

The University of Pécs
Medical School

GENERAL MEDICINE
Major

STUDY PROGRAM
2010/2011

Subjects of the
Preclinical module
(obligatory subjects)

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OAPBR INTERNAL MEDICINE: PROPAEDEUTICS

Course director:

DR. ISTVÁN WITTMANN, professor
2nd Department of Internal Medicine

4 credit • semester exam • Pre-clinical module • autumn semester • recommended semester: 5

Number of hours/semester: **28 lectures + 28 practices + 0 seminars = total of 56 hours**

Headcount limitations (min-max.): **5 – 100**

Prerequisites: **see in the recommended curricula!**

Topic

Introducing into internal medicine is the first step toward clinical practice. The main aim of this topic to develop skills in history taking and physical examinations.

Conditions for acceptance of the semester

The attendance of the lectures and practices is compulsory. The maximum permitted number of absences is 2 lectures and 3 practices.

Making up for missed classes

The maximum permitted number of absences is 2 lectures and 3 practices. Each further missed practice has to be made up for during the semester period.

Reading material

Bickley L. S.: Bates' Guide to Physical examination and history taking. 9th edition. Lippincott Williams and Wilkins 2007.

Lectures

1. Introduction. Interviewing and the case history taking. Techniques of questioning. Medical interview in special situations. Symptoms and approaches to them.
2. The principles and techniques of physical examination. Recording information of interviews and physical examination.
3. History taking in chest and lung diseases.
4. Physical examination of the chest and lung. The related abnormalities.
5. Introduction to cardiology. Case history taking of the cardiovascular system. Epidemiology of cardiovascular diseases. Risk factor assessment for cardiovascular diseases.
6. Physical examination of the cardiovascular system. Blood pressure measurement, examination of peripheral vessels.
7. History taking in abdominal diseases. Physical examination of the abdomen. Rectal digital examination. The related abnormalities.
8. Diagnosis of common abdominal syndromes. Examination of the liver, spleen and the bile duct system.
9. History taking and physical examination in common haematological syndromes. Blood smear taking and examination.
Dr. Schmelczer Matild
10. Diagnosis of endocrine diseases, diabetes mellitus and metabolic disorders.
11. History taking in renal diseases. Examination of the kidney and genitalia.
12. Estimation of renal function. Urine examinations. Renal biopsy.
13. History taking and physical examination in angiological diseases. Dr. Pécsvárady Zsolt
14. Immunological diseases. Complaints and clinical signs.

Practices

1. Introduction. Interviewing and the case history taking. Techniques of questioning.
2. Medical interview in special situations. Symptoms and approaches to them.
3. The principles and techniques of physical examination.
4. Recording information of interviews and physical examination.
5. History taking in chest and lung diseases
6. Physical examination of the chest and lung.
7. The related abnormalities.
8. Introduction to cardiology. Case history taking of the cardiovascular system.
9. Epidemiology of cardiovascular diseases. Risk factor assessment for cardiovascular diseases.
10. Physical examination of the cardiovascular system.
11. Blood pressure measurement, examination of peripheral vessels.
12. History taking in abdominal diseases. Physical examination of the abdomen.
13. Rectal digital examination. The related abnormalities.
14. Diagnosis of common abdominal syndromes.
15. Examination of the liver, spleen and the bile duct system.
16. History taking and physical examination in common haematological syndromes.
17. Blood smear taking and examination.
18. Case history in endocrine diseases.

19. Leading symptoms of diabetes
20. Examination of urine and urine sediment.
21. Examination of kidney function
22. Examinations of the vessels
23. Examination of the muscles and joints.
24. The whole physical examination

Seminars

Exam topics/questions

The exam is at the bedside and focus on the skill of student about history taking and physical examinations.

OAPGT1 PHARMACOLOGY 1

Course director:

DR. LORÁND BARTHÓ, professor
Department of Pharmacology and Pharmacotherapy

3 credit • semester exam • Pre-clinical module • autumn semester • recommended semester: 5

Number of hours/semester: **14 lectures + 0 practices + 28 seminars = total of 42 hours**

Headcount limitations (min-max.): **5 – 0**

Prerequisites: **see in the recommended curricula!**

Topic

The general aim of the subject is to provide the medical students with all the basic information in pharmacology necessary to understand the actions of drugs and the clinical pharmacotherapy and to pass the Foreign Medical Graduate Examination in Medical Sciences. Pharmacology can be defined as the study of the manner in which the function of living systems is affected by chemical agents. Therefore, the students should be familiar with the basic knowledge of the physiological, pathophysiological and biochemical background of the pharmacological and therapeutic approaches. On the other hand, drug therapy is closely related to the clinical aspects of diseases.

The following topics will be dealt with. Definitions, prescription writing, drug development, drug formulations. General aspects of mechanisms of drug actions: characterization of drug-receptor interactions, mechanisms of drug antagonism, signal transduction mechanisms of drug receptors. General and quantitative aspects of pharmacokinetics: absorption, distribution and elimination of drugs. Pharmacology of the autonomic nervous system.

Conditions for acceptance of the semester

Making up for missed classes

Each missed seminar has to be made up for with another group in the same week.

Reading material

Rang, Dale, Ritter, Moore: Pharmacology, 6th edition

Elsevier Churchill Livingstone, 2007, ISBN 0-443-06911-5

B. G. Katzung (ed.): Basic and Clinical Pharmacology, 11th edition

Lange Medical Books/McGraw-Hill, 2009, ISBN 978-007-127118-9

Lectures

1. General aspects of neuropharmacology
2. Cholinergic agonists
3. Cholinesterase inhibitors
4. Muscarinic receptor antagonists I
5. Muscarinic receptor antagonists II
6. Neuromuscular blocking agents I
7. Neuromuscular blocking agents II. Drugs acting on autonomic ganglia
8. Agents acting on biosynthesis, storage, release and elimination of catecholamines I
9. Agents acting on biosynthesis, storage, release and elimination of catecholamines II
10. Adrenergic receptor agonists I
11. Adrenergic receptor agonists II
12. Adrenergic receptor antagonists I
13. Adrenergic receptor antagonists II
14. Local anaesthetics

Practices

Seminars

1. Introduction: pharmacology and related subjects I
2. Introduction: pharmacology and related subjects II
3. Drug names; drug compendia
4. Prescription writing; drug development
5. Drug formulations I
6. Drug formulations II
7. Basic mechanisms of drug actions
8. Characterization of agonist-receptor interaction I
9. Characterization of agonist-receptor interaction II
10. Characterization of agonist-receptor interaction III

11. Mechanisms of drug antagonisms I
12. Mechanisms of drug antagonisms II
13. Signal transduction mechanisms of drug receptors
14. Tachyphylaxis and tolerance to drugs
15. Transport of drugs across membranes I
16. Transport of drugs across membranes II
17. Absorption of drugs
18. Distribution of drugs
19. Biotransformation of drugs I
20. Biotransformation of drugs II
21. Excretion of drugs I
22. Excretion of drugs II
23. Quantitative aspects of pharmacokinetics I
24. Quantitative aspects of pharmacokinetics II
25. Group discussion of the pharmacology of the autonomic nervous system and the neuromuscular junction I
26. Group discussion of the pharmacology of the autonomic nervous system and the neuromuscular junction II
27. Computer program demonstrating the cardiovascular effects of agents acting on the autonomic nervous system I
28. Computer program demonstrating the cardiovascular effects of agents acting on the autonomic nervous system II

Exam topics/questions

1. Definition of pharmacology and the related subjects. Drug development
2. Drug names, drug compendia. Prescription writing
3. Drug formulations
4. Basic mechanisms of drug actions (examples of drug effects on receptors, ion channels, enzymes, carrier systems and effects mediated by physicochemical interactions)
5. Characterisation of agonist-receptor interaction: occupancy, affinity, dose-response curve, potency, efficacy
6. Significance of signal transduction mechanisms in the effects of drugs. Tachyphylaxis and tolerance to drugs
7. Mechanisms of drug antagonisms
8. Transport of drugs across membranes
9. Absorption of drugs, oral bioavailability and presystemic elimination
10. Plasma protein binding and tissue distribution of drugs
11. Biotransformation of drugs
12. Excretion of drugs
13. Pharmacokinetics: zero and first order elimination, volume of distribution, clearance, elimination half-life, oral bioavailability, calculation of loading and maintenance doses
14. Cholinergic agonists and cholinesterase inhibitors
15. Muscarinic receptor antagonists
16. Neuromuscular blocking agents. Drugs acting on autonomic ganglia
17. Agents acting on the biosynthesis, storage, release and elimination of catecholamines
18. Adrenergic receptor agonists
19. Adrenergic receptor antagonists
20. Local anaesthetics

OAPKO1 PATHOPHYSIOLOGY 1

Course director:

DR. ÁKOS KOLLER, professor
Department of Pathophysiology and Gerontology

5 credit - semester exam - Pre-clinical module - autumn semester - recommended semester: 5

Number of hours/semester: **42 lectures + 8 practices + 20 seminars = total of 70 hours**

Headcount limitations (min-max.): **5 – 120**

Prerequisites: **see in the recommended curricula!**

Topic

Pathophysiology-1 connects basic functional and clinical subjects. Together with other preclinical subjects, it deals mainly with etiology, time-course, clinical symptoms and possible pharmacological or other interventions related to abnormalities of the cardiovascular, respiratory, hematological and renal systems, as well as with disorders of salt/water and pH balance.

Conditions for acceptance of the semester

Less than 15% (max. 3) absence from seminars. Participation at the mid-term test.

Making up for missed classes

Absentees can make up for their absence by participating at the seminar of another group on the same week.

Reading material

Koller Á.: 606 minimum-questions. PTE ÁOK, 2010

Basic Concepts in Pathophysiology (ed.: M. Székely), ÁOK PTE, 2007

(Color Atlas of Pathophysiology /S. Silbernagl, F. Lang/, Thieme Stuttgart - New York, 2000)

Lectures

1. Circulatory failures
2. Heart failure: causes, forms
3. Heart failure: clinical manifestations
4. Pathophysiology of coronary circulation
5. Tissue ischemia, reperfusion. Endothelial damage
6. Microcirculation (arteriole/capillary/venule/lymphatic)
7. Disorders of blood pressure. Hypotension
8. Hypertension: definition, causes
9. Hypertension: forms and consequences
10. Peripheral circulatory failure. Syncope
11. Circulatory shock: forms, pathophysiology, hemodynamics
12. Organ manifestations of circulatory shock
13. Pathophysiology of brain blood flow
14. Pathophysiology of pulmonary circulation
15. Abnormalities of renal and splanchnic blood flow
16. Disorders of the regulation of breathing
17. Mechanics of respiration: abnormalities
18. Work of respiration and its disorders
19. Ventilation and its abnormalities
20. Disorders of diffusion
21. Pulmonary perfusion, V/Q mismatching
22. Disorders of oxygen transport
23. Hypoxia, respiratory failure
24. Mechanisms of dyspnea
25. Cardiorespiratory adaptation to work I
26. Cardiorespiratory adaptation to work II
27. Cardiorespiratory adaptation to work III
28. Anemia
29. Polycythemia/polyglobulia
30. Leukocyte dysfunctions
31. Disorders of hemostasis
32. Thrombosis. DIC
33. Excretory and non-excretory renal functions
34. Glomerular functions and their disorders
35. Tubular dysfunctions
36. Disorders of the amount and composition of urine

37. Failure of renal excretory function, uremia
38. Chronic renal failure, ESRF
39. Acute renal failure
40. Tissue damage, reactive responses
41. Trauma/sepsis: definitions, causes
42. Trauma/sepsis: clinical aspects

Practices

1. Methods of ECG recording
2. ECG recording and analysis
3. Analysis of pH-parameters
4. Doppler blood flow measurement. Isolated vascular myography.
5. Tests of respiratory functions I
6. Tests of respiratory functions II
7. Spiroergometry demonstration I
8. Spiroergometry demonstration II

Seminars

1. Place, connections of pathophysiology. Basic ideas in pathophysiology
2. Basics of ECG abnormalities, methods of analysis
3. Abnormalities of axis, rhythm and rate I
4. Abnormalities of axis, rhythm and rate II
5. Disorders of impulse formation I
6. Disorders of impulse formation II
7. Disorders of impulse conduction I
8. Disorders of impulse conduction II
9. Disorders of oxygen supply to the myocardium I
10. Disorders of oxygen supply to the myocardium II
11. Hypertrophy, complex ECG disorders
12. ECG signs of abnormalities of ionic balance
13. Analysis of case reports connected with disorders of the cardiovascular system
14. Analysis of case reports connected with disorders of the respiratory system
15. Metabolic/respiratory acidosis and alkalosis I
16. Metabolic/respiratory acidosis and alkalosis II
17. Pathophysiology of salt- and water-balance I
18. Pathophysiology of salt- and water-balance II
19. Disorders of volume regulation
20. Disorders of osmoregulation

Exam topics/questions

Cardiovascular adaptation in health and disease.

Principles of exercise testing (spiro-ergometry). Anaerobic threshold and maximal oxygen consumption during exercise.

Distribution of cardiac output and its disorders in the young and the elderly.

Causes and forms of heart failure.

Forward failure symptoms (left- and right-sided) in heart failure.

Backward failure symptoms (left- and right-sided) in heart failure.

High output cardiac failure.

Cardiomyopathies.

Acute heart failure.

Vascular functions and the endothelium. Endothelial factors, mediators and enzymes. Endothelial dysfunction.

Characteristics function and role of microcirculation.

Characteristics and dysfunction of the lymphatic system.

Vasovagal syncope.

Definition and classification of circulatory shock. Pathophysiology of development, phases and characteristics of microcirculation.

Tissue hypoxia, ischemia, reperfusion and tissue metabolism in circulatory shock.

Hypovolemic shock: causes and hemodynamics.

Cardiogenic shock: causes and hemodynamics.

Distributive shock: causes and hemodynamics.
Organ manifestations of shock.
Pathogenesis of coronary insufficiency. Risk factors.

Pathomechanism and consequences of acute myocardial infarction.
Mechanisms and consequences of chronic ischemic heart disease.
Regulation of cerebral circulation in health and disease.
Cerebral hypoxia, ischemia, stroke.
Characteristics and disorders of splanchnic blood flow.

Pulmonary circulation, pulmonary hypertension.
General pathophysiology and classification of systemic hypertension - age and blood pressure.
Role of the kidneys in the development of hypertension. Effects of hypertension on the kidneys.
Hypertension and the adrenal gland.
Primary hypertension: characteristics and etiological factors.

Consequences of hypertension.
Orthostatic hypotension in the young and the elderly.
Active heterotopic abnormalities (premature beats).
Passive heterotopy: causes, forms and consequences.
Supraventricular and a-v junctional blocks.

Forms and importance of intraventricular conduction abnormalities.
Pre-excitation syndromes.
Forms and consequences of paroxysmal tachycardia.
Signs of chronic or acute overload in the ECG (hypertrophy, strain).
Primary repolarization abnormalities in the ECG.

ECG in acute myocardial infarction.
Atrial or ventricular flutter, atrial or ventricular fibrillation.
Principles/evaluation of respiratory function tests. Characteristics and parameters of abnormal breathing mechanics.
Disorders of the control of breathing. Age-dependent changes. Sleep-apnea syndrome.
The work of breathing. Abnormalities of elastic resistance, restrictive disorders.

Alveolar hypoventilation: causes and consequences.
Acute and chronic alveolar hyperventilation.
Ventilation-perfusion mismatch (V/Q): causes and consequences.
Disorders of alveolo-capillary diffusion. Hepatopulmonary syndrome.
Disorders of oxygen transport (abnormal hemoglobin, CO-poisoning, methemoglobinemia).

