent in SA group and sedation in FIC group for $p < 0,05$.

Conclusion: Pain relief in postoperative period is superior all the time and at rest and movement in both types of peripheral nerve blockades for lower limb versus systemic analgesia after operative treatment of hip fracture.

Key words: *postoperative analgesia; regional anesthesia; "3 - in - 1"; fascia iliaca compartment block; femoral nerve hip fracture.*

Defended: June 06, 2011.

Mentor: Prof. Dr. Marija Sholjakova.

Simon Trpeski. Impact of the general health condition on the treatment and survival in elderly patients with fractures on the proximal end of the femur [MSc thesis]. *Skopje, Republic of Macedonia: University Clinic of Traumatology, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

Abstract not available.

Key words: Not available.

Defended: June 7, 2011.

Mentor: Prof. Dr. Igor Kaftandziev.

Ilber Jani. Impact of type 2 diabetes and gender of the patients on the occurrence of subclinical left ventricular diastolic dysfunction of the heart [MSc thesis]. *Skopje, Republic of Macedonia: Institute of Heart Diseases, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

Abstract not available.

Key words: Not available.

Defended: June 7, 2011.

Mentor: Not available.

Venko Filipche. Quantitative and qualitative analysis

of the surgical workspace obtained by endoscope versus the microscope in different approaches to the complex of anterior communicating and basilar artery using frameless stereotaxis: cadaveric study [MSc thesis]. *Skopje, Republic of Macedonia: University Clinic of Neurosurgery, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

Abstract not available.

Key words: Not available.

Defended: June 13, 2011.

Mentor: Prof. Dr. Spase Jovkovski.

Sanja Petrushevska Marinkovic. Diagnostic significance of interleukin-8 and C reactive protein in the differentiation of uncomplicated from complicated parapneumonic effusions [MSc thesis]. *Skopje, Republic of Macedonia: University Clinic of Infectious Diseases and Febrile Conditions, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

Abstract not available.

Key words: Not available.

Defended: June 14, 2011.

Mentor: Not available

Jovana Andonovska. Fluorescent *in situ* hybridization in the detection of human papillomavirus in cervical lesions [MSc thesis]. *Skopje, Republic of Macedonia: University Clinic of Gynecology and Obstetrics, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

There is a consensus that the persistent infection with high risk HPV initiates integration of HPV-DNA into the chromosomal DNA, and is frequently found in cervical cancer, while it is not found in the lower grades of cervical lesions. This integration initiates a continual expression of HPV-oncogenes that are involved in the transformation and immortalization of the infected cells and by that leads to malignant progression of the lesion. The Fluorescent *in situ* hybridization is a molecular method that can be used to determine the physical status of HPV within the infected cell (episomal or integrated).

In the retrospective analysis that was carried on the

results of 7411 patients, we analyzed several associations that show the connection between the infection with HPV and the existence of cervical lesions.

The experimental part of implementing and optimization of the FISH method was first carried on HeLa cells, where it showed clearly the integration of the viral DNA. After that we used the some protocol to detect integration of HPV-DNA in the criosection of 45 harvested and frozen biopsy samples from cervical lesions. The method showed integration in 7 of 10 cases of CIN3/CIS lesions. The strength of the fluorescent signal, as a result of the existence of HPV in episomal form is the strongest in the lower grades of cervical lesions, especially in chronic viral cervicitis and flat condylomas, which can be interpreted with the fact in these types of lesions there is an intense replication and transcription of the viral genome. The results from our study correlate with the results of other such studies in this field.

Key words: HPV; CIN; CIS; integration; episomal form; oncogenes; malignant transformation; cervical lesions; Fluorescent in situ by hybridization (FISH); HeLa cells; frozen biopsy samples; criosections.

Defended: June 15, 2011.

Mentor: Prof. Dr. Sasho Panov.

Nebojsa Nastov. Minimally invasive percutaneous plate osteosynthesis of fractures of the distal tibia [MSc thesis]. Skopje, Republic of Macedonia: Clinical hospital "Sistina/Acibadem" – Skopje; 2011.

Abstract not available.

Key words: Not available.

Defended: June 15, 2011.

Mentor: Prof. Dr. Jordan Saveski.

