

REQUIREMENTS

Semmelweis University, Faculty of Medicine Name of the Gestor Institution (and possible intermediate institutions): Heart and Vascular Centre, Városmajor, Budapest
Name of the subject in Hungarian: Kardiológia, szívsebészet, angiológia és érsebészet In English¹: Cardiology, Heart surgery, Angiology, Vascular surgery In German¹: Kardiologie, Herzchirurgie, Angiologie, Gefäßchirurgie Credits: 7 Total number of hours: 91; lecture: 2; practice: 4.5; seminar: 0 Subject Type: Obligatory
Academic year: 2022/23
Course code²: AOKKAR745_1A
Course director: Dr. Béla Merkely Place of work, telephone contact: Heart and Vascular Centre of Semmelweis University; tel: +36 1 458 6844 Position: Director, Head of Department, University Professor Date and number of Habilitation: 26 May 2006; registration number: 234.
Course description: Within the framework of medical training, this cardiology, angiology, vascular surgery, cardiac surgery and vascular intervention radiology training is designed to provide a wide range of up-to-date and useful practical knowledge, and the testing of this knowledge, to the future generation of doctors. For interested students, we also provide an opportunity for advanced cardiovascular training.
Place of instruction (address of lecture hall, seminar room, etc.): Semmelweis University Heart and Vascular Centre, 1122 Budapest, Városmajor u. 68.
Competences acquired by completion of the subject: Insight into the development and course of cardiovascular diseases, knowledge of the most common lesions and therapeutic interventions. Recognition of the symptoms of acute life-threatening conditions and their diagnostic and therapeutic possibilities.
Prerequisite(s) of the course: Pharmacology II., Clinical ECG, Introduction to Internal Medicine
Student headcount conditions for starting the course (minimum, maximum), method of selecting students: Based on Neptun registration
How to apply for the course:

Detailed course description³:

Lectures

1. Anatomy and physiology of the heart
2. Cardiomyopathies
3. Acute coronary syndrome
4. Treatment of Chronic Heart Failure
5. Symptoms, diagnosis and conservative treatment of vascular diseases
6. The diagnosis and treatment of Stable Coronary Artery Disease
7. Chest pain differential diagnosis. Life threatening diseases
8. Ventricular arrhythmias. Sudden cardiac death
9. Resynchronisation therapy, mechanical circulatory support, heart transplantation
10. Surgical treatment of arterial diseases
11. Heart surgery in XXI. Century. Revascularization, valve surgery, circulatory support
12. Valvular heart diseases.
13. Pacemaker, ICD indications
14. Primer and secunder prevention
15. Paediatric cardiology
16. Hypertension
17. Supraventricular arrhythmias, atrial fibrillation
18. Antithrombotic, anticoagulant treatment
19. Interventional radiology in the treatment of cardiovascular patients.
20. Infective Endocarditis

Practical lessons

Bedside practice:

1. Patient examination
2. ECG; ECG signs of life-threatening cardiac diseases.
3. Basics of echocardiography; Examination of the heart cavities, heart valves, heart muscle, systolic and diastolic function.
4. Heart failure; Symptoms of left- and right-sided heart failure; Differentiation between systolic and diastolic heart failure; Diagnosis of heart failure; Conservative and interventional treatment of heart failure
5. Cardiac valve dysfunction; Clinical signs of valvular heart disease; Auscultation; Systolic and diastolic murmurs; Valvular heart disease diagnosis and treatment; Transcatheter aortic valve implantation; Heart valve repair and replacement surgery; Anticoagulant therapy.
6. Coronary care unit: intra-aortic balloon pump and cardiogenic shock; Symptoms of acute heart failure and cardiogenic shock, Conservative and interventional treatment; Killip classification.
7. Management of ischemic heart disease in outpatient care; Symptoms and diagnosis of acute coronary syndrome; Signs of STEMI and NSTEMI ECG; Differential diagnosis of major chest disorders with chest pain; GRACE score; Clinical forms of ischemic heart disease;