Forms and mechanisms of hypoxia. Ways of compensation - cyanosis.
Causes and consequences of increased airway resistance - causes and consequences of chronic obstructive pulmonary disease (COPD) - emphysema.
Partial or complete respiratory failure.
Dyspnea.
Forms, general pathophysiology and consequences of anemia.

Aplastic anemia and anemias of complex etiology in disease states.
Deficiency anemia
Hemolytic anemia.
Polycythemia.
Bleeding abnormalities due to platelet or vascular factors.

Congenital and acquired coagulopathies.
Thrombosis: causes and consequences.
Disseminated intravascular coagulation.
Granulocytes in inflammatory processes.
Pathophysiology of glomerular filtration.

Disorders of tubular functions.

Proteinuria.

Hypothenuria, asthenuria, osmotic diuresis.

Oliguria, polyuria. Renal functions in the elderly.

Non-excretory kidney functions and their abnormalities.

Chronic renal failure: causes, characteristics and progression.

Metabolic disorders and organ dysfunctions in uremia.

Uremic coma.

Acute renal failure: occurrence, general features - extrarenal uremia.

Renal circulation. Cardiorenal syndrome.

Prerenal azotemia. Postrenal failure.

Acute tubular nephropathy.

Acute diffuse glomerulonephritis.

Compensation of pH-abnormalities (plasma and intracellular buffers, respiration, kidney) and their disturbances.

Metabolic acidosis: causes, compensation, consequences.

Metabolic alkalosis: causes, compensation, consequences.

Respiratory acidosis and alkalosis: causes, compensation, consequences.

Disorders of potassium balance. Hypo- and hyperkalemia.

States of decreased extracellular volume, and their consequences.

States of elevated extracellular volume: causes, mechanisms and consequences.

Hyperosmolarity, hypertonicity. Forms, causes, consequences.

Hypotonicity: pathogenesis and consequences.

Note: Oral exam. Sit-in condition: a test of 'minimum-questions' must be completed at 8 a.m. on the day of the exam, by a success rate of at least 90%. At the exam the students take a card of 3 questions and they have to analyze 1 ECG record.

OAPMI1 MICROBIOLOGY 1

Course director:

DR. JÚLIA SZEKERES, professor
Department of Medical Microbiology and Immunology

5 credit - semester exam - Pre-clinical module - autumn semester - recommended semester: 5

Number of hours/semester: **42 lectures + 28 practices + 0 seminars = total of 70 hours**

Headcount limitations (min-max.): **1 – 200**

Prerequisites: **see in the recommended curricula!**

Topic

During introduction the subject and history of medical microbiology and its place in medicine is discussed. The morphology, physiology and genetics of microbes, as well as the methods of disinfection and the theoretical aspects of antimicrobial therapy are the subjects of lectures on general microbiology. The host-parasite interactions involved in the pathogenesis of various infections, as well as the mechanisms of host defense, the possibilities of immunoprophylaxis, the pathways of allergies, tolerance, autoimmunity, the basics of neuroimmunology and the immunology of pregnancy will be described. The first semester also includes the course on systematic virology dealing with infections of viral and prion etiology in details.

The objective first semester is to provide solid knowledge and view to students preparing them to understand the subsequent systematic bacteriology, mycology, parasitology and clinical microbiology courses as well as clinical subjects relating to infections.

Conditions for acceptance of the semester

The Department insists on the active participation in all the practices, since necessary knowledge and skills to take and handle microbiological samples can only be mastered there. In order to have the grade book signed, the student missing any practicals is expected to make arrangements with groups other than his/her own to cover the subject of that particular practical.

Making up for missed classes

The student missing any practices is expected to make arrangements with groups other than his/her own to cover the subject of that particular practical.

Reading material

Murray PR, Rosenthal KS, Pfaller MA: Medical Microbiology, Elsevier Mosby
2005

ISBN: 0-323-03303-2

D. Greenwood et al.: Medical Microbiology, Churchill Livingstone, 2003

ISBN: 0-443-07077-6

Brooks GF, Butel JS, Morse SA: Jawetz, Melnick, and Adelberg's: Medical
Microbiology, Lange Medical Book, 2004

ISBN: 007-141207-7

F.H. Kayser, K.A. Bienz, J. Eckert, R.M. Zinkernagel: Medical Microbiology, Thieme Stuttgart 2005

ISBN: 3-13-131991-7

A.K. Abbas, A.H. Lichtman, S Pillai: Cellular and Molecular Immunology. (6th ed) Saunders, 2007

ISBN: 1416031227 (5th ed 2005, ISBN: 1416023895)

Lectures

1. Introduction: the subject and history of microbiology, taxonomy
2. Essential cell components
3. Accessorial cell components,
4. The physiology of bacteria
5. Nutrition types and growth of bacteria
6. Microbial genetics - I.
7. Microbial genetics - II.
8. Pathogenicity and virulence
9. Endo- and exotoxins
10. Sterilization
11. Disinfection
12. Anti-microbial drugs - general introduction

13. Chemotherapy, sulfonamides, quinolons, nitrofurans
14. Inhibitors of the cell wall biosynthesis: penicillins, cephalosporins, glycopeptides
15. Carbapenems. Inhibitors of the protein synthesis: aminoglycosides, chloramphenicol, tetracyclines,
16. macrolides, Lincomycin, Clindamycin, polypeptides, polymyxin, metronidazol
17. Molecular mechanisms of antibiotic resistance
18. Characterization of viruses (basic concepts, structure, chemical composition, classification). Multiplication of viruses (modes of replication, mutants, interaction between viruses)
19. Pathogenesis of virus infections (modes and types of infection, immunity)
20. Prophylaxis of virus infections, chemotherapy (conventional and new vaccines, antiviral compounds, interferon)
21. Adenovirus, Parvovirus (Erythrovirus B19)
22. Herpesviruses. (HSV-1, HSV-2; HHV-6, HHV-7, HHV-8) (HSV, VZV, CMV, EBV)
23. Hepatitis viruses (HAV, HBV, HCV, HDV, HEV, HGV)
24. Picornaviruses (Polio-, Coxsackie-, Echoviruses)
25. Orthomyxoviruses (Influenza A, B,)
26. Paramyxoviruses (Parainfluenza, mumps, morbilli virus). Pneumovirus (RS virus), Rhinoviruses, Rubivirus (rubeola virus),
27. Rota-, Astro-, Caliciviruses
28. Papillomaviruses (HPV); Polyomaviruses (JC, BK)
29. Arenaviruses, Bunyaviruses (Hantaviruses) Flaviviruses (tick-borne encephalitis, yellow fever, Dengue). Rhabdoviruses (Lyssa)
30. Retroviruses (HTLV-I, HTLV-II., HIV and AIDS)
31. Defence mechanisms on the body surfaces, skin and mucosal immunity, lymphocyte homing
32. Defence reactions, Ag-Ab interactions, agglutination, phagocytosis, T and B cell responses
33. Defence against viruses
34. Defence against bacteria
35. Defence against parasites
36. Immunoprophylaxis, active and passive immunisation
37. Hypersensitivity
38. Immunological tolerance
39. Autoimmunity
40. Acute-phase reactions
41. Immunological relationships between mother and the foetus
42. Neuroimmunology

Practices

1. Introduction, safety regulations. The microscope, native and stained preparations
2. Introduction, safety regulations. The microscope, native and stained preparations
3. Introduction, safety regulations. The microscope, native and stained preparations
4. Introduction, safety regulations. The microscope, native and stained preparations
5. Cultivation of bacteria, media
6. Cultivation of bacteria, media
7. Cultivation of bacteria, media
8. Cultivation of bacteria, media
9. Biochemical reaction in the identification
10. Biochemical reaction in the identification
11. Biochemical reaction in the identification
12. Biochemical reaction in the identification
13. Antibiotic sensitivity (Kirby-Bauer method, MIC, antibiotic concentration in body fluids)
14. Antibiotic sensitivity (Kirby-Bauer method, MIC, antibiotic concentration in body fluids)
15. Antibiotic sensitivity (Kirby-Bauer method, MIC, antibiotic concentration in body fluids)
16. Antibiotic sensitivity (Kirby-Bauer method, MIC, antibiotic concentration in body fluids)
17. Serology - I.
18. Serology - I.
19. Serology - I.
20. Serology - I.
21. Serology II., Molecular diagnostics
22. Serology II., Molecular diagnostics
23. Serology II., Molecular diagnostics
24. Serology II., Molecular diagnostics
25. Diagnostic virology

26. Diagnostic virology
27. Diagnostic virology
28. Diagnostic virology

Seminars

Exam topics/questions

THE WRITTEN EXAM CONSISTS OF MULTIPLE CHOICE QUESTIONS

OAPMT5 BEHAVIORAL SCIENCE 5 (MEDICAL PSYCHOLOGY)

Course director:

DR. JÁNOS KÁLLAI, professor
Department of Behavioural Sciences

2 credit • final exam • Pre-clinical module • autumn semester • recommended semester: 5

Number of hours/semester: **14 lectures + 14 practices + 0 seminars = total of 28 hours**

Headcount limitations (min-max.): **1 – 100**

Prerequisites: **see in the recommended curricula!**

Topic

The course is an introduction to the psychological aspects of medicine, care, and doctor-patient relationship. Understanding the role of personality, the impact of communication and relationship will provide a more effective therapy and care in medical practice. Main issues:

subject of medical psychology, its place in the sciences and medicine. Theories on personality and personality development, concept of mental health. Dynamics of personality, stress, anxiety, adjustment. Communication and its disorders in the doctor-patient relationship; empathy, interview. Psychology of doctor-patient relationship. Reactions to illness. Coping, risk factors, psychosomatics. Basics of psychological interventions, therapies. Psychological crisis, suicide, death and dying, grief reactions.

Conditions for acceptance of the semester

According to the Code of Studies and Examinations.

Making up for missed classes

Additional practices and homework.

Reading material

Csabai, M., Molnar, P.: Health, Illness and Care. A textbook of medical psychology. Springer Orvosi Kiadó, Budapest, 2000.

Kaptein, A., Weinman, J. (eds): Health Psychology. BPS Blackwell Publishing, 2004.

John L. Coulehan and Marian R. Block: The Medical Interview. Fifth Edition, 2006.

Handout of lectures and practices

Lectures

1. Introduction to medical psychology, its place in sciences, role in medicine.
2. Dynamical personality theories, personality development. S. Freud. Defense mechanisms, transference, basics of psychoanalytic approach.
3. Humanistic, psychosocial and cognitive personality theories: A. Maslow, C. Rogers, E. Erikson, concept of mental health.
4. Frustration, stress management.
5. Anxiety, aggression, defense, coping, learned helplessness
6. Medical relevances of social psychology: interpersonal perception, communication, psychology of social groups.
7. Empathy, interview, supportive techniques, difficulties in doctor-patient communication.
8. Interviewing, history taking
9. Dynamic and social psychological approach of doctor-patient relationship. Socialisation of physician's role. Risk factors of medical profession
10. Psychological reactions to illness. Dynamics, management, compliance
11. Psychological risk factors in somatic illness, psychosomatic diseases (oncological, cardiovascular)
12. Helper and supportive relationships, pain and pain management
13. Psychological crisis, self-harmful behavior
14. Death, dying, grief reactions

Practices

1. Approaches of personality. Process and disorders of socialisation. Mental health.
2. Approaches of personality. Process and disorders of socialisation. Mental health.
3. Affective and cognitive functions of personality. Stress, frustration and their impact. Adjustment.
4. Affective and cognitive functions of personality. Stress, frustration and their impact. Adjustment.
5. Disorders of communication. Interview, supportive techniques, empathy.
6. Disorders of communication. Interview, supportive techniques, empathy.
7. Doctor-patient communication, first encounter, history taking.
8. Doctor-patient communication, first encounter, history taking.
9. Anxiety, its sources and symptoms. Psychological factors in somatic illness, psychosomatic diseases.
10. Anxiety, its sources and symptoms. Psychological factors in somatic illness, psychosomatic diseases.

11. Psychological reactions to illness. Dynamics, management. Cognitive and supportive techniques of behavioral change
12. Psychological reactions to illness. Dynamics, management. Cognitive and supportive techniques of behavioral change
13. Psychological aspects of fatal illness, grief, pathological grief reactions.
14. Psychological aspects of fatal illness, grief, pathological grief reactions.

Seminars

Exam topics/questions

Parts of the final exam:

- A) Written test: in the morning of the oral final exam. It is consisted of 60 items and an essay question.
- B) Problem based complex case study analysis. A written patient's case history is presented as a question. You should exhibit and explain the possible bio-psycho-social context of the case history and demonstrate alternatives of the possible solutions to the given problems. You have to focus on several behavioral science concepts of the case.

Mark construction:

The final mark in the average of the marks of written and oral exam parts.

Further details about the exam and an optional knowledge survey test can be read at the homepage of the Institute of Behavioural Sciences: www.aok.pt.e.hu/magtud under 'For Students'.

Oral exam questions are related to the case studies. Theoretical issues/questions: according to the titles of lectures and practices.

OAPMUA BASIC SURGICAL TECHNIQUES

Course director:

DR. GYÖRGY WÉBER, professor
Department of Surgical Research and Techniques

2 credit • midsemester grade • Pre-clinical module • autumn semester • recommended semester: 5

Number of hours/semester: **6 lectures + 22 practices + 0 seminars = total of 28 hours**

Headcount limitations (min-max.): **3 – 150**

Prerequisites: **see in the recommended curricula!**

Topic

The aim of the subject is to practice the basic surgical techniques, to present hygienic approach, which attainments are indispensable for clinical doctors working in manual field of medicine. This subject provide basics about special behavior in the operating theatre, preparation of the patient and surgical team before operation, surgical tools and instruments, wound management, laparoscopic instruments and techniques.

Conditions for acceptance of the semester

According to the Code of Studies and Examinations.

Making up for missed classes

Attendance is obligatory on every practice. Because of limited capacity of operating theatre, absence cannot be repeated by joining another group. One missed practice can be repeated on 11th week of the semester. The exact time will be on the website of the institute (<http://soki.aok.pte.hu>).

Reading material

<http://soki.aok.pte.hu/>

Lectures

1. Presentation of the Department and the curriculum. The history of surgery.
2. Demonstration of the operating room and technical background, sterilisation, disinfection.
3. Basic surgical tools and surgical materials, wound closure techniques.
4. Classification and managements of wounds, principle of wound-healing, haemorrhage and bleeding control
5. The operation (acute, elective, patient preoperative management, surgical explorations)
6. Basics of laparoscopic surgery

Practices

1. The basic rules of the behavior in the operating theatre; scrubbing-gowning-gloving, preparation of the operation area (disinfection, isolation).
2. The basic rules of the behavior in the operating theatre; scrubbing-gowning-gloving, preparation of the operation area (disinfection, isolation).
3. Demonstration of the basic surgical tools, practicing their use.
4. Demonstration of the basic surgical tools, practicing their use.
5. Knot tying.
6. Knot tying.
7. Sutures and suture materials, suture removal.
8. Sutures and suture materials, suture removal.
9. Practicing of basic sutures on pig tissue.
10. Practicing of basic sutures on pig tissue.
11. Practicing of basic sutures on pig tissue.
12. Practicing of basic sutures on pig tissue.
13. Tissue preparation, bleeding control and wound closure on anaesthetized animals.
14. Tissue preparation, bleeding control and wound closure on anaesthetized animals.
15. Abdominal wall closure techniques on anesthetized animals.
16. Abdominal wall closure techniques on anesthetized animals.
17. Basics of laparoscopic surgery: demonstration of laparoscopic surgical tools, training of eye-hand coordination
18. Basics of laparoscopic surgery: demonstration of laparoscopic surgical tools, training of eye-hand coordination
19. Laparoscopic training in boxtrainer.
20. Laparoscopic training in boxtrainer.
21. Practical exam, skill assessment.
22. Practical exam, skill assessment.

