

SUBJECT CARD

Faculty of Medicine and Health Sciences

Field of studies: Medicine

Form of studies: Full-time

Degree: long-cycle Master's program

Specializations: No specialization

Academic year: 2023/2024

ORGAN PATHOLOGY	
SUBJECT	Organ pathology
NUMBER OF ECTS POINTS	8
LANGUAGE OF INSTRUCTION	English
TEACHER(S)	Professor Antoni Stadnicki, MD, PhD Assoc. Professor Piotr Kopiński, MD, PhD Assoc. Professor Katarzyna Taran, MD, PhD Assoc. Professor Ewa Wypasek, MD, PhD Grzegorz Królczyk, MD, PhD Anna Krzentowska-Korek, MD, PhD Tomasz Senderek, MD, PhD Katarzyna Gąsior, MD
PERSON RESPONSIBLE	Assoc. Professor Piotr Kopiński, MD, PhD
NUMBER OF HOURS	
LECTURES	30 h
CLASSES (TUTORIALS)	32 h
SEMINARS (CONVERSATORIES)	33 h
GENERAL OBJECTIVES	
OBJECTIVE 1	Familiarisation with the etiology, pathogenesis, morphological and functional changes as the basic aspects of diseases of the circulatory, respiratory, digestive, urinary, female and male genital systems, the nervous system and endocrine, coagulation and immunological disorders.
OBJECTIVE 2	Acquainting with the ability to assess integrated pathological processes in specific illness entities - including the range of regulatory, defense and regenerative mechanisms of the body. Student takes into account the genetic basis of diseases.
OBJECTIVE 3	Learning the etiopathogenesis and morphology of tumors, with the morphological images determining therapeutic decisions and prognosis. Getting to know the indications and matters of proper cooperation between the clinician and pathologist.

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LEARNING OUTCOMES	
MK1	Knowledge: Student knows the issues of detailed organ pathology, macro- and microscopic images and the clinical course of pathological changes in specific organs. Student understands the pathological mechanisms of the disease.
MK2	Knowledge: Student describes the consequences of developing pathological changes for topographically adjacent organs.
MK3	Knowledge: Student knows the typical sets of symptoms present with disorders, including insufficiency of individual organs; describes how one organ disorder affects the malfunction of others.
MS1	Skills: Student justifies environmental threats to the development of diseases in specific tissues and organs. Student justifies pathogenic changes in tissues and organs in the course of basic disease entities.
MS2	Skills: Student justifies the correlation of clinical symptoms of the disease with the history and results of laboratory tests. Student generalizes the importance of defense and adaptive reactions as well as altered regulation of exogenous and endogenous pathogenic factors.
MS3	Skills: Student can discuss a clinical case (<i>case report</i>), taking into account the relationship between typical clinical symptoms and probable etiopathogenesis, and proposes possible diagnoses indicating the most probable cause.
MC1	Social Competency: Student works in a group, cooperates with other students in the preparation of presentations and solving tasks.
INTRODUCTORY REQUIREMENTS	
Adequate knowledge of gross anatomy, physiology, histology, biochemistry and basics of pathology.	
COURSE PROGRAM	DETAILED DESCRIPTION OF THE TOPIC BLOCKS
LECTURE 1	Pathology of the vessels. Atheromatosis and its complications. Aneurysms. Vasculitis. Pathology of the heart. Heart infarct and its complications. Cardiomyopathies. Diseases of endocardium and valves. Pathology of pericardium. Congenital and acquired heart defects. Pathology of interventional angiology and heart transplantation. Area A, 4h
LECTURE 2	Pathology of the lungs. Congenital and developmental defects of the lungs. Morphology of obstructive and restrictive lung diseases. Inflammatory processes, proliferative lesions. Area A, 2h