Dragisha Galeski. Application of two-component fibrinogenic glue from autologous plasma in pilonidal sinus surgery without drainage [MSc thesis]. Skopje, Republic of Macedonia: General hospital "8 Septemvri" Skopje; 2011.

Introduction: A closed method for pilonidal sinus surgery necessarily requires usage of redivac drain in the operated wound. By this article, a successful effort has been made to replace the drain by application of fibrinogenic glue.

Aims: To determine the usefulness and advantages of the methods of fibrinogenetic glue vis a vis method by a redivac drain and its inauguration in practice due to its advantages, absolute security and patients' comfort.

Material and methods: This study is a retrospective and prospective analysis of patients operated on from pilonidal sinus in sacrococcygeal region within the period from 2002 to 2010. All examined patients were divided into two groups, in the former group redivac drain was used during the closure, and in the latter, in which two-component fibrinogenetic glue of autologous plasma was used. A comparison between these two groups was made as to the number of postsurgical days, the appearance of the early postoperative complications and the influence of the antibiotics used.

Results: A total of 172 operated patients, divided into two groups of 86 patients each (examined with fibrinogenic glue and controlled by redivac drain). In the group with fibrinogenetic glue the average number of postoperative days was 4,45 days, while in the group with redivac drain it was 8,31 days. In the examined group (with glue) one postoperative complication developed (secondary to operated wound), and in the group with redivac drain 12 complications appeared: 5 seromas, 5 seconds and 2 dehiscences. There were no postoperative complications in the group with fibrinogenic glue and administered antibiotics, while in the group with redivac drain the administration of antibiotics did not influence the decrease of the early postoperative complications.

Conclusion: Application of fibrinogenic glue brings to significantly smaller number of early postoperative complications, reduced number of postoperative days and increase of patients' comfort. Its application has been mostly indicated in relapsing sinuses.

Key words: fibrinogenetic glue; redivac drain.

Defended June 15, 2011.

Mentor: Prof. Dr. Gjorgje Djokic.

Edip Sheji. Screening study on the prevalence of abuse (physical and emotional) in the school population in Struga [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Psychiatry, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

Abstract not available.

Key words: Not available.

Defended: June 21, 2011.

Mentor: Prof. Dr. Antonio Novotni.

Gordana Mirchevska. Evaluation of methods for antifungal susceptibility testing of *Candida* species [MSc thesis]. Skopje, Republic of Macedonia: Institute of Microbiology and Parasitology, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.

During the last decades, a progressive increase in the incidence of serious fungal infections associated with high morbidity and mortality has been registered. Although spectrum of fungi causing serious fungal infections continues to expand, *Candida* species remains responsible for the majority of these cases. Although *Candida albicans* is still the most frequent etiological agent, the participation of non-*Candida albicans* species, known to be less susceptible to antifungal agents, in the etiology of these infections is currently increasing. Therefore, there is a need for susceptibility testing of *Candida* species to antifungal agents, due to reports of emerging resistance, especially during antifungal prophylaxis and treatment. Reference broth microdilution method is still a gold standard for antifungal susceptibility testing of *Candida* species, but from recently many commercially available methods for susceptibility testing, like VITEK-2 method, Etest and disk diffusion method has been developed. The aim of this study was to investigate the frequency and susceptibility profile of different *Candida* species to usual clinically used antifungal agents (fluconazole, itraconazole, voriconazole, amphotericin B and caspofungin) with the reference broth microdilution, VITEK-2, Etest and disk diffusion method, and to compare the sensitivity and specificity of Etest and disk diffusion method, as alternative methods for antifungal susceptibility testing of *Candida* species to antifungal agents compared with the reference and VITEK-2 method. A total of 150 isolates of *Candida* species (60 isolates of *C. albicans* and 90 isolates of non-*albicans Candida* species), from different specimens (respiratory and genital tract specimen, wound swab, blood culture, urine), of outpatients and hospitalized patients at the University Clinics in Skopje have been analyzed. Antifungal susceptibility testing of all 150 isolates was performed with the automated VITEK-2, and 50 isolates, based on their susceptibility profile, were selected and additionally tested with Etest and disk diffusion method. The results