Seminars

Exam topics/questions

<http://soki.aok.pte.hu/>

OAPNEP BEHAVIORAL SCIENCE 4 (NEUROPSYCHOLOGY)

Course director:

DR. JÁNOS KÁLLAI, professor
Department of Behavioural Sciences

2 credit - semester exam - Pre-clinical module - autumn semester - recommended semester: 5

Number of hours/semester: **14 lectures + 0 practices + 14 seminars = total of 28 hours**

Headcount limitations (min-max.): **1 – 300**

Prerequisites: **see in the recommended curricula!**

Topic

Neuropsychology curriculum aims to demonstrate the behavioral, mental and psychological effect and consequences of central nervous system lesion, dysfunctions and diseases. Prior to dysfunctions, the semester teaches and demonstrates psychophysiological and neurobiological mechanisms of perception, attention, memory, language, motivation, emotion, social and other behavioral phenomena related to the healthy, normal brain and CNS. Client and patient case studies will be demonstrated and analysed about dysfunctions and illnesses, thereby providing important and indispensable contribution and preparation for later neurological, psychiatric, neurosurgical studies, as well as for behavioral and psychosomatic medicine.

Conditions for acceptance of the semester

The semester examination will be oral. Optional pre-exam (written test) will be offered and (for high scorers only) exam marks will be offered. Attendance of the lectures and seminars is mandatory and essential to complete the preparation. The recommended books contain 90% of the required material.

Making up for missed classes

Absences must be validated and certified. Subsequently absentees must present actively a contribution that they prepared for and acquired the missed parts of the curriculum material.

Reading material

J. Sterling: *Introducing Neuropsychology*
Psychology Press, 2002

B. Kolb, I.Q. Whishaw: *Fundamentals of human neuropsychology*. 3rd ed. or any late edition.

J. R. Hodges: *Cognitive Assessment for Clinicians*
Oxford University Press, 1996 (paperback)

+ Syllabi on the webpage of the institute (www.aok.pte.hu/magtud)

Lectures

1. The concept of neuropsychology and its place and significance among medical sciences.
2. Clinical context of neuropsychological disorders
3. The neuropsychology of visual and auditory perception
4. Normal and pathological attentional processes and their neuropsychology
5. The neuropsychology of developing brain
6. The neuropsychology of memory
7. Cognitive theories of emotions
8. Physiological theories of emotions
9. The concepts of motivation, needs and drives. Specific drives and the contributing
10. The neuropsychology of dementias
11. Normal and pathological language, neuropsychology of their disorders
12. The neuropsychology of consciousness
13. Neuropsychology of higher cognitive functions
14. Discussions, summaries, feedback and testing.

Practices

Seminars

1. The concept of neuropsychology. Research and practical methods of psychology, different psychological schools, Psychological and neuropsychological tests and their usage.
2. The concept of neuropsychology. Research and practical methods of psychology, different psychological schools, Psychological and neuropsychological tests and their usage.
3. Phenomena of normal and pathological perception. Perception of pain. Agnosias.
4. Phenomena of normal and pathological perception. Perception of pain. Agnosias
5. Speech and reading. Dyslexia and learning difficulties

6. Speech and reading. Dyslexia and learning difficulties
7. Examination of memory and memory disturbances, auditory short-term memory
8. Examination of memory and memory disturbances, auditory short-term memory
9. Neuropsychological aspects of the development of normal newborns and infants.
10. Neuropsychological aspects of the development of normal newborns and infants.
11. Emotional and mood disturbances and disorders.
12. Emotional and mood disturbances and disorders.
13. Neurobiology and neuropsychology of the normal and pathological emotions and pathological emotions and some higher cognitive and social behaviours.
14. Neurobiology and neuropsychology of the normal and pathological emotions and some higher cognitive and social behaviours.

Exam topics/questions

1. Definition, aims and scope of neuropsychology and the related sciences, by the structuralism, functionalism and behaviorism, Gestalt psychology, psychoanalysis, humanistic psychology, cognitive theories.
2. Figure-ground organisation in perception, perceptual learning, cognitive set, projective tests, constancy and physiological illusions, pathological illusions, hallucinations, dreaming.
3. Regulation and inhibition of perception.
4. Brain mechanisms in the organisation of visual perception, blindsight, visual space, scotomas.
5. Color perception.
6. Object recognition; apperceptive visual agnosias. Associative visual agnosias.
7. Retino-tectal and parietal mechanisms of spatial perception, neglects.
8. Audio-perceptual disturbances, auditory agnosias.
9. Language disorders, word deafness, transcortical aphasias.
10. Conductive and anomic aphasia.
11. Wernicke and Broca' aphasia.
12. Developmental and acquired dyslexias.
13. Plasticity: visual system, somatosensory system.
14. Plasticity: synaptic mechanisms.
15. Physiological theories of emotions.
16. Cognitive theories of emotions.
17. Neuropsychology of normal and disturbed attention.
18. Neuropsychology of the dementias and mental retardation: symptoms and their measures. Amnesic symptoms in the Korsakoff and Alzheimer disease.
19. Neuropsychology of aggressive behavior.
20. Neuropsychology of addiction, reward and reinforcement.
21. Disturbances of facial recognition.
22. Kinds of alexias and some related disturbances.
23. Kinds of memories: sensory, short-term and long-term memory.

24. Effects of mediotemporal lesions on the memory and recall.
25. Amnesic symptoms after concussions, electroconvulsive shocks, and lost consciousness.
26. Declarative and non-declarative memories, investigation methods of memory and amnesias.
27. Writing and its disturbances.

OAPPA1 PATHOLOGY 1 - GENERAL PATHOLOGY

Course director:

DR. LÁSZLÓ PAJOR, professor
Department of Pathology

8 credit • semester exam • Pre-clinical module • autumn semester • recommended semester: 5

Number of hours/semester: **56 lectures + 28 practices + 28 seminars = total of 112 hours**

Headcount limitations (min-max.): **5 – 0**

Prerequisites: **see in the recommended curricula!**

Topic

The basic pathological cellular responses, underlying the various disease processes, are taught during this course. To this end general pathology is subdivided into cellular injury and death, degeneration, pathological accumulation of substances, growth disturbances, acute and chronic inflammatory changes, haemodynamic disorders, genetic disorders, diseases of immunity and neoplasia (general oncology) chapters. The most important and frequent diseases in the various chapters are going to be discussed in detail in order to provide student with comprehensive knowledge to understand autopsy practices as soon as possible. The driving principle behind this course is to have the student understood the disease concept as the unity of macroscopy, microscopy, clinical symptoms and laboratory changes which forms the clinicopathological thinking about diseases.

Conditions for acceptance of the semester

Acceptance of the semester: according to the Code of Studies and Examinations.

Absences exceeding 10% of each the histopathology and autopsy practical classes in either semester will result in not signing the gradebook.

One macropreparation, one histological preparation and a theoretical question will be given to the student at the examination by the end of the first semester.

Making up for missed classes

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Reading material

S. L. Robins, V. Kumar: Basic Pathology, 7th edition Saunders Company, 2003. ISBN: 0-7216-9274-5

Lectures

- I. Introduction -- Postmortem changes - cell death (5 lectures; lecturer: Dr. Pajor)
 1. Introduction to pathology. Historical overview. The role of pathology in sciences.
 2. The role of diagnostic pathology in modern medicine. The methodology of pathology.
 3. Criteria of death. Post-mortem changes at organ, cellular and subcellular level. Necrosis vs apoptosis
 4. The types of necrosis: microscopic and macroscopic changes.
 5. Pathology of myocardial infarction
- II. Degeneration, pathological accumulation, pigments, calcification (10 lectures; lecturer: Dr. Pajor)
 1. The types of degeneration, relation between necrosis and degeneration. Parenchymal and fatty degeneration.
 3. Exogenous pigment accumulation.
 4. Endogenous, hemoglobinogenic pigment accumulation.
 5. Endogenous, non-hemoglobinogenic pigment accumulation.
 6. Accumulation of proteins. Amyloidosis.
 7. Calcification.
 8. Lithiasis.
- III. Growth disturbances (5 lectures; lecturer: Dr. Pajor)
 1. Regressive changes: atrophy. Organ examples.
 2. Progressive changes: hyperplasia. Prostatic hyperplasia. Glandular cystic hyperplasia of the endometrium.
 3. Progressive changes: hypertrophy. Left and right ventricular hypertrophy and their hemodynamic significance
 4. Regeneration. Wound healing
- IV. Circulation (6 lectures; lecturer: Dr. László Terézia)
 1. Edema, hyperemia, congestio
 2. Types and pathomechanism of haemorrhages
 3. OHemorrhage, organ manifestations of haemorrhages.
 4. Haemostasis, thrombosis.
 5. Embolisation, disseminated intravascular coagulation
 6. Shock, hypertension.
- V. Inflammation (10 lectures; lecturer: Dr. Pajor)
 1. Definition of inflammation, historical overview.
 2. Acute inflammatory response, vascular reactions, permeability-exudation.
 3. Classification of acute inflammations I: serous and fibrinous inflammation. Organ examples.

4. Classification of acute inflammations 2: purulent, hemorrhagic and gangraenous inflammation. Organ examples.
 5. Definition and classification of chronic inflammation. Cellular and humoral mediators.
 6. Granulomatous inflammation (sarcoidosis, foreign body type giant cell reaction), organ examples.
 7. Pathogenesis of tuberculosis and its pathomorphology.
 8. Clinicopathological presentations of tuberculosis.
 9. Autoimmune chronic inflammation. Rheumatoid arthritis
- VI. Immunopathology (5 lectures; lecturer: Dr. Pajor)
1. Type I. and II. hypersensitivities and related disorders
 2. Type III. and IV. hypersensitivity reactions and related disorders
 3. Transplantation immunity
 4. Pathogenesis of autoimmune diseases.
 5. Systemic lupus erythematoses (SLE)
 6. Congenital immunodeficiency syndromes
 7. Acquired immunodeficiency syndrome (AIDS)
- VII. Genetics (5 lectures; lecturer: Dr. Pajor)
1. The incidence of genetic disorders, types of mutations and the 4 prototypes of the genetic disorders.
 3. The Mendelian disorders: autosomal recessive disorders.
 - 4.3. X-linked inheritance. Disorders with polygenic inheritance
 - 5.4. Single gene disorders with non-classic inheritance.
- VIII. Oncology (10 lectures; lecturer: Dr. Pajor)
- 1.1. Characterisation of benign and malignant tumours
 - 1.2. Tumor epidemiology.
 - 2.3. The classification of tumours according to their histogenesis. The basis of immunohistochemical differential diagnostics.
 - 3.4. Chemical and irradiation cancerogenesis.
 - 4.5. The role of oncogenes in tumorigenesis.
 - 5.6. The role of tumour suppresser genes in tumorigenesis.

Practices

1. There is a special emphasis on the clinicopathological view of the diseases, i.e., understanding the interrelationship of the clinical symptoms, macroscopical and microscopical changes of the diseased organs.
2. During the autopsy practice the actual organ lesions and their clinicopathological connections will be demonstrated.

Seminars

1. Postmortal changes - necrosis: Adipocera /P/, Postmortal emphysema of the liver /P/, Normal and postmortal pancreas (HE)/S/
2. Necrosis-apoptosis: Karyorrhexis in inadequately handled sample (HE) /S/,
- 3-4. Coagulative necrosis: Anaemic infarct of the heart /P/, Anaemic infarct of the spleen and splenomegaly /P/, Pylethrombosis(thrombosis of the portal vein) /P/, Mycotic enteritis /P/,
- 3-4. Coagulative necrosis: Anaemic infarct of the heart /P/, Anaemic infarct of the spleen and splenomegaly /P/, Pylethrombosis (thrombosis of the portal vein) /P/, Mycotic enteritis /P/,
5. Liquefactive necrosis: Cysta post encephalomalaciam - chr. Endocarditis /P/, Cerebral abscess /P/, Pancreas fatnecrosis -- acute pancreatitis /P/
6. Degeneration: Insular fatty degeneration of the myocardium /P/, Steatosis hepatic /P/, Hepar moschatum adiposum /P/,
7. Pathological accumulation: Fatty infiltration of the myocardii /P/, Aortic athersclerosis -- complicated plaques in abdominal aorta /P/,
8. Pigment accumulation - Endogenous pigments: Haemochromatosis universalis (Prussian blue) /P/, Brown induration of the lung /P/, Brown atrophy of the heart /P/, Malignant melanoma /P/, Ochronosis /P/
9. Pigment accumulation - Exogenous pigments: Miliary and tumorous silicosis of the lung /P/, Miliary silicosis of the lung (HE) /S/, Anthracosis of lymph node (HE) /S/
10. Calcification, lithiasis: Cholelithiasis – empyema /P/, Table of frequent stones, Petrified myoma of the uterus /P/, Microcalcification of the breast (mammography), Urolithiasis – hydronephrosis /P/, Nodular calcified aortic stenosis /P/
11. Growth disturbances: Brown atrophy of the heart /P/, Cerebral atrophy /P/, Atrophy of the kidney, nephrosclerosis /P/, Concentric hypertrophy of the left ventricule of the heart /P/, Dilatative hypertrophy of the left ventricule of the heart /P/ Chronic cor pulmonale /P/
12. Growth disturbances: Prostatic hyperplasia /P/, Glandular cystic hyperplasia of the endometrium (HE) /S/, Prostatic hyperplasia (HE) /S/, Follicularis hyperplasia (lymph node) (HE) /S/, Paracorticalis hyperplasia (lymph node) (HE) /S/
13. Circulation I.: Hemorrhage: Epidural hemorrhage /P/, Chronic subdural hemorrhage /P/,
14. Edema, congestion: Cerebral edema, incarceration of cerebellar tonsils /P/, Brown induration of the lung /P/
15. Thrombosis: Abdominal aortic aneurysm - parietal thrombosis /P/, Endocarditis - left atrial 'ball' thrombus /P/, Septic endocarditis /P/, Lung infarct /P/
16. Embolisation: Partial pulmonary embolisation - pulmonary infarct (HE) /S/, Fat emboli in kidney (lipid stain) /S/

17. Fibrinous, fibrinopurulent inflammation: Fibrinous pericarditis - cor villosum /P/, Concretio pericardii /P/, Lobar pneumonia /P/, Bronchopneumonia /P/
18. Gangrenous inflammation: Foreign body in bronchi /P/, Acute appendicitis (HE) /S/
19. Specific granulomatous inflammation: Miliary tuberculosis of the lungs /P/, Generalised tuberculosis /P/, Phthisis cavernosa /P/, Phthisis renalis /P/
20. Specific granulomatous inflammation: Pulmonary sarcoidosis – BHL /P/, Sarcoidosis in lymph node (HE) /S/, Lipogranuloma in breast (HE) /S/, Foreign body granuloma (HE) /S/
21. Immunopathology: Follicular hyperplasia (lymph node) (HE) /S/, Paracortical hyperplasia (lymph node) (HE) /S/, Eosinophil cell reaction in nasal polyp (HE) /S/, Hashimoto thyroiditis (HE) /S/, Bronchial asthma (HE and PAS) /S/
22. Immunopathology: Acute rejection in kidney /P/, Honeycomb lung /P/, Amyloidosis with plasmacell dyscrasia /P/, Acute rejection in kidney (HE and PAS) /S/, CMV lung (HE) /S/, Renal amyloid (Congo) (slide presentation)
23. Genetic: The Mendelian disorders: Mucoviscidosis /P,S/ Thesaurismosis: Gaucher disease (HE) /S/
24. Disorders with polygenic inheritance: Anencephaly /P/, Spina bifida and meningocele /P/
25. Metaplasia - dysplasia: Leukoplakia of the cervical portion /P/, Excised pregnant uterus because of cervical carcinoma /P/ Cervical intraepithelial neoplasia CIN III (PAS) /S/
26. Other tumors: Leiomyoma of uterus /P/, Cysta dermoides /P/, Meningeoma /P/, Carcinoma planocellulare of lower lip (HE) /S/
27. Local and metastatic tumour spreading: Pulmonary metastases /P/, Lymphangitis carcinomatosa /P/, Linitis plastica and Krukenberg tumor /P/, Carcinoma ventriculi (lymph node metastasis) (HE)
28. Clonality, prognosis, histogenesis: Myeloma multiplex (kappa, lambda IPO) /S/, Invasive breast carcinoma (lymph node metastasis) (PR + HE) /S/, Polypus adenomatous coli (p53) /S/

