


University of Niš Faculty of Medicine	Study program: INTEGRATED ACADEMIC STUDIES OF MEDICINE <i>ACCREDITATION 2018</i>		
Course: Pathology			
Course head: prof. dr Maja Jovičić Milentijević			
Course status:	Required		
Semester: V, VI	Study year: III		
ECTS: 17	Course code: M-III-16		
Course purpose:			
<p>The course purpose is that students acquire knowledge of morphological changes, i.e. structural damage to the cells, tissues and organs, as well as the ability to associate them with causes and mechanisms of their development and consequences, which is a necessary prerequisite for the understanding of the essence of pathological processes and human diseases.</p>			
<p>Purpose of general pathology (ability to perform or knowledge of):</p>			
<ul style="list-style-type: none"> ▪ structural-functional changes in an adapted cell, reversible and irreversible cell damage; damage and death of cell as the most fundamental process in disease development; ▪ morphology of inflammation and reparation of tissue, hemodynamic disorders, immune system disorders, genetic disorders and pathological processes caused by infectious agents, environmental factors and diet factors, their histogenesis and morphogenesis, enabling better understanding of pathological processes and vital processes of renewal of dead or damaged cells and tissues; ▪ macroscopic and microscopic structure of tumors (neoplasms) of various histogenesis, molecular basis of tumors and multiphase carcinogenesis and clinical characteristics of tumors. 			
<p>Purpose of special pathology (ability to perform or knowledge of):</p>			
<ul style="list-style-type: none"> ▪ macroscopic and microscopic characteristics of specific pathological processes as the basis of diseases of organs and systems, starting from congenital, through degenerative, inflammatory, immunological, to neoplastic processes; interpretation of association of morphology and function and clinical-pathological correlations; ▪ independent microscopic analysis of pathological changes in tissues and organs and macroscopic analysis and macroscopic analysis of pathological processes as the basis of organ and system diseases, from cardiovascular to CNS; interpretation and diagnosis of pathological processes and clinical-pathological correlations; ▪ principles of diagnostic methods in pathology and principles of team work in adequate diagnosis, as an essential prerequisite for effective therapy, course and prevention of disease. 			
Course outcome (knowledge, skills, attitudes)			
<p>After the exam in general and special pathology, as a link between and an integral part of basic and clinical courses, students will have the understanding of pathologic basis of diseases, i.e. understanding of the essence of pathological processes in human diseases, being able to successfully attend and pass all clinical courses, starting from internal medicine to special surgery and oncology.</p>			
Number of classes of active teaching: 240			
Lectures: 120	Practice: 90	OFT: 30	
Course content			
<p><i>Theoretical teaching</i></p> <p>General pathology: Cellular adaptations. Reversible cell damage. Necrosis. Apoptosis. Aging of the cell. Intracellular accumulations. Hyaline change. Pathological calcification. Calculosis. Acute inflammation: vascular disorders, cellular events, chemical mediators, morphological types and outcome of acute inflammation. Chronic inflammation. Granulomatous inflammation. Systemic effects of inflammation. Regeneration. Connective tissue reparation (fibrosis). Wound healing. Edema. Hyperemia and congestion. Hemorrhages. Hemostasis and thrombosis. Disseminated intravascular coagulation. Embolism. Infarction. Shock. Characteristics of the immune system. Hypersensitivity reactions type I, II, III and IV. Autoimmune diseases. Primary immunodeficiencies, acute immune deficiency syndrome (AIDS). Transplant rejection. Amyloidosis. Tumors (neoplasms): definition and classification. Biology of tumor growth. Epidemiology.</p>			

Molecular background of tumors and multiphase carcinogenesis. Carcinogenic agents. Host defense – tumor immunity. Clinical characteristics of tumors. Diseases caused by environmental factors. Nutritive diseases. Infectious diseases. Molecular background of genetic disorders. Diseases of newborns and children.

Special pathology: diseases of the cardiovascular system, respiratory system, hematopoietic and lymphoid system, head and neck, senses, gastrointestinal tract, liver, and biliary tract, pancreas (exocrine and endocrine), kidneys, urinary tract, male genital system, female genital system, breast, endocrine system, skin, bones and joints, peripheral nerves, skeletal muscles, CNS; soft tissue tumors.

Practical teaching

Atrophy. Hypertrophy. Hyperplasia. Metaplasia. Vacuolar and hydropic degeneration. Steatosis. Necrosis (coagulation, caseous, colliquatous, steatonecrosis, gangrena). Hyaline change (causes, mechanisms and characteristics of intracellular hyaline deposition and extracellular hyalinisation). Anthrax anthraxosilicosis. Pathology of endogenous pigments (melanin, hemosiderin, bilirubin). Pathological calcification. Calculi. Terminology and classification of inflammation. Fibrinous inflammation. Purulent inflammation. Abscessus. Phlegmona. Ulcerous inflammation. Tuberculosis. Processes of tissue reparation. Organ congestion. Hemorrhages in the brain and other organs. Thrombosis and thromboembolism. Types of thrombi: cardiac, arterial, venous, capillary (morphology and significance). Characteristics of tumors of various histogenetic origin. Microscopic and macroscopic characteristics of benign and malignant tumors of various organs and systems (histopathologic diagnosis and clinical significance). Morphology of the lesions caused by immune complex deposition and other immune mechanisms. Amyloidosis. Examples of chromosomal aberrations, single gene and multifactorial diseases and congenital anomalies (clinical relevance). Pathologic processes of the cardiovascular, respiratory, hematopoietic, and lymphoid system, mouth cavity, and salivary glands, gastrointestinal tract, hepatobiliary system, exocrine pancreas, urinary and genital system, breast, endocrine system, skin, skeletal system, CNS, soft tissue tumors (analysis, presentation, interpretation, clinical-pathological correlation and relevance).

3. OFT	
1.	CV system pathology
2.	Pathology of the respiratory system
3.	Pathology of the digestive system
4.	Pathology of the female genital tract and breast
5.	Pathology of the urinary system and male genital system
6.	Pathology of the peripheral and central nervous system, bones and muscles

Recommended literature:

1. Kutlešić Č (ur.). Patologija, Niš 2010.
2. Katić V, Kutlešić Č, Stojanović D. Opšta patologija, Prosveta Niš 1997.
3. Atanacković M, Bacetić D, Basta-Jovanović G i sar. Patologija, Medicinski fakultet Univerziteta u Beogradu, Libri Medicorum, Beograd, 2003.
4. Mihailović D. Praktikum patohistoloških vežbi. Med. fakultet Niš, 1993.
5. Mihailović D, Stojanović D. Osnovi pedijatrijske patologije. Medicinski fakultet Univerziteta u Nišu, Prosveta, Niš, prvo izdanje, 2003.
6. Janković Veličković Lj, Živković V, Đorđević B, Milentijević M. Makroskopski prikazi patoloških procesa. Med. fakultet Sven Niš, 2005.
7. Kumar V, Abbas AK, Aster JC. Robbins and Cotran Pathologic Basis of Disease. 15th ed, Elsevier Saunders, Philadelphia, 2015.

Teaching methods:

- Interactive theoretical and practical teaching
- Consultations
- Seminar papers

Required previously passed exams:

Physiology

Grade (max. 100 points)

Pre-exam obligations

- Activity at lecture classes: 0 – 10 points
- Practice: 0 – 10 points
- Seminar papers: 0 – 10 points
- Test: 0 – 10 points
- Practical exam: 0 – 10 points

Final exam

- Oral exam: 0 – 50 points