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LECTURE 3	Pathology of the digestive tracts. Esophagitis and Barrett's esophagus. Acute and chronic gastritis. Stomach ulcer. The role of Helicobacter pylori. Inflammatory bowel disease (IBD). Celiac disease. Etiopathogenesis of liver and bile ducts inflammatory processes. Liver cirrhosis. Inflammation of the pancreas. Alcoholism, and GI tracts diseases. Area A, 4h
LECTURE 4	Pathology of the kidney. Developmental anomalies. Glomerulopathies. Diseases of tubules and interstitial tissues. Hydronephrosis. Kidney stones. Area A, 2h
LECTURE 5	Pathology of the central nervous system / Cardiovascular disorders. Inflammation of the brain and meninges. Demyelinating and degenerative diseases. CNS and meninges tumors. Pathology of the eye. Area A, 2h
LECTURE 6	Soft tissue and bone pathology. Soft tissue tumors. Area A, 2h
LECTURE 7	Classification of bleeding disorders: platelet, plasma and vascular (congenital and acquired). Causes and pathophysiology. Clinical picture of selected hemorrhagic diathesis. Basics of laboratory diagnostics of bleeding disorders. Pathophysiology of venous thromboembolism. Congenital and acquired thrombophilia - clinical consequences. Laboratory diagnosis of thrombophilia. Area B, 2h
LECTURE 8	Acute kidney injury (AKI). Major causes of AKI: prerenal, intrarenal and postrenal. Clinical manifestations and natural course. Area B, 2h
LECTURE 9	Diabetes mellitus (DM) pathophysiology. Types, diagnosis, prediabetes, glucose intolerance. Chronic DM complications. Acute DM complications, including diabetic comas. Insulinoma, Whipple triad. Area B, 2h
LECTURE 10	Inflammation of GI tract 1: Peptic ulcer disease. Pathophysiology of GI tract tumors. Specific tumors: Zollinger-Ellison syndrome, VIP-oma, carcinoid syndrome. Area B, 2h
LECTURE 11	Brain – gut axis. Functional and motility gastrointestinal (GI) disorders: Esophageal achalasia. GERD, gastroparesis, irritable bowel syndrome. Area B, 2h
LECTURE 12	Inflammation of GI tract 2: Concept of IBD (inflammatory bowel disease). Crohn disease and ulcerative colitis. Diverticulosis – the causes and complications. Area B, 2h
LECTURE 13	Acute and chronic heart failure - causes, mechanisms, consequences. Cardiogenic pulmonary edema. Pathophysiology of heart inflammations: myocarditis and pericarditis. Area B, 2h

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CLASS 1	Pathology of the heart and vessels. Myocardial infarction. Vasculitis and neoplasms of peripheral vessels. Primary and secondary heart neoplasms. Area A, 3h
CLASS 2	Pathology of the lungs. Tumor-like lesions and inflammatory processes of the lungs. Lung cancer classification and morphological picture. Pathology of the pleura: inflammatory processes, empyema, mesothelioma. Histological diagnosis of diseases of the lung and pleura. Area A, 3h
CLASS 3	Pathology of salivary glands. Diseases of the esophagus / inflammation (morphological division), varices of the esophagus, Barrett esophagus, esophageal neoplasms. Diseases of the stomach / Morphological picture of chronic and acute gastritis. Morphology of stomach ulcer. Gastric polyps and their classification. Stomach cancer (macroscopic and microscopic picture, classification according to Lauren). Early and advanced stomach cancer. Neuroendocrine tumors (NETs) of the stomach and intestine. Mesenchymal tumors of the stomach and intestine. GI tracts lymphomas. Area A, 3h
CLASS 4	Morphology of intestinal inflammation. Colon polyps (non-neoplastic, neoplastic and mesenchymal). Colorectal cancer (etiopathogenesis, location and classification of advancement). Inflammation and neoplasms of the appendix. Pathology of the peritoneum/ inflammatory processes and neoplasms. Area A, 3h
CLASS 5	Morphology of acute and chronic hepatitis. Morphological picture of drug-induced and toxic liver damage, liver in alcohol abuse. Intrahepatic biliary tract diseases. Liver cirrhosis. Pathomorphology of non-neoplastic and neoplastic liver tumors. Liver cancer (macroscopic forms and microscopic types). Liver biopsy. Diseases of the gall bladder and biliary tract (cholelithiasis, inflammation, neoplasms). Area A, 3h
CLASS 6	Morphology of acute and chronic pancreatitis. Pancreatic cysts, pancreatic cancer and its histological types. Morphological changes in diabetes. Tumors of the endocrine part of the pancreas. Area A, 3h
CLASS 7	Pathology of the urinary tract and male reproductive system / inflammations, non-neoplastic lesion and neoplasms of the bladder and urethra. Developmental disorders of the penis, phimosis, glans and foreskin inflammation, condylomata, penile tumors. Congenital developmental disorders, inflammation, atrophy, vascular and cystic edema of testicles. Histological classification of testicular neoplasms. Inflammation of the prostate gland. BPH, precancerous lesions and prostate cancer (PIN, prostate cancer, Gleason score). Neoplasms of the kidney. Kidney biopsy. Pathomorphology of transplanted kidney. Area A, 3h