Exam topics/questions

Preparations

I. Postmortal changes - necrosis

1. Adipocera
2. Postmortal emphysema of the liver
3. Necrosis and its subtypes (oncosis, apoptosis) (photo)
4. Anaemic infarct of the heart
5. Anaemic infarct of the spleen and splenomegaly
6. Pylethrombosis, (thrombosis of the portal vein)
7. Mycotic enteritis
8. Phthisis renalis (caseation)
9. Sacral decubitus
10. Gangraena sicca of the toes
11. Cysta post encephalomalaciam - chr. endocarditis
12. Cerebral abscess
13. Pancreas fatnecrosis -- acute pancreatitis

II. Degeneration, pathological accumulation, pigments, calcification

14. Insular fatty degeneration of the myocardium
15. Steatosis hepatis
16. Hepar moschatum adiposum
17. Fatty infiltration of the myocardii
18. Aortic atherosclerosis -- complicated plaques in abdominal aorta
19. Haemochromatosis universalis (Prussian blue)
20. Brown induration of the lung
21. Brown atrophy of the heart
22. Malignant melanoma
23. Ochronosis
24. Miliary and tumorous silicosis of the lung
25. Amyloidosis with plasmacell dyscrasia
26. Cholelithiasis - empyema
27. Table of frequent stones
28. Petrified myoma of the uterus
29. Microcalcification of the breast (mammography)
30. Urolithiasis -- hydronephrosis
31. Nodular calcified aortic stenosis

III. Growth disturbances

32. Brown atrophy of the heart
33. Cerebral atrophy
34. Atrophy of the kidney, nephrosclerosis
35. Concentric hypertrophy of the left ventricle of the heart
36. Dilatative hypertrophy of the left ventricle of the heart
37. Chronic cor pulmonale
38. Prostatic hyperplasia

IV. Circulation

39. Epidural hemorrhage
40. Chronic subdural hemorrhage
41. Subarachnoid hemorrhage
42. Cerebral apoplexy
43. Cerebral purpura
44. Cerebral edema, incarceration of cerebellar tonsils
45. Brown induration of the lung
46. Abdominal aortic aneurysm -- parietal thrombosis
47. Left atrial -- ball -- thrombus
48. Lung infarct

V. Inflammation

49. Fibrinous pericarditis - cor villosum
50. Concretio pericardii
51. Lobar pneumonia
52. Bronchopneumonia
53. Purulent meningitis
54. Pulmonary abscess
55. Hepatic abscess
56. Cerebral abscess
57. Chronic cholecystitis
58. Chronic pyelonephritis
59. Chronic endocarditis and cysta post encephalomalatiam
60. Miliary tuberculosis of the lungs
61. Generalised tuberculosis
62. Phtisis cavernosa
63. Phtisis renalis (repetition)
64. Pulmonary sarcoidosis - BHL
65. Pleural callus
66. Foreign body in bronchi

VI. Immunpathology

67. Acute rejection in kidney
68. Honeycomb lung

VII. Genetics

69. Anencephaly
70. Spina bifida (meningomyelocele)
71. Mucoviscidosis (meconium ileus)

VIII. Oncology

72. Leukoplakia of the cervical portion
73. Cervical carcinoma
74. Fibroadenoma of breast
75. Carcinoma of the breast
76. Bronchial carcinoma
77. Rectal polyp
78. Rectal adenocarcinoma
79. Leiomyoma of uterus
80. Cysta dermoides
81. Meningeoma
82. Pulmonary metastases
83. Lymphangitis carcinomatosa
84. Linitis plastica and Krukenberg tumor

Slides

I. Postmortal changes - necrosis

1. Normal and postmortal pancreas (HE)
2. Karyorrhexis in inadequately handled sample (HE)
3. Anaemic infarct of the myocardium (HE)
4. Hemorrhagic infarct of the lung (HE)
5. Caseous lymphadenitis (HE)
6. Encephalomalacia alba (HE)
7. Acute pancreatitis -- fatnecrosis (HE)

II. Degeneration, pathological accumulation, pigments, calcification

8. Insular fatty degeneration of the myocardium (Oil Red)
9. Steatosis hepatis (HE and Oil Red)
10. Aortic atheromatosis (Oil Red)
11. Haemosiderosis of liver (Prussian blue and HE)
12. Bile pigment in cirrhotic liver (HE)
13. Brown induration of the lung (Prussian blue)
14. Malignant melanoma (HE)
15. Miliary silicosis of the lung (HE)
16. Anthracosis of lymph node (HE)
17. Renal amyloid (Congo) (presentation)
18. Calcification in breast cancer (Kossa reaction) (presented with mammograph)
19. Psammom bodies (Carcinoma papillare) (HE)

III. Growth disturbances

20. Neonatal (diploid nuclei) and hypertrophic (polyploid nuclei) cardiac muscle (HE)
21. Glandular cystic hyperplasia of the endometrium (HE)
22. Prostatic hyperplasia (HE)

IV. Circulation

23. Hepar moschatum adiposum (HE)
24. Pulmonary edema (HE)
25. Thrombosis of femoral artery with recanalisation (HE)
26. Partial pulmonary embolisation -- pulmonary infarct (HE)
27. DIC (fibrinthrombi in kidney) (fibrin stain)
28. Fat emboli in kidney (lipid stain)

V. Inflammation

29. Fibrinous pericarditis - cor villosum (HE)
30. Lobar pneumonia (HE)
31. Bronchopneumonia (HE)
32. Purulent meningitis (HE)
33. Cerebral abscessus (HE)
34. Acute appendicitis (HE)
35. Chronic cholecystitis (HE)
36. Foreign body granuloma (HE)
37. Miliary tuberculosis of the lung (HE)
38. Mycobacterial infection demonstration (ZN)
39. Sarcoidosis in lymph node (HE)
40. Lipogranuloma in breast (HE)

VI. Immunopathology

41. Follicular hyperplasia (lymph node) (HE)
42. Paracortical hyperplasia (lymph node) (HE)
43. Eosinophil cell reaction in nasal polyp (HE)
44. Hashimoto thyroiditis (HE)
45. Bronchial asthma (HE and PAS)
46. Acute rejection in kidney (HE and PAS)
47. CMV lung (HE)

VII. Genetics

48. Mucopolysaccharidosis (HE)
49. Hurler syndrome: Gaucher disease (HE)

VIII. Oncology

50. Cervical intraepithelial neoplasia CIN III (PAS)
51. Carcinoma planocellulare of lower lip (HE)
52. Carcinoma coli (lymph node metastasis) (HE)
53. Myeloma multiplex (kappa, lambda IPO)
54. Invasive breast carcinoma (lymph node metastasis) (PR + HE)
55. Polypus adenomatousus coli (p53)

Exam questions

I. Introduction -- Postmortem changes - cell death

1. The objectives of pathology and its place among the biomedical disciplines. Significance of biopsy (surgical pathology) and autopsy in the everyday medical practice. Brief summary of the historical development of pathology (humoral- and solid pathology, Morgagni, Virchow, molecular pathology)
2. Methodology of pathology (light-, polarisation- and electronmicroscopy, histo- and cytochemistry, immunohistology, in situ molecular biological methods, flow cytometry; examples which were discussed or demonstrated during lectures and seminars).
3. The definition and criteria of death. Supravital reactions. Early and late post-mortem changes. Sudden infant death syndrome (SIDS).
4. Different forms of response to injury. Causes, pathomechanism, light- and electronmicroscopical hallmarks of cellular necrosis. Apoptosis.
5. Coagulative necrosis, organ manifestations
6. Clinicopathology of the acute myocardial infarction (AMI)
7. Liquefactive necrosis, organ manifestations

II. Degeneration, pathological accumulation, pigments, calcification

8. The definition and types of degenerations. Parenchymal and fatty degeneration. Organ examples.
9. Pathomorphology, pathogenesis and complications of atherosclerosis

10. Exogenous and endogenous pigments. Histochemical characteristics of the different pigments
11. Anthracosis and silicosis
12. Hemoglobinogenic pigments I. Porphyrin and haematoidin.
13. Hemoglobinogenic pigments II. Different forms of jaundice and cholestasis, morphology, differential diagnostics.
14. Hemoglobinogenic pigments III. Pathological forms of iron storage.
15. Endogenous non-hemoglobinogenic pigments: lipofuscin, melanin, homogentisinic acid.
16. Dystrophic calcification. Causes, pathomechanism and organ manifestations
17. Metastatic calcification. Causes, pathomechanism, organ manifestations.
18. Pathomechanism and clinicopathological forms of stone formation.
19. Definition and general characterisation of amyloidosis. Physico-chemical, ultrastructural and histochemical nature of amyloid. Types of amyloid fibrils
20. Clinicopathological forms of amyloidosis, organ manifestations (gross morphology and light microscopy)

III. Growth disturbances

21. Causes of atrophy; general gross morphology and microscopical characteristics. Pathomechanism of atrophy
22. Definition of atrophy, hypoplasia, aplasia, agenesis. Osteoporosis.
23. Cerebral atrophy - Alzheimer disease.
24. Definition, types and organ examples of hyperplasia.
25. Glandular cystic hyperplasia of the endometrium. Bone marrow hyperplasia
26. Prostate hyperplasia. Lymph node hyperplasia (follicular and paracortical)
27. Definition of hypertrophy (causes, morphology, changes at cell cycle)
28. Left ventricular hypertrophy. Causes, sequential compensatory changes and functionally consequences.
29. Cor pulmonale chronicum.
30. Healing by primary and secondary intention (Sanatio per primam et per secundam intentionem)

IV. Thrombosis, embolism, edema, hemorrhages

31. Definition of edema, pathomechanism (Starling law), clinical forms.
32. Pathomechanism of hemorrhages. Clinical presentations.
33. Clinical presentation of hemorrhages.
34. Pathomechanism of hemorrhagic diathesises, clinical forms.
- 35.. Definition, and forms and pathogenesis of thromboses, factors affecting thrombus formation.
36. Clinical consequences of thrombosis, the fate of thrombus.
- 37.. Disseminated intravascular coagulation (DIC): definition, pathomechanism, complications.
- 38.. Definition and forms of embolism
- 39.. Causes and pathomechanism of shock.
- 40.. Clinicopathological classification of hypertension and complications

V. Inflammation

41. Vascular and humoral mechanisms of acute inflammations
42. Cellular mechanism of acute inflammation.
43. Clinicopathological classification of the acute inflammations I.: Serous and fibrinous inflammations. Organ examples.
44. Clinicopathological classification of the acute inflammations II.: Purulent, haemorrhagic and gangrenous inflammation. Organ examples.
45. Definition, cellular and humoral mechanisms and classification of chronic inflammations
46. Pathogenesis and pathomorphology of tuberculosis
47. Clinicopathological presentation of tuberculosis
48. Foreign body type of inflammatory response (characteristics and examples)
49. Autoimmune chronic inflammations. Rheumatoid arthritis

VI. Immunopathology

50. Type I. and type II. hypersensitivity reactions, mechanisms and related disorders.
51. Type III. and type IV. hypersensitivity reactions, related disorders.
52. Transplantation immunity
53. Pathogenesis of autoimmune disorders
54. Systemic lupus erythematoses (SLE)

- 55. Congenital immunodeficiency syndromes
- 56. Acquired immunodeficiency syndrome (AIDS)

VII. Genetics

- 57. The incidence of genetic disorders and the basic types of mutations. The four types of genetic disorders.
- 58. The four types of the genetic disorders. Autosomal dominant inheritance: characteristics and examples
- 59. Autosomal recessive and X-linked inheritance: hallmarks and examples.
- 60. Multifactorial inheritance and examples.
- 61. Marfan and Ehlers-Danlos syndromes.
- 62. Familial hypercholesterinaemia
- 63. Cystic fibrosis
- 64. The lysosomal storage disorders, glycogenoses, mucopolysaccharidoses.
- 65. Multifactorial inheritance and disease examples.
- 66. Single gene disorders with non-mendelian inheritance and related disorders.

VIII. Oncology

- 67. The definition of metaplasia, examples. Interrelationship of metaplasia and dysplasia
- 68. The definition and morphological characteristics of dysplasia - anaplasia, organ examples for dysplasia..
- 69. General characteristics of benign and malignant tumours. Terminology and histogenetic classification of tumours.
- 70. Characteristics and analysis of kinetics of tumour cell growth. Clonality of tumours, methods to investigate clonality
- 71. Local and metastatic tumour spreading
- 72. Hereditary and acquired precancerous conditions and their pathomechanisms predisposition for cancer and pathomechanisms.
- 73. Overall cancer epidemiology (the most frequent tumours, geographic and age related differences)
- 74. The role of oncogenes and tumor suppressor genes in the cancerogenesis
- 75. Chemical and radiation cancerogenesis
- 76. Viral cancerogenesis
- 77. Oncopathological diagnostic strategy, grading, staging

Comment: The Department of Pathology reserves the right of minor modifications in the curriculum

OAPGT2 PHARMACOLOGY 2

Course director:

DR. LORÁND BARTHÓ, professor
Department of Pharmacology and Pharmacotherapy

4 credit • semester exam • Pre-clinical module • spring semester • recommended semester: 6

Number of hours/semester: **28 lectures + 0 practices + 28 seminars = total of 56 hours**

Headcount limitations (min-max.): **5 – 0**

Prerequisites: **see in the recommended curricula!**

Topic

The general aim of the subject is to provide the medical students with all the basic information in pharmacology necessary to understand the actions of drugs and the clinical pharmacotherapy and to pass the Foreign Medical Graduate Examination in Medical Sciences. Pharmacology can be defined as the study of the manner in which the function of living systems is affected by chemical agents. Therefore, the students should be familiar with the basic knowledge of the physiological, pathophysiological and biochemical background of the pharmacological and therapeutic approaches. On the other hand, drug therapy is closely related to the clinical aspects of diseases.

The following topics will be dealt with: Cardiovascular pharmacology: drugs used to treat congestive heart failure, antianginal, antiarrhythmic, antihypertensive drugs, diuretics, calcium channel blockers, drugs acting on the renin-angiotensin-aldosterone system. Drugs affecting haemostasis, haematopoiesis and hyperlipoproteinaemias. Pharmacology of histamine, serotonin and eicosanoids. Opioid analgesic drugs, cyclooxygenase inhibitors. Pharmacology of the central nervous system: general anaesthetics, alcohols, antipsychotic drugs, antidepressants, antianxiety and hypnotic drugs, antiepileptics, central nervous system stimulants, nootropic agents, treatment of neurodegenerative disorders, drug abuse and dependence. Pharmacology of the respiratory tract and the gastrointestinal tract.