<p>Medication of acute myocardial infarction.</p> <ol style="list-style-type: none"> 8. Management of arrhythmias in outpatient care; Atrial fibrillation; CHA2DS2–VASc score; Supraventricular arrhythmias and malignant ventricular arrhythmias; Bradyarrhythmias. Practical lessons: 9. Invasive cardiology; Indications and implementation of percutaneous coronary intervention; Types of stents; Transcatheter aortic valve implantation. 10. Non-invasive cardiac imaging: cardiac echo, MRI and CT scans; Indications and procedure of these tests; Vulnerable plaque. 11. Electrophysiology; Indications for pacemaker implantation; Types of pacemakers; Indications for electrophysiological examination; Arrhythmia ablation procedures. 12. Vascular surgery in the operating room 13. Cardiac Surgery in the operating room 14. Intervention laboratory practice 15. Practical examination
<p>Interdisciplinary subjects (both compulsory and optional). Possible overlaps in the syllabus:</p> <p>Medical Imaging, Surgery, Internal Medicine I-II, Laboratory Medicine, Anesthesiology and Intensive Therapy, Sports Medicine</p>
<p>Specific coursework required for successful completion of the subject⁴: none</p>
<p>Requirements for participation in classes and possibility to make up for absence:</p> <p>Participation in theoretical and practical courses is conditional on the student's application submitted and accepted by the end of the examination period preceding the subject semester. Absence from two practical sessions is possible, but it is obligatory to supplement the missed practical sessions at a time agreed in advance with the instructor.</p>
<p>Assessment of the acquired skills during the academic term⁵:</p> <p>During the cardiology and angiology practical training, the lessons are interactive. The mark at the end of the semester results from the combined assessment of student activity in the practical lessons, the case presentation at the end of the course and the practical exam taken in the last lesson.</p>
<p>Requirements for completion of the course (signature):</p> <p>The condition for course validation (obtaining the signature) at the end of the semester and the condition for registration for the theoretical exam are to participate in the lectures and practical lessons as described in the requirements and to pass the practical exam (to obtain a grade better than "fail" on the practical exam).</p>
<p>Type of examination:</p> <p>practical examination and colloquium: test and theoretical examination</p> <ol style="list-style-type: none"> 1. Diastolic heart murmurs. Heart sounds. 2. Systolic heart murmurs. Heart sounds. 3. Risk factors, primary and secondary prevention. 4. Dilated cardiomyopathy. 5. Hypertrophic cardiomyopathy. 6. Acute heart failure, cardiogenic shock - etiology, symptoms, diagnostics. 7. Treatment of acute heart failure. 8. Chronic heart failure - etiology, symptoms, diagnostics. 9. Treatment of chronic heart failure. 10. Infective Endocarditis. 11. Pericarditis, pericardial effusion. 12. Aortic valve stenosis. Diagnosis of aortic valve insufficiency. 13. Mitral valve stenosis. Diagnosis of mitral valve insufficiency.

14. Atrial and ventricular septal defects, congenital heart disease.
15. Hypertension I. Etiology, diagnosis.
16. Hypertension II. Treatment. Hypertensive Heart Disease.
17. Anticoagulant treatment and indications.
18. Anti-platelet treatment and indications.
19. Manifestations and evaluation of Ischemic Heart Disease.
20. Angina pectoris.
21. Non ST segment elevation Acute Coronary Syndrome I. Etiology, manifestations, diagnosis.
22. Non ST segment elevation Acute Coronary Syndrome II. Treatment.
23. ST segment elevation Acute Coronary Syndrome I. Etiology, pathomechanism, diagnosis.
24. ST segment elevation Acute Coronary Syndrome II. Treatment.
25. Heart catheterization. Hemodynamic evaluation. The heart cycle.
26. Percutaneous coronary revascularization. (PCI)
27. Differential diagnosis of chest pain syndromes.
28. Pulmonary embolism.
29. Bradyarrhythmias.
30. Supraventricular arrhythmias.
31. Atrial Fibrillation.
32. Electrical and pharmacological cardioversion.
33. Ventricular arrhythmias.
34. Ablation treatment of arrhythmias.
35. Pacemaker indications and pacemaker types.
36. ICD and CRT indications, types.
37. Non-coronary structural interventions in cardiology (TAVI, Mitraclip, Left atrial appendage closure, etc.)