from these test were compared to the results obtained with the reference and VITEK-2 methods. From the total of 150 isolates of *Candida* species tested with the VITEK-2 system, 88.7% (133/150) isolates were susceptible to fluconazole, 4% (6/150) were susceptible dose-dependent, and 7.3% (11/150) were defined as resistant strains. From the total number of analyzed isolates, 97.3% were susceptible to amphotericin B, with MIC_d 1 µg/ml. Resistance to amphotericin B was registered in 4 isolates (2.7%), with MIC 2 µg/ml. Analysis of voriconazole MICs showed there was no resistance to this agent, but in 3 isolates of *C. krusei* (2%), susceptibility dose-dependency was registered, with MIC 2 µg/ml. Susceptibility testing of yeasts to itraconazole with CLSI reference method demonstrated that 84% (42/50) of isolates were susceptible to this agent. Resistance to itraconazole was registered in 16% of isolates (8/50). Among these isolates, 62.5% (5/8) of the fluconazole resistant strains were also resistant to itraconazole. Susceptibility testing of yeasts to caspofungin with CLSI reference method demonstrated that 94% (47/50) of all isolates had susceptible profile. In vitro activity of caspofungin was excellent against all strains of *Candida* species, although 2 isolates of *C. guilliermondii* had MIC of 8 µg/ml, and 1 isolate *C. rugosa* MIC of 4 µg/ml respectively. Although small discrepancies in MIC were detected, the total agreement between CLSI reference and VITEK-2 system was 100% because all results were in the same susceptibility category. The total agreement between Etest and reference method for determination of the susceptibility profile of *Candida* species to the antifungal agents was 86% for itraconazole, 90.48% for fluconazole, 98% for amphotericin B and caspofungin, and 100% for voriconazole. The total agreement between disk diffusion and CLSI reference method for determination of the susceptibility profile of *Candida* species was 90.48% for fluconazole, 97.3% for itraconazole, 98% for amphotericin B and caspofungin, and 100% for voriconazole. VITEK-2 system is the first commercially available system with automated approach which provides optimal standardization of all steps during susceptibility testing of yeasts to antifungal agents. Etest is reproducible method and gives reliable results which correlate well with CLSI reference method. Disk diffusion method is also reproducible and agrees well with the CLSI reference method, and gives results with acceptable degree of accuracy of accuracy, but is not very reliable for differentiation between susceptible and susceptible-dose dependent strains. Our results demonstrate that Etest and disk diffusion method could be good alternative methods for antifungal susceptibility testing of *Candida*

species to antifungal agents in the routine work of microbiological laboratories.

Key words: *Candida species; antifungals; CLSI; VITEK-2; Etest; Disc diffusion.*

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Mentor: Not available.

Sinisha Stojanoski. Noninvasive in vivo and in vitro models for evaluation of glomerular filtration rate in animal experimental model of thyroid dysfunction [MSc thesis]. *Skopje, Republic of Macedonia: Institute of Pathophysiology and Nuclear Medicine, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

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Key words: Not available.

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Kristina Pavlovska. Master of Sciences not deposited in the Central Medical Library. *Skopje, Republic of Macedonia: the Faculty of Medicine, Ss Cyril and Methodius University Skopje; 2011.*

Defended: November 04, 2011.

Redzep Seljmani. Early laparoscopic cholecystectomy in patients with acute cholecystitis [MSc thesis]. *Skopje, Republic of Macedonia: University Clinic of Digestive Surgery, Faculty of Medicine, University "Ss Cyril and Methodius"; 2011.*

Subject: A comparison between the result of early laparoscopic cholecystectomy in patients with acute cholecystitis (from onset of symptoms up to 7th day) and laparoscopic cholecystectomy in patients with chronic cholecystitis; determination of the optimal time for the laparoscopic cholecystectomy in patients with acute cholecystitis (from 0-3 days in comparison with those treated from 4th up to 7th day); and to establish the benefit of early laparoscopic cholecystectomy in patients with acute cholecystitis compared with those treated laparoscopically for chronic cholecystitis.

Materials and methods: In the research 124 patients

were included. The patients were divided in two groups, the research group consists of 62 patients with acute cholecystitis hospitalized at the University Clinic for Digestive Surgery, who underwent laparoscopic cholecystectomy (from 0-7 days) and the control group which consists of 62 patients with chronic cholecystitis who underwent laparoscopic cholecystectomy. The research group is divided in two subgroups, according to the time between the onset of the disease and the intervention; 1) patients operated laparoscopically from 0-3 days and 2) patients operated from 4-7 days. The following parameters were analyzed: operative time, the number of conversions in classic cholecystectomy, the number of revision, postoperative morbidity and mortality, the amount of used analgetics and antibiotics after the intervention, the number of days of hospital stay and financial costs of entire hospital stay.