Conditions for acceptance of the semester

Making up for missed classes

Each missed seminar has to be made up for with another group in the same week.

Reading material

Rang, Dale, Ritter, Moore: Pharmacology, 6th edition
Elsevier Churchill Livingstone, 2007, ISBN 0-443-06911-5

B. G. Katzung (ed.): Basic and Clinical Pharmacology, 11th edition
Lange Medical Books/McGraw-Hill, 2009, ISBN 978-007-127118-9

Lectures

1. Calcium channel blockers
2. Drugs acting on the renin-angiotensin-aldosterone system
3. Diuretic drugs I
4. Diuretic drugs II
5. Drugs used to treat congestive heart failure I
6. Drugs used to treat congestive heart failure II
7. Antianginal drugs I
8. Antianginal drugs II. Drugs that increase regional blood flow
9. Antiarrhythmic drugs I
10. Antiarrhythmic drugs II
11. Antihypertensive drugs I
12. Antihypertensive drugs II
13. Antianxiety and hypnotic drugs I
14. Antianxiety and hypnotic drugs II
15. Pharmacology of alcohols I
16. Pharmacology of alcohols II
17. Antipsychotic drugs I
18. Antipsychotic drugs II
19. Antidepressants I
20. Antidepressants II
21. Antiepileptic drugs I
22. Antiepileptic drugs II. Centrally-acting muscle relaxants
23. Opioid analgesic drugs I
24. Opioid analgesic drugs II
25. Opioid analgesic drugs III

26. Non-steroidal antiinflammatory drugs I
27. Non-steroidal antiinflammatory drugs II
28. Adjuvant analgesics. Drug treatment of gout

Practices

Seminars

1. Histamine, H1 receptor antagonists
2. H2 receptor antagonists
3. Serotonin, serotonin receptor agonists
4. Serotonin receptor antagonists
5. Pharmacology of eicosanoids
6. Drugs acting on the smooth muscle including uterine muscle
7. Drugs used to treat hyperlipoproteinaemias I
8. Drugs used to treat hyperlipoproteinaemias II
9. Drugs affecting haemostasis I
10. Drugs affecting haemostasis II
11. Drugs affecting haematopoiesis I
12. Drugs affecting haematopoiesis II
13. Pharmacology of the respiratory tract I
14. Pharmacology of the respiratory tract II
15. Pharmacology of the gastrointestinal tract I
16. Pharmacology of the gastrointestinal tract II
17. Pharmacology of the gastrointestinal tract III
18. Pharmacology of the gastrointestinal tract IV
19. General anaesthetics I
20. General anaesthetics II
21. Drug treatment of neurodegenerative disorders I
22. Drug treatment of neurodegenerative disorders II
23. Drug abuse and dependence: general principles
24. Drug abuse and dependence: opioids, antianxiety and hypnotic drugs
25. Drug abuse and dependence: ethanol, inhalants
26. Drug abuse and dependence: psychomotor stimulants I
27. Drug abuse and dependence: psychomotor stimulants II. Nootropic agents
28. Drug abuse and dependence: psychedelics, cannabis

Exam topics/questions

1. Calcium channel blockers
2. Drugs acting on the renin-angiotensin-aldosterone system
3. Diuretic drugs
4. Drugs used to treat congestive heart failure
5. Antianginal drugs. Drugs that increase regional blood flow
6. Antihypertensive drugs
7. Antiarrhythmic drugs
8. Drugs used to treat hyperlipoproteinaemias
9. Drugs affecting haemostasis
10. Drugs affecting haematopoiesis
11. Histamine, H1 and H2 receptor antagonists
12. Serotonin, serotonin receptor agonists and antagonists
13. Pharmacology of eicosanoids. Drugs acting on the smooth muscle: smooth muscle relaxants, pharmacology of the uterine muscle
14. Drugs used in bronchial asthma
15. Drugs used in allergic rhinitis. Antitussive, expectorant and mucolytic agents
16. Drugs used in the treatment of peptic ulcer
17. Emetics, antiemetics and prokinetic drugs
18. Laxatives, antidiarrhoeal agents, drug treatment of inflammatory bowel disease and paralytic ileus, digestives, drugs used in cholelithiasis
19. Antianxiety and hypnotic drugs
20. Alcohols: pharmacology, toxicology
21. Antipsychotic drugs
22. Antidepressants

23. General anaesthetics
24. Antiepileptic drugs
25. Psychomotor stimulants and nootropic agents
26. Drug treatment of neurodegenerative disorders
27. Drug abuse and dependence: general principles, opioids, anti-anxiety and hypnotic drugs, inhalants, ethanol
28. Drug abuse and dependence: psychomotor stimulants, psychedelics, cannabis
29. Opioid analgesic drugs: morphine and codeine
30. Opioid analgesic drugs: semisynthetic, synthetic opioids, opioid antagonists
31. Non-steroidal antiinflammatory drugs: aspirin, paracetamol
32. Non-steroidal antiinflammatory drugs: pyrazolones, propionic acid derivatives, indole derivatives and others. COX-2 inhibitors
33. Adjuvant analgesics. Drugs used to treat gout. Centrally-acting muscle relaxants

OAPKO2 PATHOPHYSIOLOGY 2

Course director:

DR. ÁKOS KOLLER, professor
Department of Pathophysiology and Gerontology

5 credit • final exam • Pre-clinical module • spring semester • recommended semester: 6

Number of hours/semester: **42 lectures + 4 practices + 24 seminars = total of 70 hours**

Headcount limitations (min-max.): **5 – 150**

Prerequisites: **see in the recommended curricula!**

Topic

Pathophysiology-2 deals with the etiology, time-course and clinical symptoms, as well as with possible pharmacological and other interventions in disorders of the gastrointestinal system, energy balance, intermediary metabolism and endocrine systems.

Conditions for acceptance of the semester

Less than 15% (max. 3) absence from seminars. Participation at the mid-term test.

Making up for missed classes

Absentees can make up for their absence by participating at the seminar of another group on the same week.

Reading material

Koller Á.: 606 minimum-questions. PTE ÁOK, 2010

Basic Concepts in Pathophysiology (ed.: M. Székely), ÁOK PTE, 2007

(Color Atlas of Pathophysiology /S. Silbernagl, F. Lang/, Thieme Stuttgart - New York, 2000)

Lectures

1. Age-related problems in pathophysiology
2. Peripheral neuropathies. Pathophysiology of pain
3. Swallowing and esophageal disorders
4. Disorders of gastric filling and emptying. Vomiting
5. Ulcer disease
6. Dysmotilities. Ileus
7. Maldigestion, malabsorption. Diarrhea
8. Forms of pancreatitis
9. Liver: metabolic functions and detoxication. Jaundice
10. Portal hypertension, ascites, cirrhosis
11. Hepatic coma
12. Alcohol, alcoholism, pathophysiological aspects
13. Factors and changes of energy balance. Body mass
14. Full starvation
15. Partial starvation
16. Negative energy balance, sarcopenia. Abnormalities of body composition
17. Obesity
18. Disorders of cold defense
19. Disorders of warm defense
20. Fever and sickness behavior
21. Pathophysiology of carbohydrate metabolism
22. Diabetes mellitus (DM) syndrome
23. Type-1 DM: etiology, pathogenesis, pathomechanism
24. Type-2 DM: etiology, pathogenesis, pathomechanism
25. Acute complications of DM, diabetic coma
26. Vascular changes in DM
27. Other late complications of DM
28. Hypoglycemia
29. Disorders of protein and amino acid metabolism
30. Disorders of nucleic acid metabolism
31. Disorders of lipid metabolism
32. Dyslipidemias
33. Atherosclerosis
34. Disorders of the hypothalamo-pituitary system
35. Hyperprolactinemia. Disorders of growth
36. Thyroid hyperfunctions
37. Thyroid hypofunctions

38. Disorders of the adrenal medulla. M.E.N.
39. Hypofunction of the adrenal cortex
40. Hyperfunction of the adrenal cortex. Glucocorticoid treatment
41. Disorders of the gonadal hormones. Adrenogenital syndrome
42. Disorders of the parathyroid gland, Ca and bone

Practices

1. Complex analysis of energy balance (demonstration) I
2. Complex analysis of energy balance (demonstration) II
3. Screening for metabolic syndrome I
4. Screening for metabolic syndrome II

Seminars

1. Recommendations in human nutrition
2. Diet. Enteral and parenteral nutrition
3. Macro- and micronutrients
4. Vitamins
5. Age-related specificities of salt/water balance
6. Age-related specificities of acid/base balance
7. Physical activity, inactivity. Factors connected with lifestyle/age
8. Immobilisation syndrome
9. Disorders of consciousness, coma
10. Acute loss of consciousness
11. Case reports (ethylene glycol- or mushroom-intoxication)
12. Case reports (septic shock, traumatic shock)
13. Case reports (type-1 diabetic coma)
14. Case reports (type-2 diabetic coma)
15. Case reports (late complications of DM, aspects of therapy in DM)
16. Case reports (hypoglycemic coma)
17. Case reports (heat stroke)
18. Case reports (acute stress ulcer)
19. Case reports (pericarditis, anemia)
20. Case reports (pathological changes in pregnancy)
21. Case reports (cirrhosis)
22. Case reports (pancreatitis)
23. Case reports (complications of osteoporosis)
24. Case reports (hyperthyroidism in the elderly)

Exam topics/questions

Questions for final exam (in addition to questions of the 1st semester):

Disorders of chewing, swallowing and esophagus functions - the gastro-esophageal reflux disease.

Disorders of gastric filling and emptying.

Vomiting (acute, chronic).

Pathophysiology of GIT-peptides.

Peptic ulcer. Stress-ulcer in the elderly.

Utilization of nutrients and its disorders. Maldigestions. Age-dependent features of nutrient utilization.

Specific malabsorption syndromes (level or substrate of disorder).

Complex malabsorption syndromes.

Diarrhea: causes, pathophysiological forms, consequences.

Bowel obstruction (ileus).

Obstipation, subileus, diverticulosis. GIT motility disorders.

Acute pancreatitis: pathophysiology and consequences.

Pathophysiology of chronic pancreatitis.

Disorders of intermediary metabolism in general liver cell damage.

Jaundice.

Cirrhosis: causes, mechanisms and consequences. Hepatic cachexia.

Portal hypertension.

Ascites and hepatorenal syndrome.
Hepatic coma.
Pathophysiology of alcohol effects.

Gastroenterological changes in the elderly.
Energy balance: influencing factors, pathological changes.
Physical activity, inactivity, immobilization syndrome. Factors from lifestyle and age.
Hypo- and hypervitaminosis, micronutrients.
Water-soluble vitamins.
Fat-soluble vitamins.

Complete starvation: occurrence and process.
Partial starvation, accelerated forms of energetic insufficiency - anorexia nervosa. Refeeding.
Protein deficiency. Protein-calorie malnutrition. Senile sarcopenia.
Central and peripheral factors in the regulation of food intake and body weight. Disorders.
Obesity: criteria, classification and epidemiology.

Etiology and pathogenesis of obesity.
Consequences of obesity. Therapeutic possibilities.
Metabolic syndrome.
Cold-defense and cold-induced disorders.
Warm-defense and heat-induced disorders.

Heat stroke and malignant hyperthermia.
Pathogenesis of fever.
Fever and sickness-behavior. The biological value of fever.
Hyperglycemia and glucose-tolerance tests. Diagnosis of diabetes mellitus.
Basic characteristics and forms of diabetes mellitus syndrome.

General pathobiochemistry of diabetes mellitus syndrome.
Etiology and pathogenesis of 1DM.
Etiology and pathogenesis of 2DM.
Diabetic ketoacidosis (DKA) and ketoacidotic coma.
Diabetic hyperosmolar syndrome (HHS) and coma.

Late complications of diabetes mellitus: Diabetic micro- and macro-vascular disorders.
Pathobiochemistry of the late complications of diabetes mellitus.
Hypoglycemia.
Hypo-, hyper- and dys-proteinemia.
Disturbances of amino acid metabolism.

Disorders of nucleic acid metabolism. Gout.
Pathobiochemistry of LDL-metabolism. Primary and secondary hyperlipoproteinemia.
Atherosclerosis: its cellular and molecular pathophysiology.
Disorders of the hypothalamo-pituitary system. Pituitary insufficiency.
Hyperprolactinemia.

Pathophysiology of growth.
Hyperthyroidism. Specialities in the elderly.
Hypothyroidism. Specialities in the elderly.
Goiters.
Disturbances of the adrenal medulla and the sympathetic system - pheochromocytoma.

Adrenogenital syndrome. Disorders of gonadal hormones.
Adrenal (cortex) insufficiency.
Primary hyperaldosteronism.
Secondary hyperaldosteronism.
Glucocorticoid hyperfunctional states.

Pathophysiological aspects of glucocorticoid therapy.

Parathyroid abnormalities.

Hypocalcemia, hypercalcemia.

Mechanisms and disturbances of bone remodeling. Osteoporosis, osteomalacia.

Disturbances of consciousness, vigilance. Coma. Acute unconsciousness.

Peripheral neuropathies. Pathophysiology of pain.

Age-related problems in pathophysiology.

Note: Oral exam. Sit-in condition: a test of 'minimum-questions' must be completed at 8 a.m. on the day of the exam, by a success rate of at least 90%. The final exam consists of 3 questions (one card) and the analysis of 1 ECG record as well as 1 case report.

OAPMI2 MICROBIOLOGY 2

Course director:

DR. JÚLIA SZEKERES, professor
Department of Medical Microbiology and Immunology

5 credit • final exam • Pre-clinical module • spring semester • recommended semester: 6

Number of hours/semester: **42 lectures + 28 practices + 0 seminars = total of 70 hours**

Headcount limitations (min-max.): **4 – 200**

Prerequisites: **see in the recommended curricula!**

Topic

Systematic bacteriology, mycology and parasitology are the main subjects of the second semester. The course is completed by a block of lectures integrating the knowledge using a clinical microbiological approach, i.e. discussing microbiology from an organ system-based point of view. The objective is to provide solid knowledge on the pathophysiology of infections required to request, understand and interpret results received from the microbiology laboratory.

Conditions for acceptance of the semester

At the end of both semesters the students will sit for written examinations (MCQ) in microbiology. The subject of the examinations is the information provided on the lectures and practices during the first and second semesters.

A pre-requisite for taking the final exam is having passed the lab practice exam.

Making up for missed classes

The student missing any of the practicals is expected to make arrangements with groups other than his/her own to cover the subject of that particular practical.