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CLASS 8	Pathology of the skin. Non-neoplastic skin diseases. Benign and malignant skin tumors. Melanocytic lesions and melanoma. Area A, 3h
CLASS 9	Pathology of the female reproductive system p.1. Vulva: Bartholin gland cysts, dystrophy, condylomata, VIN, tumors. Vagina: cysts, tumors. Cervix: acute and chronic inflammation, polyps, CIN (cytodiagnosis, Bethesda system), HPV infection, cervical squamous cell carcinoma and its histological subtypes, adenocarcinoma, other non-epithelial neoplasms. Area A, 2h
CLASS 10	Pathology of the female reproductive system p.2. Uterus: developmental disorders, endometrial changes caused by exogenous factors, endometrium in menopause and pregnancy, endometritis, endometriosis, endometrial hyperplasia (division) and endometrial cancer (histopathological division, staging according to FIGO). Other endometrial malignancies (leiomyoma and its variants) sarcomas. Pathology of the female reproductive system p.3. Fallopian tubes: inflammation and cancer. Ovary: non-cancerous cysts, endometriosis, neoplasms (WHO classification, staging according to FIGO). The pathology of pregnancy: ectopic pregnancy, gestational trophoblastic disease. Area A, 2h
CLASS 11	Pathology of soft tissues, bones and joints. Bone cysts, benign and malignant bone tumors. Diseases of the joints: rheumatic and reactive inflammation, gout and pseudogout. Soft tissue tumors. Muscle atrophy and dystrophy. Myopathies. Neuropathies. Area A, 2h
CLASS 12	Pathology of the breast. Inflammation and regressive changes. Fibrocystic changes, proliferative changes and breast tumors. Breast cancer and its diagnostics. Breast cancer in men. Gynecomastia. Area A, 2h
CLASS 13	Head and neck pathology. Oral pathology. Area A, 2h
CLASS 14	Pathology of the lymphatic and hematopoietic system. Area B, 2h

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CLASS 15	Pediatric pathology. Immaturity, inhibition of growth, injuries and congenital malformations, intrauterine and perinatal infections, sudden infant death syndrome (SIDS), cystic fibrosis, Neoplasms of developmental age. Area A, 2h
CLASS 16	Principles of pathomorphology. Routine procedures: fixation of the material for examination, sectioning of specimens, technical treatment of specimens, special stains (histochemistry). Modern diagnostic methods in pathomorphology: immunohistochemistry, flow cytometry, molecular techniques. The report. Report standardization. Rules of cooperation between pathologist and clinician. The role of the pathologist in treatment planning and prognostication. The legal aspects of pathologists' work. Area A, 2h
CLASS 17	Post mortem examination - aims, techniques, examples. Autopsy report. The role of autopsy examination in disease diagnosis. Presentation of selected (neoplastic and non-neoplastic cases with determination of histopathological report, discussion of differential diagnosis and prognosis). Area A, 2h
SEMINAR 1	Summary of information about bleeding disorders. Aplastic anemia. HIT. Hemolytic-uremic syndromes. Glanzmann's thrombasthenia and Bernard-Soulier's syndrome. Hemophilias and von Willebrand's disease. Other haemorrhagic diathesis, congenital and acquired. DIC. Vascular diathesis including Henoch and Schonlein purpura. Protein C, protein S and antithrombin deficiencies. Area B, 3h
SEMINAR 2	Chronic kidney disease (CKD). Clinical manifestations of CKD: dermatologic abnormalities, cardiovascular and pulmonary abnormalities, GI abnormalities, neuromuscular, endocrine and metabolic abnormalities, electrolyte and pH imbalance; volume status, hematologic and immunological abnormalities. Renal osteodystrophy. Area B, 3h
SEMINAR 3	Glomerulonephritis (GN). Proteinuria mechanisms. Nephrotic syndrome – definition, causes, clinical manifestations, complications. Tubulopathies – primary and secondary ones. Area B, 3h