Results: there is no statistical importance in difference between the length of the laparoscopic cholecystectomy in the research and the control group. For the p.0,05 there is no statistical importance related to the conversion to the classic method between the research (9,7%) and the control (3,2%) group. In subgroup 1 of the research group there was only one conversion. For the p. 0,05 there is no statistical and important difference in postoperative morbidity of the two groups. Statistically significant association has been observed between the postoperative hospital stay and the time of the onset of symptoms until the laparoscopic cholecystectomy. For the p.0,05 there is no statistically significant difference in relation with the amount of used analgetics and antibiotics between the research and control group.

Conclusions: Early laparoscopic cholecystectomy for acute cholecystitis is a safe procedure. There is no statistically significant difference between the outcome of early laparoscopic cholecystectomy in acute cholecystitis and the outcome of laparoscopic cholecystectomy in patients with chronic cholecystitis. The optimal time for early laparoscopic cholecystectomy for acute cholecystitis is at period from 0 to 3 days after the onset of symptoms. Hospital stay in patients from subgroup 1 is shorter than in subgroup 2. There is no statistical significance in conversion rate between the research and the control group.

Key words: *early laparoscopic; cholecystectomy; acute cholecystitis; time of intervention.*

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Mentor: Prof. Dr. Nikola Jankulovski.

Igor Kostov. Master of Sciences not deposited in the Central Medical Library. Skopje, Republic of Macedonia: the Faculty of Medicine, Ss Cyril and Methodius University Skopje; 2011.

Defended: November 16, 2011.

Gabriela Tavchioska. Application of clinical system for prediction of risk for early neonatal mortality in general hospital – Prilep [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Pediatric Diseases, Faculty of Medicine, University “Ss Cyril and Methodius”; 2011.

Early neonatal mortality is a sensitive indicator of the success of the health system in the country. In 2003 National list of risk factors in Republic of Macedonia was developed. In this study we used that list for creating a simple clinical system for prediction of risk for early neonatal mortality in general hospital. Aims of this retrospective study were: to present that trend of early neonatal mortality in Prilep General Hospital from 2003 to 2009; present the most frequent causes for early neonatal mortality in that period; to calculate the relative risk as statistical parameter for each determinant of National list; to carry out information which could be base for further program for improvement of newborn health on local secondary level. Data were collected from medical documentation in department of obstetrics and postnatal department. Of the 7956 live births, 50 newborns died during the early neonatal period. The trend of early neonatal mortality rate declined through the period from 2003 to 2009. The most frequent causes were birth asphyxia (86%) and prematurity (68%). We estimated relative risk of 181,6 for the birth weight ≤ 1500 gr; 56,43 for birth asphyxia; 54,54 for intracranial haemorrhagy; 32,01 for gestational age ≤ 32 gestational weeks; 26,62 for high risk pregnancy; 23,24 for congenital anomalies; 18,03 for gestational age from 33 to 36 gestational weeks; 13,41 for hypotrophy (SGA); 10,47 for neonatal infection and 10,35 for twin pregnancy. The identification of the risk factors for early neonatal mortality make possible establishing the preventive programs on local secondary level for improving the newborn health.

Key words: early neonatal mortality; National list of risk factors; relative risk.

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Mentor: Higher Scientific Collaborator Dr. Elizabeta Zisovska.

Gordana Kamcheva. Influence of the applied therapeutic treatment on early clinical course in patients with acute myocardial infarction with ST-segment elevation in the eastern region of the Republic of Macedonia [MSc thesis]. Skopje, Republic of Macedonia: Institute of Heart Diseases, Faculty of Medicine, University “Ss Cyril and Methodius”; 2011.

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Mentor: Prof. Dr. Sashko Kedev.

Irfan Ahmeti. Screening tests on the foot with risk for ulceration in people with type 2 diabetes mellitus [MSc thesis]. Skopje, Republic of Macedonia: University Clinic of Endocrinology, Diabetes and Metabolic Disorders, Faculty of Medicine, University “Ss Cyril and Methodius”; 2011.

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Mentor: Prof. Dr. Milcho Bogoev.