Reading material

Murray PR, Rosenthal KS, Pfaller MA: Medical Microbiology, Elsevier Mosby
2005
ISBN: 0-323-03303-2

D. Greenwood et al.: Medical Microbiology, Churchill Livingstone, 2003
ISBN: 0-443-07077-6

Brooks GF, Butel JS, Morse SA: Jawetz, Melnick, and Adelberg's: Medical
Microbiology, Lange Medical Book, 2004
ISBN: 007-141207-7

F.H. Kayser, K.A. Bienz, J. Eckert, R.M. Zinkernagel: Medical Microbiology, Thieme Stuttgart 2005
ISBN: 3-13-131991-7

A.K. Abbas, A.H. Lichtman, S Pillai: Cellular and Molecular Immunology. (6th ed.) Saunders, 2007
ISBN: 1416031227 (5th ed 2005, ISBN: 1416023895)

Lectures

1. Staphylococcus, pyogenic infections, Toxic Shock Syndrome, food poisoning
2. Streptococcus infections (S.pyogenes, S. viridans group, S. pneumoniae)
3. Peptococcus, Peptostreptococcus, Neisseria
4. Properties of Enterobacteriaceae, Enteropathogenic Escherichia coli groups, Shigella genus
5. Members of Enterobacteriaceae causing extraintestinal infections (E. coli, Proteus, Citrobacter, Klebsiella, Enterobacter)
6. Salmonella Yersinia,
7. Campylobacter, Helicobacter
8. Vibrio, Aeromonas, Pseudomonas, Acinetobacter
9. Parvobacteria, Francisella, Legionella
10. Bacillus genus, histolytic Clostridia
11. Neureotoxic Clostridia, C. difficile
12. Anaerobic infections, Bacteroides, Fusobacterium, Veillonella
13. Corynebacterium, Listeria, Erysipelothrix
14. Mycobacteria I.
15. Mycobacteria II.
16. Treponema, Spirillum, Streptobacillus
17. Borrelia, Leptospira,
18. Rickettsiales, Coxiella, Bartonella

19. Chlamydia, Mycoplasma, Ureaplasma, Acholeplasma
20. General mycology. Dermatomycoses
21. Systemic mycoses
22. Opportunistic mycoses
23. Introduction, the biology of parasites
24. Protozoology: Intestinal and atrial protozoa
25. Tissue and blood protozoa
26. Helminthology: Intestinal helminths Mestyán Gyula Dr
27. Tissue dwelling helminths
28. Anti-fungal and anti-parazitic drugs
29. Methods of the clinical and epidemiological microbiology
30. Microbiology of the central nervous system infections
31. Microbiology of the urinary tract infections
32. Enteric infections, food poisonings
33. Microbiology of the respiratory infections
34. Skin and deeper tissue infections
35. Microbiology of the sexually transmitted diseases
36. Bacteraemia, sepsis, blood culture, fever (pyrexia) of unknown origin (FUO or PUO)
37. Nosocomial and iatrogenic infections
38. Infections of the immunocompromised patient
39. Anaerobic infections
40. Emerging infections
41. Resistance mechanisms against antibacterial drugs Mestyán Gyula Dr
42. Practical problems of antimicrobial therapy Mestyán Gyula Dr

Practices

1. Bacteriological diagnostics of pyogenic infections; blood cultures
2. Bacteriological diagnostics of pyogenic infections; blood cultures
3. Bacteriological diagnostics of pyogenic infections; blood cultures
4. Bacteriological diagnostics of pyogenic infections; blood cultures
5. Bacteriological diagnostics of urinary tract infections
6. Bacteriological diagnostics of urinary tract infections
7. Bacteriological diagnostics of urinary tract infections
8. Bacteriological diagnostics of urinary tract infections
9. Bacteriological diagnostics of gastrointestinal infections
10. Bacteriological diagnostics of gastrointestinal infections
11. Bacteriological diagnostics of gastrointestinal infections
12. Bacteriological diagnostics of gastrointestinal infections
13. Bacteriological diagnostics of lung and throat infections, bacteriological diagnosis of tuberculosis
14. Bacteriological diagnostics of lung and throat infections, bacteriological diagnosis of tuberculosis
15. Bacteriological diagnostics of lung and throat infections, bacteriological diagnosis of tuberculosis
16. Bacteriological diagnostics of lung and throat infections, bacteriological diagnosis of tuberculosis
17. Anaerobic infections
18. Anaerobic infections
19. Anaerobic infections
20. Anaerobic infections
21. Diagnostic mycology and parasitology
22. Diagnostic mycology and parasitology
23. Diagnostic mycology and parasitology
24. Diagnostic mycology and parasitology
25. Consultation
26. Consultation
27. Consultation, laboratory practice exam
28. Consultation, laboratory practice exam

Seminars

Exam topics/questions

THE WRITTEN EXAM CONSISTS OF MULTIPLE CHOICE QUESTIONS

(THE TOPICS OF THE FINAL EXAM ALSO INCLUDE THE TOPICS COVERED DURING THE FIRST SEMESTER) Completed exam in lab practice is required for sitting for the written exam. Having failed the written exam twice, the third (C) exam can be taken either as written or oral

OAPNEO PUBLIC HEALTH 4 (PREVENTIVE MEDICINE)

Course director:

DR. ISTVÁN EMBER, professor
Department of Public Health Medicine

2 credit • semester exam • Pre-clinical module • spring semester • recommended semester: 6

Number of hours/semester: **21 lectures + 7 practices + 0 seminars = total of 28 hours**

Headcount limitations (min-max.): **1 – 0**

Prerequisites: **see in the recommended curricula!**

Topic

The aim of the subject is to form a preventive attitude. The physicians have to know the different preventive strategies and they have to be able to use them in the practice.

Conditions for acceptance of the semester

In the 8th semester students have to do a final exam of Public Health, for it they need completed courses, which are the following: The basics of disease prevention (OABMA), General epidemiology and demography (OAAAED), Environmental Health (OAAKET), Preventive medicine (OAPNEO), Detailed epidemiology (OAKREP), Occupational hygiene and Occupational medicine (OAKMFO).

Making up for missed classes

Reading material

Coospace

Tompa (editor): Basic Principles of Public health (ISBN: 978 963 9879 13 3)

Maxcy, Rosenau, Last: Public Health and Preventive Medicine, 14th edition, Appleton and Lange (ISBN: 0-8385-6185-3)

Holland, Detels, Knox: Oxford Textbook of Public Health, 2th edition, Oxford University Press (ISBN: 0-1926-1706-0 (Volume 1), ISBN: 0-1926-1707-9 (Volume 2), ISBN: 0-1926-1708-7 (Volume 3), ISBN: 0-1926-1926-8 (Volumes 1-2-3 together))

Lectures

1. History of public health.
2. Prevention (primary, secondary, tertiary)
3. Geography of health
4. World health I.
5. World health II.
6. Primary and secondary factors of the outbreaks
7. The principles of the epidemiology of infectious diseases. The classification of infectious diseases
8. Prevention of communicable diseases I. (vaccinations)
9. Prevention of communicable diseases II. (Surveillance systems, registers, chemoprevention)
10. Nutrition and cardiovascular diseases
11. Nutrition and cancer
12. Role of nutrition in other non-communicable diseases
13. Food safety
14. Food-borne illnesses of chemical and microbiological origin
15. Food additives, genetically modified organisms
16. Role of chemoprevention in the non-communicable disease prevention
17. Intervention possibilities in the carcinogenic process
18. Human genetics in public health
19. Interaction of environmental and genetic factors in the disease development
20. Ethical and legal aspects in public health
21. Catastrophes and public health. Globalization and health

Practices

1. Tasks and operation of public health institutions.
2. Prevention possibilities of outbreaks. Public health law. Laboratory diagnostic
3. Control of infections: Sterilisation, disinfection, , disinsectization, deratisation,, isolation
4. Hospital hygiene. Prevention of nosocomial infectious diseases
5. Screening programs
6. Nutritional epidemiology (Nutritional status assessment, dietary assessment, anthropometric methods, nutritional requirements)
7. Genetic epidemiology

Seminars

Exam topics/questions

OAPPA2 PATHOLOGY 2 - SYSTEMIC - ORGAN PATHOLOGY

Course director:

DR. LÁSZLÓ PAJOR, professor
Department of Pathology

8 credit • final exam • Pre-clinical module • spring semester • recommended semester: 6

Number of hours/semester: **56 lectures + 28 practices + 28 seminars = total of 112 hours**

Headcount limitations (min-max.): **5 – 0**

Prerequisites: **see in the recommended curricula!**

Topic

There is a special emphasis on the clinicopathological view of the diseases, i.e., understanding the interrelationship of the clinical symptoms, macroscopical and microscopical changes of the diseased organs. To this end, clinicopathological thinking and the capability of differential diagnostics are required by the end of the academic year. The systemic pathology subject involves the major fields of organ pathology: cardio-vascular pathology, lung pathology, gastroenterology, liver–, biliary tract- and pancreas pathology, haematopathology, kidney disorders, male genital tract pathology, female genital tract and breast pathology, neuropathology, endocrine system disorders, skin-, skeletal system- and soft tissue pathology.

Conditions for acceptance of the semester

According to the Code of Studies of Examination. Absences exceeding 15% of the histopathology and autopsy classes together in either semester will result in not signing the gradebook.

Making up for missed classes

Reading material

S. L. Robins, V. Kumar: Basic Pathology, 7th edition Saunders Company, 2003. ISBN: 0-7216-9274-5

Lectures

- I. Diseases of the heart and blood vessels (5 lectures; lecturer: Dr. L. Pajor)
 1. Ischemic heart diseases. Sudden cardiac death.
 2. Valvular disorders, myocarditis.
 3. Cardiomyopathies, tumours of the heart and pericardial disorders.
 4. Congenital heart diseases.
 5. Vasculitides. Vascular tumours. Diseases of the veins and the lymphatic system
- II. Hematopathology (5 lectures; lecturer: Dr. Pajor)
 1. Ontogenesis of the lymphoid cells: pheno- and genotypic characteristics of the precursor and peripheral cell populations.
 2. Reactive lymph node changes: lymphadenitis, lymphadenopathies.
 3. The WHO classification of the tumors of haemopoietic and lymphoid tissues: basic principles and major categories.
 4. Non-Hodgkin and Hodgkin lymphomas
 5. Chronic myeloproliferative disorders (CMPDs)
 6. Myelodysplastic syndromes (MDS) and acute myeloid leukaemias (AML)
- III. Pulmonology (6 lectures; lecturer: Dr. László)
 1. Anatomy and defence mechanism of the respiratory tract. Disorders of the upper respiratory tract. Inflammations, necrotising inflammations. Tumours of the nasal cavity and the pharynges.
 2. Laryngeal oedema, tumours of the larynx. Disorders of the lower respiratory tract. Congenital anomalies. Disorders of vascular origin (thromboembolisation, infarction, pulmonary oedema, chronic congestion, IRDS, ARDS, atelectasis)
 3. The clinical characteristics of chronic obstructive disorders, types, morphology. Infectious lung diseases
 4. The general characteristics of chronic restrictive disorders, types, morphology.
 5. Tumours of the lung
 6. Pleural and mediastinal disorders
- IV. Gastroenterology (6 lectures, lecturer: Dr. L. Pajor)
 1. Congenital malformations of face, inflammatory -- tumor-like conditions and tumours of the oral cavity
 2. Inflammatory diseases and tumours of the salivary glands
 3. Congenital and acquired diseases of the oesophagus
 4. Pathology of the stomach
 5. Pathology of the small intestines
 6. Pathology of the colon and rectum
- V. Liver -- biliary tract -- pancreas (6 lectures; lecturer: Dr L.Pajor)
 1. Circulatory disorders of the liver. Non-viral inflammations in the liver. Drug hepatopathies
 2. Acute viral hepatitis
 3. Chronic viral hepatitis
 4. Cirrhosis and hepatic failure
 5. Tumor-like conditions and true neoplasia of the liver.

6. Pathology of the extrahepatic bile ducts and exocrine pancreas
- VI. Male genital and urinary tract (3 lectures; lecturer: Dr. Kálmán)
 1. Renal neoplasms. Pathology of the bladder and ureter.
 2. Pathology of the testis and the appendices.
 3. Pathology of the prostate. 4. Pathology of the penis.
- VII. Female genital tract (7 lectures; lecturer: Dr. Kálmán)
 1. Pathology of the vulva and the vagina. Inflammatory lesions of the female genital tract and STD.
 2. Pathology of the cervix.
 3. Pathology of the uterine corpus.
 4. Pathology of the ovaries.
 5. Pathology of pregnancy. (Abnormalities of implantation. Gestosis, Trophoblastic tumours).
 6. Pathology of the breast
- VIII. Neuropathology (6 lectures; lecturer: Dr. Gömöri)
 1. General characteristics of the cells of the central nervous system and their reactions to injury. Pathophysiological alterations of the central nervous system (edema of the brain, herniations, hydrocephalus)
 2. Malformations of the brain.
 3. Cerebrovascular disorders (focal and global ischaemic lesions, intracranial haemorrhage and hypertensive vascular lesions of the brain)
 4. Degenerative disorders and dementia (Alzheimer disease, Pick disease and Parkinson disease)
 5. Demyelination disorders: multiple sclerosis
 6. Infectious diseases of the CNS (bacterial infections, virus encephalitis, opportunistic infections, AIDS, parasitic and fungal infections).
 7. Prion disease
 8. Neuroepithelial tumours
 9. Meningiomas. Primary brain lymphoma, metastases of the brain
 4. Degenerative disorders and dementia (Alzheimer disease, Pick disease and Parkinson disease)
 5. Demyelination disorders: multiple sclerosis
 6. Infectious diseases of the CNS (bacterial infections, virus encephalitis, opportunistic infections, AIDS, parasitic and fungal infections).
 7. Prion disease
 8. Neuroepithelial tumours
 9. Meningiomas. Primary brain lymphoma, metastases of the brain
- IX. Endocrinology and soft tissue lesions (4 lectures; lecturer: Dr. Tornóczy)
 1. Pathological conditions of the hypothalamo-hypophyseal system
 2. Pathology of the thyroid gland (developmental abnormalities, hyperplasia, thyroiditis)
 3. Pathology of the thyroid gland (tumours). Pathology of the parathyroid glands
 4. Pathology of the adrenal gland. MEN
 5. Pathogenesis of the soft tissue tumors. Fibrous, fibrohistiocytic neoplasms of the soft tissues.
 6. Tumors of the fat tissue, smooth- and striated muscle.
 7. Synovial neoplasms, tumors of the peripheral nerves.
- X. Nephrology (5 lectures; lecturer: Dr. Kereskai)
 1. Renal failure
 2. Pathogenesis of glomerulonephritides
 3. Classification of glomerulonephritides
 4. Tubulointerstitial and vascular diseases
 5. Cystic diseases of the kidney. Nephrolithiasis
- XI. Pathology of the skin and bones (3 lectures; lecturer: Dr. Pajor)
 1. Benign and malignant tumours of the skin, premalignant lesions
 2. Naevus -- malignant melanoma
 3. Hereditary, inflammatory and metabolic bone diseases
 4. Benign and malignant bone tumours

Practices

1. There is a special emphasis on the clinicopathological view of the diseases, i.e., understanding the interrelationship of the clinical symptoms, macroscopical and microscopical changes of the diseased organs.
2. During the autopsy practice the actual organ lesions and their clinicopathological connections will be demonstrated.