2.

1. Treatment of aortic valve stenosis, aortic valve insufficiency.
2. Treatment of mitral valve stenosis, mitral valve insufficiency.
3. Diagnosis and treatment of aortic dissection
4. Coronary revascularization: CABG
5. Treatment of end-stage heart failure with mechanical circulatory support.
6. Complications of myocardial infarction and their treatment
7. Epidemiology and risk factor, screening, prevention and conservative treatment of arterial diseases – vasculitis
8. Clinical presentation and physical and imaging examination of arterial diseases. Diabetic foot
9. Symptoms and physical and visual diagnostic examination of peripheral arterial disease of the lower extremities - diabetic foot
10. Symptoms and physical and visual diagnosis of chronic venous insufficiency, treatment options
11. Symptoms, diagnosis, treatment options, early and late complications of deep vein thrombosis
12. Angiography and intervention - basic endovascular techniques. Basic vascular surgery techniques, vascular grafts
13. Diseases, symptoms, diagnosis and treatment options of supraaortic branches and upper extremity arteries
14. Aortic and peripheral aneurysms
15. Acute aortic syndromes.
16. Vascular imaging diagnostics (UH, CT, MRI) - Vascular malformations
17. Renal and visceral occlusive and aneurysmal diseases - artificial arteriovenous fistulas, haemodialysis access.
18. Endovascular interventions in venous diseases
19. Theory and practical implementation of extracorporeal circulation. Theory and practical implementation of the application of the heart-lung motor.
20. Acute cardiac surgery.
21. Surgical aspects of infectious endocarditis.

<p>Method and types of grading⁷: Student performance is evaluated in five grades: excellent (5), good (4), satisfactory (3), pass (2), fail (1). Performance assessment: a pass at the practical exam is a basic requirement. The final grade is predominantly defined by the test result at the practical exam and the two grades obtained during the colloquium in the two topics (their average). The result of the practical exam may be decisive.</p>
<p>How to register for the exam: Through Neptun</p>
<p>Options for retaking the exam: According to the Study and Examination Regulations, the practical exam must also be repeated on the occasion of a retaken exam.</p>
<p>Suggested course readings:</p> <ul style="list-style-type: none"> • Oxford Handbook of Cardiology. • The ESC Textbook of Cardiovascular Medicine (2 ed.) • https://www.semmelweiskiado.hu/termek/1551/vascular-medicine <p>Textbooks published by the department.</p>
<p>Signature of the habilitated instructor in charge of the course:</p>
<p>Signature of the Director of the Gestor Institute:</p>
<p>Submitted: 13 May, 2022</p>

<p>OKB opinion:</p>
<p>Note from the Dean's Office:</p>
<p>Dean's signature:</p>

¹ To be provided only if the subject is also published in the language concerned.

² (In case of a new subject, this cell is filled in by the Dean's Office, after approval)

³ The topics for theoretical and practical lessons shall be given for each week, numbered separately, with the names of the lecturers and instructors, indicating guest lecturers as well. Cannot be attached!

⁴ E.g. fieldwork, medical analysis, survey, etc.

⁵ E.g. topics and dates of homework, reports, tests, etc., options for supplementation and correction.

⁶ For theoretical exams, please include the list of examination topics, for practical exams, the contents and method of the assessment.

⁷Weighing the theoretical and practical examination results. Weighing test results taken during the course.