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SEMINAR 4	Principal liver functions – summary. Inflammatory liver diseases, incl. viral and alcoholic hepatitis. Consequences of chronic hepatitis – basic information about liver cirrhosis. Toxic and drug-induced (paracetamol) liver damage. NAFLD. Clinical presentation of acute hepatic failure. Area B, 3h
SEMINAR 5	Liver insufficiency – acute and chronic one; causes, clinical presentation. Ascites. Hepatic coagulopathy. Hepato-renal syndrome. Hepato-pulmonary syndrome. Hepatic encephalopathy. Diarrheas - summary. Area B, 3h
SEMINAR 6	Concept and division of icterus. Pathophysiology of jaundice: hemolytic, hepatic and mechanic one. Congenital types of icterus. Differential diagnosis of hepatic and mechanic icterus. Etiology and pathogenesis of acute pancreatitis, complications. Chronic pancreatitis – causes and mechanisms. Malabsorption syndrome. Protein-caloric malnutrition. Area B, 3h
SEMINAR 7	Acute and chronic respiratory failure: classification, causes, pathophysiology, metabolic, cardiovascular, neurologic consequences, pH disorders. Concept of ARDS, non-cardiogenic shock. Pathophysiology of pneumothorax. Area B, 3h
SEMINAR 8	Chronic obstructive lung diseases: chronic bronchitis, emphysema (including congenital one), the concept of COPD. Bronchial asthma – classification and pathophysiology. Restrictive diseases, including idiopathic lung fibrosis. Changes in lung function tests in airway diseases. Area B, 3h
SEMINAR 9	Coronary artery disease (CAD) – pathophysiology, clinical presentation, consequences – a summary. Acute coronary syndromes. Dyslipidemia as a risk of atherosclerosis and CAD. Cardiomyopathy: DCM, HCM, ARVD, restrictive and others. Examples of secondary cardiomyopathies. Area B, 3h
SEMINAR 10	Infective endocarditis. Pathophysiology of valvular heart disease (VHD). Hemodynamic disturbances and symptoms in acquired VHD. Summary of information about pulmonary embolism and deep vein thrombosis (DVT). Arrhythmias – revision. Area B, 3h
SEMINAR 11	Paralytic and mechanic ileus. Causes, incl. abdominal diseases and metabolic disorders. The consequences of ileus, water-electrolyte imbalance and hemodynamic disorders. Shock, sepsis, DIC, ARDS and pH disorders as ileus complications. Acute GI tract hemorrhage. Area B, 3h

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DIDACTIC METHODS (APPLIED)	
	Lectures including interactive parts discussion sessions; Seminars / conversatories; Small-group sessions (tutorials) including practical pathomorphology classes (case studies), demonstration & microscopic lab (micro pictures/slides/virtual slides) and autopsy.
STUDENTS WORKLOAD	
NUMBER OF HOURS UNDER SUPERVISION	Following the study plan, i.e. lectures, tutorials, seminars, as well as discussions sessions: 105 hours
NUMBER OF PREPARATION HOURS	Preparation for classes: 25 hours (Including preparation for seminars, preparation of presentations, development of a given clinical case 19 hours) Preparation for the exam: 100 hours
TOTAL NUMBER OF HOURS FOR THE COURSE	230 hours
CONDITIONS FOR COURSE COMPLETION	
	Attendance of all lectures and seminars is obligatory. To pass the final exam: The final exam (including exam retake) is the test consists of MCQs based on lectures and classes conducted during the course and recommended textbooks. The responsible person (teacher) may decide to conduct the 1st and/or 2nd examination dates orally: 3-4 open questions (including 1-2 questions from the pathomorphology area and 1-2 questions from the pathophysiology area)
METHODS OF ASSESSMENT	
IN TERMS OF KNOWLEDGE	Ongoing questioning of students at exercises and seminars, the need to pass all exercises and seminars at the lecturer.
IN TERMS OF SKILLS	Discussion of 2-3 case reports from area B.
IN TERMS OF SOCIAL COMPETENCY	Activity during classes, grading group work.

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SUMMATIVE (I & II terms)

Oral exam:

oral exam, consisting of answers to 3 randomly drawn questions (set); two or one question tests knowledge in the area of pathomorphology, one or two questions in the area of pathophysiology. Each answer is graded on a 0-3 point scale

0 - no answer, or incorrect answer;

1 - incomplete answer, requires additional questions, contains errors, lack of understanding;

2 - satisfactory answer (no major errors), sufficient understanding;

3 - comprehensive answer, presented with full understanding.

GRADING SCALE

3,0 (SATISFACTORY) 5 points

3,5 (SATISFACTORY PLUS) 6 points

4,0 (GOOD) 7 points

4,5 (GOOD PLUS) 8 points

5,0 (VERY GOOD) 9 points

BASIC LITERATURE

[1] Robbins & Cotran Pathologic Basis of Disease 8e

ISBN-10: 1416031219

ISBN-13: 978-1416031215;

[2] Pathophysiology of disease: an introduction to clinical medicine / edited by Gary D. Hammer, Stephen J. McPhee. – Seventh edition, 3rd printing. International edition. - New York (truncated): McGraw-Hill Education, print 2016. - (A Lange Medical Book). - ISBN: 978-0-07-180600-8 (PF).

SUPPLEMENTARY LITERATURE

[1] Robbins Basic Pathology 8e,
ISBN 1416029737 / 9781416029731;

[2] Leonard S. Lilly: Pathophysiology of Heart Disease: A Collaborative Project of Medical Students and Faculty. Wolters Kluwer Health Editors, 2015, 6e
ISBN 9781496308696;

[3] Suggested self-assessment resource:
Edward C. Klatt, Vinay Kumar
Robbins and Cotran Review of Pathology
<http://www.pathologyoutlines.com>

Notes:

Area A - pathomorphology

Area B - pathophysiology