Seminars

- I. Diseases of the heart and blood vessels
 1. Cardiology: ischemic heart disease: Aneurysma thrombotisatum ventriculi sinistri cordis /P/, Endocarditis: Endocarditis septica /P/, Endocarditis chronica - mitral stenosis /P/,

2. Diseases of the blood vessels: Degeneration: Dissecting aortal aneurysm /P/, Vasculitis: Luetic aortitis /P/, Arteritis temporalis (HE) /S/, Vascular tumors: Cavernous haemangioma of the liver /P/, Haemangioma cavernosum hepatis (HE) /S/, Kaposi sarcoma (HE) /S/
- II. Hematopathology
3. Reactiv changes (lymph node): Lymphadenitis with small granulomas (Toxoplasma lymphadenitis) (HE) /S/, Infectious mononucleosis aspiration cytology (picture), flow cytometry, slide-demonstration, Lymphomas: Burkitt's lymphoma /P/, Lymphomatous polyposis of small and large intestine /P/, B-CLL, smear (HE) /S/, CLL liver-infiltration (HE) /S/, CLL crista biopsy demonstration (HE) /S/, CLL bone marrow (HE) /S/, Hodgkin's disease, MC (HE) /S/, Large B-cell lymphoma with Russel and Dutcher bodies (HE and PAS) /S/
4. Plasmacell dyscrasia: Multiple myeloma /P/, Multiple myeloma -- bone marrow and kidney (kappa and lambda) /S/, Myeloproliferative disorders: CML - extreme splenomegaly /P/, CML, CP, smear (MGG) /S/
- III. Pulmonology
5. Upper respiratory tract: Foreign body in bronchi /P/, Carcinoma of the larynx -- supra- and subglottic involvement (2 preparations), Tracheobronchitis diphterica /P/, Pulmonary fibrosis, restrivtive disorders: BOOP (HE) /S/
6. Respiratory distress: IRDS, corrosion preparation, Hyalin membrane disease (PAS) /S/
7. Tumors: Bronchial carcinoma /P/, Microcellular carcinoma of the lung (HE) /S/, Planocellular carcinoma of the lung (HE) /S/, Bronchioloalveolar carcinoma (HE) /S/
8. Vasculitis, granulomatosis: Wegener granulomatosis (HE) /S/, Pleural disorders: Mesothelioma /P/
- IV. Gastroenterology
9. Oral cavity, salivary glands: Pleiomorphic adenoma (HE) /S/, Esophagus: Esophageal diverticulum /P/, Achalasia /P/, Esophageal carcinoma /P/
10. Stomach: Giant hypertrophic -- Menetrier's gastritis /P/, Penetrating, chronic, ventricular ulcer (penetrating into pancreas) /P/, Exophytically growing carcinoma of the stomach /P/, Pyloric carcinoma /P/, Helicobacter pylori infection (Whartin-Starry) /S/
11. Small intestine: Crohn's disease /P/, Coeliakia -- subtotal/total villus atrophy (Marsh 3c) (HE) /S/, Crohn's disease (HE) /S/
12. Large intestine: Colic diverticulosis /P/, Ulcerative colitis /P/, Rectal polyp with stalk /P/, Rectal adenocarcinoma /P/, Carcinoid of the appendix (HE) /S/, Rectal adenocarcinoma (HE) /S/
- V. Liver -- biliary tract -- pancreas
13. Liver: Congenital disorders: Polycystic disease of liver and kidney /P/, Fibropolycystic liver lesion (HE) /S/, Circulationl disturbances: Pylethrombosis /P/, Central haemorrhagic necrosis (Mock hepatitis) (HE) /S/, Non hepatotrop infectious diseases: Echinococcus cysts in the liver /P/, Hepatotrop infectious disorders: Atrophia hepatis flava /P/, Postnecrotic, macronodular cirrhosis /P/, HBs-antigen positivity (HE and Shikata) /S/
14. Alcoholic liver diseases: Alcoholic hepatitis (HE) /S/, Tumors: Focal nodular hyperplasia /P/, Hepatocellular carcinoma and cirrhosis /P/, Hepatocellular carcinoma in cirrhosis (HE) /S/, Gallbladder: Cholecyst adenocarcinoma with multiple liver metastases /P/, Pancreas: Pancreas carcinoma /P/
- VI. Male genital
15. Prostate: Prostatic hyperplasia and vesica trabeculata /P/, Prostate adenocarcinoma /P/, Prostate adenocarcinoma (HE) /S/
16. Testis and appendices: Chronic epididymitis. Hydrokele. Atrophia of the testes. /P/, Mixed germ-cell tumor; seminoma and teratoma /P/, Seminoma (HE) /S/, Mixed germ cell tumor Teratoma and Embryonal carcinoma (HE) /S/, Penis: Penal carcinoma /P/
- VII. Female genital tract
17. Vulva: Carcinoma of the vulva /P/, Cervix and uterus: Uterus bicornis /P/, Acute cervicitis /P/ Carcinoma of the cervix /P/, Endometrial polyp /P/, Carcinoma of the uterine corpus /P/, Uterine leiomyoma /P/, Endometrial adenocarcinoma (curettage) (HE) /S/
18. Diseases of the tuba: Tuboovarial abscess /P/, Serous papillary adenocarcinoma of Fallopian tube /P/
19. Cysts and tumors of the ovaries: Mucinous, multilocular cystadenoma of the ovary /P/
20. Breast Pathology: Fibroadenoma of the breast /P/, Carcinoma of the breast /P/, Mastitis carcinomatosa /P/, Paget – disease /P/, Intraductal papilloma (HE) /S/, Paget-disease (HE) /S/
- VIII. Neuropathology
21. Cerebral vascular disorders: Hydrocephalus internus, Ependymoblastoma /P/, Cerebral purpura /P/, Duret haemorrhage, haematocephalus /P/, Infections: cerebral abscess /P/ Prion disease, spongiform encephalopathy (HE) /S/, Demyelinisation: Multiple sclerosis /P/
22. Tumors: Meningioma /P/, High grade astrocytoma /P/, Brainstem glioma/ /P/
- IX. Endocrinology and soft tissue lesions
23. Endocrinology: Craniopharyngeoma /P/, Suprarenal cortical adenoma /P/, Papillary carcinoma of the thyroid gland /P/, Subacute granulomatous thyroiditis (De Quervain) (HE) /S/, Papillary carcinoma of the thyroid (HE) /S/, Parathyroid adenoma (HE) /S/, Graves disease (HE) /S/
24. Soft tissue pathology: Leiomyosarcoma (HE) /S/, Myxoid liposarcoma (HE) /S/, GIST (HE) /S/
- X. Nephrology and urinary tract
25. Nephropathology: congenital anomalies: Polycystic kidney (infantile sponge kidney) /P/
26. Uropathology: Urothelial carcinoma of the bladder /P/, Urothelial carcinoma of the pyelon (HE) /S/
- XI. Pathology of the skin and bones
27. Pathology of the skin: Melanoma of the eye /P/, Malignant melanoma with metastases /P/

28. Bone pathology: Osteogenesis imperfecta /P/, Osteogenic sarcoma /P/, Chondrosarcoma /P/,

Exam topics/questions

Lectures

I. Diseases of the heart and blood vessels (5 lectures; lecturer: Dr. L. Pajor)

1. Ischemic heart diseases. Sudden cardiac death.
 2. Valvular disorders, myocarditis.
 3. Cardiomyopathies, tumours of the heart and pericardial disorders.
 4. Congenital heart diseases.
 5. Vasculitides. Vascular tumours. Diseases of the veins and the lymphatic system
- (The remaining topics have been discussed in different chapters of general pathology)

II. Hematopathology (5 lectures; lecturer: Dr. Pajor)

1. Ontogenesis of the lymphoid cells: pheno- and genotypic characteristics of the precursor and peripheral cell populations.
2. Reactive lymph node changes: lymphadenitis, lymphadenopathies.
3. The WHO classification of the tumors of haemopoietic and lymphoid tissues: basic principles and major categories.
4. Non-Hodgkin and Hodgkin lymphomas
5. Chronic myeloproliferative disorders (CMPDs)
6. Myelodysplastic syndromes (MDS) and acute myeloid leukaemias (AML)

III. Pulmonology (6 lectures; lecturer: Dr. László)

1. Anatomy and defence mechanism of the respiratory tract. Disorders of the upper respiratory tract. Inflammations, necrotising inflammations. Tumours of the nasal cavity and the pharynxes.
2. Laryngeal oedema, tumours of the larynx. Disorders of the lower respiratory tract. Congenital anomalies. Disorders of vascular origin (thromboembolisation, infarction, pulmonary oedema, chronic congestion, IRDS, ARDS, atelectasis)
3. The clinical characteristics of chronic obstructive disorders, types, morphology. Infectious lung diseases
4. The general characteristics of chronic restrictive disorders, types, morphology.
5. Tumours of the lung
6. Pleural and mediastinal disorders

IV. Gastroenterology (6 lectures, lecturer: Dr. L. Pajor)

1. Congenital malformations of face, inflammatory changes, tumor-like conditions and tumours of the oral cavity
2. Inflammatory diseases and tumours of the salivary glands
3. Congenital and acquired diseases as well as tumors of the oesophagus.
4. Pathology of the stomach
5. Pathology of the small intestines
6. Pathology of the colon and rectum

V. Liver -- biliary tract -- pancreas pathology (6 lectures; lecturer: Dr L.Pajor)

1. Circulatory disorders of the liver. Non-viral inflammations in the liver. Drug hepatopathies
2. Acute viral hepatitis
3. Chronic viral hepatitis
4. Cirrhosis and hepatic failure
5. Tumor-like conditions and true neoplasia of the liver.
6. Pathology of the extrahepatic bile ducts and exocrine pancreas

VI. Male genital and urinary tract (3 lectures; lecturer: Dr. Kálmán)

1. Pathology of the bladder and ureter.
2. Pathology of the testis and the appendices.
3. Pathology of the prostate.
4. Pathology of the penis.

VII. Female genital tract (7 lectures; lecturer: Dr. Kálmán)

1. Pathology of the vulva and the vagina. Inflammatory lesions of the female genital tract and STD.
2. Pathology of the cervix.
3. Pathology of the uterine corpus.
4. Pathology of the ovaries.
5. Pathology of pregnancy. (Abnormalities of implantation. Gestosis, Trophoblastic tumours).
6. Pathology of the breast

VIII. Neuropathology (6 lectures; lecturer: Dr. Gömöri)

1. General characteristics of the cells of the central nervous system and their reactions to injury. Pathophysiologic alterations of the central nervous system (edema of the brain, herniations, hydrocephalus)
2. Malformations of the brain.
3. Cerebrovascular disorders (focal and global ischaemic lesions, intracranial haemorrhage and hypertensive vascular lesions of the brain)
4. Degenerative disorders and dementia (Alzheimer disease, Pick disease and Parkinson disease)
5. Demyelination disorders: multiple sclerosis
6. Infectious diseases of the CNS (bacterial infections, virus encephalitis, opportunistic infections, AIDS, parasitic and fungal infections).
7. Prion disease
8. Neuroepithelial tumours
9. Meningiomas. Primary brain lymphoma, metastases of the brain

IX. Endocrinology and soft tissue lesions (4 lectures; lecturer: Dr. Tornóczy)

1. Pathological conditions of the hypothalamo-hypophyseal system
2. Pathology of the thyroid gland (developmental abnormalities, hyperplasia, thyroiditis)
3. Pathology of the thyroid gland (tumours). Pathology of the parathyroid glands
4. Pathology of the adrenal gland. MEN
5. Pathogenesis of the soft tissue tumors. Fibrous, fibrohistiocytic neoplasms of the soft tissues.
6. Tumors of the fat tissue, smooth- and striated muscle.
7. Synovial neoplasms, tumors of the peripheral nerves.

X. Nephrology (5 lectures; lecturer: Dr. Kereskai)

1. Renal failure. Cystic diseases of the kidney.
2. Pathogenesis of glomerulonephritides.
3. Classification of glomerulonephritides
4. Tubulointerstitial and vascular diseases
5. Renal neoplasms

XI. Pathology of the skin and bones (3 lectures; lecturer: Dr. Pajor)

1. Benign and malignant tumours of the skin, premalignant lesions
2. Naevus -- malignant melanoma
3. Hereditary, inflammatory and metabolic bone diseases
4. Benign and malignant bone tumours

Macropreparations and slides to be demonstrated and discussed:

Preparations

I. Cardiovascular system

1. Aneurysma thrombotisatum ventriculi sinistri cordis
2. Endocarditis septica
3. Endocarditis chronica - mitral stenosis
4. Löffler's endocarditis
5. Congestive cardiomyopathy

6. Hypertrophic cardiomyopathy
7. Foramen ovale late apertum
8. Roger's disease
9. Ductus Botalli persistens
10. Dissecting aortal aneurysm
11. Luetic aortitis
12. Cavernous hemangioma of the liver

II. Hematopathology

13. Burkitt's lymphoma
14. Multiple myeloma
15. CML - extreme splenomegaly
16. Lymphomatous polyposis of small and large intestine

III. Pulmonology

17. Foreign body in bronchi (repetition)
18. Carcinoma of the larynx -- supra- and subglottic involovement (2 preparations)
19. Tracheobronchitis diphtherica
20. IRDS, corrosion preparation
21. Bronchiectasis
22. Bronchial carcinoma (repetition)
23. Mesothelioma

IV. Gastrointestinal pathology

24. Esophageal diverticulum
25. Achalasia
26. Esophageal carcinoma
27. Giant hypertrophic -- Menetrier's gastritis
28. Penetrating, chronic, ventricular ulcer (penetrating into pancreas)
29. Exophyticly growing carcinoma of the stomach
30. Pyloric carcinoma
31. Crohn's disease
32. Colonic diverticulosis
33. Ulcerative colitis
34. Rectal polyp (repetition)
35. Rectal adenocarcinoma (repetition)

V. Hepatology, biliary system, pancreas

36. Polycystic disease of liver and kidney
37. Echinococcus cysts in the liver
38. Atrophia hepatis flava
39. Macronodular (postnecrotic) cirrhosis
40. Focal nodular hyperplasia
41. Hepatocellular carcinoma
42. Adenocarcinoma of the gall bladder with multiple liver metastases
43. Pancreas carcinoma

VI. Male genital and urinary tract

44. Urothelial carcinoma of the bladder
45. Prostate adenocarcinoma
46. Chronic epididymitis. Hydrokele. Atrophia of the testes.
47. Mixed germ-cell tumor; seminoma and teratoma
48. Penal carcinoma

VII. Female genital tract

49. Carcinoma of the vulva
50. Uterus bicornis
51. Acute cervicitis
52. Carcinoma of the cervix
53. Endometrial polyp
54. Carcinoma of the uterine corpus
55. Tuboovarial abscess
56. Mucinous, multilocular cystadenoma of the ovary
57. Thecofibroma of the ovary
58. Dermoid cyst (repetition)
59. Dysgerminoma
60. Hydatidiform mole
61. Fibroadenoma of the breast (repetition)
62. Carcinoma of the breast (repetition)
63. Mastitis carcinomatosa
64. Paget disease
65. Serous papillary adenocarcinoma of fallopian tube
66. Teratoma of the ovary (embryonal)

VIII. Neuropathology

67. Hydrocephalus internus, Ependymoblastoma
68. Cerebral purpura (repetition)
69. Secondary hemorrhage of the pons, hemocephalus
70. Meningioma
71. High grade astrocytoma
72. Brainstem glioma
73. Glioblastoma
74. Medulloblastoma
75. Multiple brain metastases
76. Cerebral atrophy (repetition)
77. Multiple sclerosis

IX. Endocrinology and soft tissue lesions

78. Craniopharyngeoma
79. Suprarenal cortical adenoma
80. Papillary carcinoma of the thyroid gland

X. Nephrology

81. Polycystic kidney (infantile sponge kidney)
82. Polycystic kidney (adult type)
83. Horseshoe kidney
84. Pyelonephritis abscedens. Necrosis of papilla.
85. Chronic pyelonephritis (repetition)
86. Nephrosclerosis
87. Hydronephrosis
88. Clear cell carcinoma of kidney
89. Oncocytoma
90. Wilms' tumor

XI. Pathology of the skeletal system and the skin

91. Melanoma of the eye
92. Malignant melanoma with metastases (repetition)
93. Turban tumor
94. Osteogenesis imperfecta

95. Osteogenic sarcoma
96. Chondrosarcoma
97. Osteogenic sarcoma -- radiologic picture
98. Osteoclastoma -- radiologic picture

Slides

I. Cardiovascular system

1. Acute rheumatic myocarditis (HE)
2. Hypertrophic cardiomyopathy (HE)
3. Arteritis temporalis (HE)
4. Haemangioma cavernosum hepatis (HE)
5. Kaposi sarcoma (HE)

II. Haematopathology

6. Toxoplasma lymphadenitis (HE)
7. CLL, smear (MG)
8. CLL liver-infiltration (HE)
9. CLL bone marrow (HE)
10. CLL crista biopsy demonstration (HE)
11. Hodgkin's disease, MC (HE)
12. Multiple myeloma -- kidney (HE)
13. CML, CP, smear (MG)
14. Large B-cell lymphoma with Russel and Dutcher bodies (HE and PAS)
15. Infectious mononucleosis aspiration cytology (picture), flow cytometry

III. Respiratory system

16. BOOP (HE)
17. Hyaline membrane disease (PAS)
18. Aspergillosis of the lung (HE, PAS)
19. Pneumocystis carinii (Grocott)
20. Wegener granulomatosis (HE)
21. Microcellular carcinoma of the lung (HE)
22. Plasmocellular carcinoma of the lung (HE)
23. Bronchioloalveolar carcinoma (HE)

IV. Gastrointestinal pathology

24. Pleomorphic adenoma (HE)
25. Helicobacter pylori infection (Whartin-Starry)
26. Coeliac disease -- subtotal/total villus atrophy (Marsh 3c) (HE)
27. Crohn disease (HE)
28. Carcinoid of the appendix (HE)
29. Rectal adenocarcinoma

V. Hepatology, biliary system, pancreas

30. Fibrocystic liver lesion (HE).
31. Central hemorrhagic necrosis (HE)
32. HBs-antigen positivism (Shikata-orcein)
33. Alcoholic hepatitis (HE)
34. Hepatocellular carcinoma in cirrhosis (HE)

VI. Male genital and urinary tract

35. Urothelial carcinoma of the pyelon (HE)
36. Prostatic adenocarcinoma (HE)
37. Seminoma (HE)
38. Mixed germ cell tumor: teratoma and embryonal carcinoma (HE)

VII. Female genital tract

39. Endometrial adenocarcinoma (curettage) (HE)
40. Serous papillary cystadenocarcinoma of the ovary (HE)
41. Hydatidiform mole (HE)
42. Intraductal papilloma (HE)
43. Paget-disease (HE)
44. Invasive ductal carcinoma (HE)
45. Mucinous carcinoma (HE)

VIII. Neuropathology

46. Prion disease, spongiform encephalopathy (HE)
47. Meningoendothelial meningioma (HE)
48. Ependymoma (HE)
49. Glioblastoma (HE)
50. Senile plaques and neurofibrillar degeneration in hippocampus (Silver impregnation)

IX. Endocrinology and soft tissue lesions

51. Subacute granulomatous thyroiditis (De Quervain) (HE)
52. Papillary carcinoma of the thyroid (HE)
53. Graves disease (HE)
54. Parathyroid adenoma (HE)
55. Pheochromocytoma (HE)
56. Leiomyosarcoma (HE)
57. Myxoid liposarcoma (HE)
58. GIST (HE)

X. Nephropathology

59. Rapidly progressive GN with crescents (HE)
60. Hyalinised glomeruli (HE)
61. Kimmelstiel Wilson syndrome (PAS)
62. Clear cell carcinoma of the kidney (HE)

XI. Pathology of the skeletal system and the skin

63. Giant cell tumor of bone (osteoclastoma) (HE)
64. SSM

Exam questions

Selected exam questions of Pathology I.

I. Introduction -- Postmortem changes -- cell death

1. The objectives of pathology and its place among the biomedical disciplines. Significance of biopsy (surgical pathology) and autopsy in the everyday medical practice. Brief summary of the historical development of pathology (humoral- and solid pathology, Morgagni, Virchow, molecular pathology)
2. Clinicopathology of the acute myocardial infarction

II. Degeneration, pathological accumulation, pigments, calcification

1. Pathogenesis, pathomorphology and complications of atherosclerosis
2. Hemoglobinogenic pigments I. Different forms of jaundice and cholestasis, morphology, differential diagnostics.
3. Hemoglobinogenic pigments II. Pathological forms of iron storage.
4. Definition and general characterisation of amyloidosis. Physico-chemical, ultrastructural and histochemical nature of amyloid. The chemical forms of amyloid fibrils.
5. Clinico-pathological forms of amyloidosis, organ manifestation (gross morphology and light microscopy)

III. Growth disturbances

1. Osteoporosis
2. Left ventricular hypertrophy. Causes, sequential compensatory changes and functional consequences.
3. Cor pulmonale chronicum.
4. Healing by primary and secondary intention (Sanatio per primam et per secundam intentionem). Organ examples.

IV. Thrombosis, embolism, edema, hemorrhages

1. Disseminated intravascular coagulation (DIC): definition, pathomechanism, complications.
2. Clinicopathological forms of hypertension and its complications.

V. Inflammation

1. Vascular, humoral and cellular mechanisms of acute inflammations
2. Pathogenesis, pathomorphology and clinicopathology of tuberculosis
3. Autoimmune chronic inflammations. Rheumatoid arthritis

VI. Immunopathology

1. Systemic lupus erythematosus (SLE)
2. Acquired immunodeficiency syndrome (AIDS)

VII. Genetics

1. Marfan and Ehlers Danlos syndromes
2. Familial hypercholesterinaemia
3. Cystic fibrosis
4. The lysosomal storage disorders, glycogenoses, mucopolysaccharidoses.

VIII. Oncology

1. General characteristics of benign and malignant tumours. Terminology and histogenetic classification and of tumours.
2. Oncopathological diagnostic strategy, grading, staging

Pathology 2 EQs

I. Cardiovascular system

1. Angina pectoris, chronic ischemic heart disease, sudden cardiac death.
2. Pathology of the valvular disorders (inflammatory and degenerative ones).
3. Cardiomyopathies. Tumors and tumor-like conditions of the heart.
4. Myocarditis. Pathology of the pericardium.
5. Congenital heart diseases.
6. Arteriosclerosis. Types and clinicopathology of the aneurysms.
7. Pathogenesis, classification and clinicopathology of vasculitides. Vascular tumours.

II. Hematopathology

8. The WHO classification of the tumors of haemopoietic and lymphoid tissues: basic principles and major categories.

9. Non-Hodgkin B-cell lymphomas.
 10. Hodgkin lymphomas: pathogenesis, morphology and clinicopathology.
 11. T/NK cell lymphomas.
 12. Classification of myelodysplastic syndromes and acute myeloid leukaemias.
 13. Chronic myeloproliferative disorders (CMPDs). Clinicopathology and molecular pathogenesis of CML
 14. Lymphadenitis and lymphadenopathies.
- III. Respiratory system
15. Non-tumorous disorders (rhinitis, sinusitis, rhinoscleroma, necrotising inflammation) and tumors of the upper airways
 16. Laryngeal oedema. Laryngitis. Tumours of the larynx.
 17. Congenital anomalies of the lungs, atelectasis. IRDS.
 18. General characteristics and types of chronic obstructive lung diseases.
 19. Chronic restrictive lung diseases: general characteristics, etiological classification
 20. Characteristics of interstitial lung disease with unknown aetiology, types.
 21. Pneumonias, pulmonary abscess. Granulomatous diseases of lung. ARDS
 22. Characterisation and classification of lung tumours
 23. Pleural and mediastinal disorders
- IV. Gastrointestinal tract
24. Developmental malformations of the face. Inflammatory and tumorous diseases of the oral cavity.
 25. Pathology of the salivary glands. Odontogenic tumours
 26. Diseases of the oesophagus
 27. Inflammatory and ulcerative disorders of the stomach.
 28. The benign and malignant tumours of the stomach
 29. Malformations of the small intestine. Malabsorption.. Tumors of the small intestine.
 30. Diverticulosis of the colon. Pathology of intestinal polyps.
 31. Crohn's disease and ulcerative colitis
 32. Colorectal malignancies and their relationship to polypous lesions.
 33. Diseases of the appendix and the peritoneum (appendicitis, mucocele, peritonitis, retroperitoneal sclerosis, pseudomyxoma of the peritoneum).
- V. Hepatology, biliary system, pancreas
34. Hepatic lesions caused by circulatory disorders. Non-viral inflammatory diseases of the liver. Drug-hepatopathies
 35. Acute viral hepatitis (aetiology, pathomorphology, complicated forms)
 36. Chronic hepatitis (aetiology, types; pathomorphology and differential diagnostics, detection of virus associated antigens and their significance)
 37. Cirrhosis and hepatic failure.
 38. Tumours and tumor-like conditions of the liver.
 39. Cholelithiasis (aetiology and complications) and pathology of the biliary tract.
 40. Acute and chronic pancreatitis. Tumours of the pancreas
- VI. Male genital and urinary tract
41. Cystitides, tumours of the bladder and ureter
 42. Congenital malformations, inflammations and tumors of the penis
 43. Prostatitides. Hyperplasia of the prostate, complications
 44. Tumours of the prostate
 45. Congenital abnormalities and inflammatory diseases of the testes
 46. Pathology of the appendices of the testis (epididymis, spermatic cord) Tumours of the gonadal stroma and secondary tumours.
 47. Testicular germ cell tumours, classification, tumour markers
- VII. Female genital tract
48. Vulvovaginitides. (Syphilis. Gonorrhoea. Lymphogranuloma venereum, HSV, HPV) PID.
 49. Benign epithelial lesions of the vulva. Tumors of the vulva and vagina.

50. Inflammations, tumourlike lesions and tumours of the cervix. Carcinoma of the cervix (pathogenesis, pathomorphology, screening).
51. Adenomyosis and endometriosis. Dysfunctional bleedings. Endometrial hyperplasia. Endometritises.
52. Epithelial benign und malignant tumours of the uterine corpus.
53. Mesenchymal tumours of the uterine corpus. Diseases of the tuba.
54. Cysts and tumours of the ovaries (surface epithelial, germ cell, sex cord-stromal tumours, metastases).
55. Pathology of pregnancy (implantation disorders, gestosis, trophoblastic tumours).
56. Mastitides (lactational, ductus ectasia, fat necrosis, galactocele). Mastopathies (fibrocystic change). Fibroepithelial tumours.
57. Breast carcinoma. Pathogenesis, types, prognosis.

VIII. Neuropathology

58. General characteristics of the cells of the central nervous system and their reactions to injury. Pathophysiologic alterations of the central nervous system (oedema of the brain, herniations, hydrocephalus). Malformations of the brain.
59. Cerebrovascular disorders I. (focal and global hypoxic lesions, haemorrhages, hypertensive brain lesions)
60. Degenerative disorders of the CNS and dementia (Alzheimer, Pick and Parkinson disease).
61. Demyelination disorders: Multiple sclerosis
62. Infectious diseases of the CNS I. (bacterial, viral and fungal infections, disorders)
63. Prion disease
64. Neuroepithelial tumours of the CNS I. (glial, neuronal and embryonal /medulloblastoma/ tumours)
65. Meningiomas. Primary brain lymphoma, metastases of the brain

IX. Endocrinology and soft tissue lesions

66. Anterior lobe pituitary tumours and their consequences. Posterior lobe syndromes. Disorders associated with hypopituitarism (Sheehan's syndrome, chromophobic adenoma, empty sella syndrome, suprasellar tumours)
67. Inflammatory, tumorous diseases as well as disorders associated with hyperplasia of the thyroid gland.
68. Pathology of the parathyroid glands (hyperplasia, adenoma, causes of hypoparathyroidism). Multiplex endocr

OAPSPR SURGICAL PROPEDEUTICS

Course director:

DR. ÖRS PÉTER HORVÁTH, professor
Surgery Clinic

2 credit • semester exam • Pre-clinical module • spring semester • recommended semester: 6

Number of hours/semester: **14 lectures + 14 practices + 0 seminars = total of 28 hours**

Headcount limitations (min-max.): **5 – 300**

Prerequisites: **see in the recommended curricula!**

Topic

The subject deals with the principles surgery, basic operative techniques, baselines of transplantation, parenteral nutrition and management of acute injuries, surgical oncology, management of surgical bleeding, shock and provides an introduction to cardiac surgery. Finally it includes also principles of anaesthesia and wound care, including treatment of surgical infections.

Conditions for acceptance of the semester

One absence is allowed from the practice, but each further missed practice has to be made up for during the semester period. Medical certificate is necessary.

Making up for missed classes

According to appointments with the group leader.

Reading material

S. Schwartz et al.: Principles of Surgery (McGrow Hill Company, NY, 1999.)

Lectures

1. The principles of operative surgery and surgical diagnosis.
2. Surgical infections, incl. endo-, exogenous and parasitic infections
3. Postoperative disturbances of wound healing and other postoperative complications
4. Administration of antibiotics in surgery
5. Principles of plastic surgery
6. Introduction to heart surgery
7. Blood transfusion and disorders of surgical bleeding
8. General principles of organ transplantation
9. General surgical oncology
10. Parenteral and enteral nutrition
11. General traumatology: management of acute injuries I.
12. General traumatology: management of acute injuries II.
13. Basics of microsurgery
14. General principles of anaesthesia (regional and general anaesthesia)

Practices

1. Demonstration of routine interventions during surgical treatment (iv and ia line, nasogastric tube, urinary catheter, replacement of fluid and electrolytes, practical transfusiology).
2. Demonstration of routine interventions during surgical treatment (iv and ia line, nasogastric tube, urinary catheter, replacement of fluid and electrolytes, practical transfusiology).
3. The main ways of surgical approach and their demonstration.
4. The main ways of surgical approach and their demonstration.
5. Visiting the surgery. Postoperative woundcare.
6. Visiting the surgery. Postoperative woundcare.
7. Physical examination of the surgical patient. Discussion of diagnostic tools and findings. Positioning and preoperative dressing of patients
8. Physical examination of the surgical patient. Discussion of diagnostic tools and findings.
9. The pain as leading complaint, its forms and significance. Local anaesthesia. Nausea and vomitus, their casual significance
10. The pain as leading complaint, its forms and significance. Local anaesthesia. Nausea and vomitus, their casual significance
11. Acute care and management of the injured (First aid). Primary, secondary and delayed woundcare
12. Acute care and management of the injured (First aid). Primary, secondary and delayed woundcare
13. Recognition of sprains and fractures
14. Demonstration of the basic methods of osteosynthesis and functional fracture treatment

Seminars

Exam topics/questions

1. Etiology, symptomatology and treatment of tetanus
2. Etiology, symptomatology and treatment of gas edema
3. Injection induced abscesses
4. Classification of operative wounds according to possible environmental infection
5. The most frequent surgical infections
6. Disturbances of wound healing following surgery
7. Principles of plastic surgery
8. Principles of microsurgery
9. Preoperative preparation of the surgical patient
10. The operative risk
11. Operative indications and contraindications
12. Palliative interventions
13. Irresectability and inoperability
14. Treatment modalities for the oncological patient
15. What do we understand under R0, R1, R2 resections?
16. The spread of tumors
17. Warning signs of tumors
18. Clinical symptoms caused by tumor growth
19. Thrombosis prophylaxis in the perioperative period
20. Haemorrhagic and hypovolemic shock
21. Rectal digital examination and its importance
22. Local anaesthesia
23. Hemotherapy in surgery
25. Administration of local and systemic antibiotics in surgery. AB-prophylaxis
26. Combined antibiotic-treatment
27. Side effect of the antibiotics from surgeon's aspect
28. Classifications of tumors
29. Surgery of metastases
30. Basics of minimal invasive surgery
31. Transplantation immunology
32. Organ donation, criteria of brain death, organ preservation
33. Primer and secunder wound closure
34. Basics of fracture treatment
35. Endoscopic interventions
36. Embolism and thrombosis in the arterial and venous system
37. Risk of pulmonal embolism
38. Radiological diagnosis of abdominal surgical syndroms
39. Indications and methods of parenteral and enteral nutrition