

**MEDICAL UNIVERSITY -PLOVDIV
FACULTY OF MEDICINE**

**SYLLABUS
IN**

**CARDIAC AND VASCULAR SURGERY
Cycle of Specialized Surgeries exam**

Approved by the Department Council on 14.06.2022

Confirmed by the Faculty Council – Protocol №7/13.07.2022

CYCLE CARDIAC AND VASCULAR SURGERY

CURRICULUM

Discipline	Semester exam	Hours				Years and semester classes	
						4th course	V course
Cardiac and vascular surgery	VIII / IX	All	Lectures	Exercises	Credit	VIII	IX
		30	10	20	4,7*	2/4	2/4

* Credits are for Specialized Surgeries

Name of discipline:

"Cardiac and vascular surgery"

Type of discipline according to the uniform state requirements:

Mandatory

Level of qualification:

Master /M/

Forms of training:

Lectures, seminars, practicals, extra-auditory activity (self-preparation, making of referrals, etc.)

Year of training:

IV and V course medicine

Duration of training:

5 weeks

Academic hours:

10 hours of lectures and 20 hours of exercise

Technical equipment applied in the training:

Multimedia presentations, discussions, demonstration of patients, solving practical tasks, development of behavior algorithms and referrals on certain topics of the material

Forms of evaluation:

Current control, solving tests, working on referral

Evaluation criteria

Participation in discussions, solving tests, drafting a referral

Exam:

Yes /Part of specialized surgeries –complex test/

State exam:

No

Lecturer:

Habilitated lecturer from the Department of Cardiac and Vascular Surgery

Department:

Cardiac and vascular surgery

ANNOTATION

The training in cardiovascular surgery for medical students includes modern methods of physical and instrumental examination of patients with surgical diseases of the cardiovascular system. Basic knowledge of the principles of extracorporeal circulation and pacemaker. Surgical tactics in congenital and acquired cardiac surgery cases are considered, as well as modern opinions of diagnosis and treatment of ischemic heart disease. Main issues of acute and chronic arterial insufficiency – etiology, clinic, diagnostics, behavior. Vascular aneurysms – arterials, venous, true, false. Cardiovascular trauma, diagnosis and treatment. Acute and chronic venous and lymph-vascular insufficiency. Congenital defects of the development of vessels – blood and lymphatic. Modern tactics in patients with extracranial vessels disease. Carotid and vertebral arteries, jugular veins. Role of the endovascular methods of diagnosis and treatment. Principles of fibrinolytic, anticoagulant and anti-platelet therapy in patients with cardiovascular surgical diseases.

AIM OF THE DISCIPLINE

The aim of the training of the students in cardiovascular surgery is to introduce them to the basic principles of diagnosis and treatment tactics in patients with cardiovascular surgical diseases.

Students learn in time to navigate the very common cases of acute cardiac and vascular diseases, which require urgent diagnosis, initial procedures and transportation to the relevant specialized unit for continuing treatment, given that the time factor is often of crucial importance to the patient.

Students to be trained to perform some of the required life-saving procedures at first meeting with patients with cardiovascular surgical problems (acute cardiac tamponade, bleeding from a large blood vessel, sudden cardiac arrest, etc., which not every time can be demonstrated in practical classes but requires sufficient theoretical preparation).

TASKS OF THE DISCIPLINE

- Students to learn the basic physical and instrumental methods for diagnosis of the patients with acute and chronic cardiovascular surgical diseases.
- Be trained to perform basic and life-saving actions if necessary.
- To build and maintain a system of the most necessary knowledge concerning diagnosis and behavior in this category of patients.

TRAINING METHODS

Lecture course, practical exercises, seminar classes. During the undergraduate internship the students are capable of getting more practical knowledge for the treatment of the patients with cardiovascular diseases.

TECHNICAL MEANS APPLIED IN TRAINING

- Demonstration of specifics in the physical examination of the patient.
- Use and demonstration with the most common tools and apparatus in the diagnosis and treatment of patients.
- Display schemes, tables and photos demonstrating the studied matter.
- Use of modern audiovisual equipment
- Demonstration of clinical and intraoperative findings in rare and very interesting cases (live demonstration in operating rooms, showing films).

CONTROL AND EVALUATION

- *Ongoing control* – each exercise begins with oral interrogation.
 - *Final control* – complex test
- Control methods:** tests.

MANDATORY COMPETENCIES

- Students get basic theoretical knowledge and practical habits when examining patients with cardiovascular and surgical diseases: history of vascular disease, physical examination – especially palpation and auscultation of possible vessels, mastering the technique of mechanical hemostasis in bleeding from arterial and venous vessels, observance of the rules of asepsis and antiseptic in vascular injuries, prevention of progression of ischemia in acute cases.
- Students to gain theoretical knowledge, allowing them practical actions in carrying out life-saving manipulations and procedures (decompression in cardiac tamponade, stopping life-threatening bleeding, appropriate posture when transporting a sick person, etc.).
- Administration of life-saving medications in some situations such as acute thrombosis – arterial or venous, cardiac massage, use of defibrillation equipment, etc., as the earliest measure and further referral for continuation of treatment.

PROGRAM OF THE LECTURE COURSE CYCLE CARDIAC AND VASCULAR SURGERY

LECTURE No1 – 2 hours

ANATOMY OF THE HEART AND MEDIASTINUM.

EXAMINATION OF PATIENTS WITH CARDIOVASCULAR DISEASE

PRINCIPLES OF ECC (extracorporeal circulation) and PACEMAKER

LECTURE No2 – 2 hours

CONGENITAL HEART DISEASES.

ACQUIRED HEART DISEASES, ISCHEMIC HEART DISEASE– surgical aspects.

LECTURE No3 – 2 hours

DISSECTION AND ANEURYSM OF THE THORACIC AORTA.

LECTURE No4 – 2 hours

ACUTE AND CHRONIC ARTERIAL INSUFFICIENCY.

VASCULAR INJURIES

LECTURE No5 – 2 hours

ACUTE AND CHRONIC VENOUS INSUFFICIENCY (superficial and deep vein thrombosis, pulmonary thromboembolism, varicose disease, post thrombophlebitis disease, etc.)

CONGENITAL AND ACQUIRED LYMPH-VASCULAR INSUFFICIENCY. Modern surgical treatment.

**PROGRAM OF PRACTICAL EXERCISE
CYCLE CARDIAC AND VASCULAR SURGERY**

EXERCISE #1

CARDIAC SURGERY

ECC demonstration. Surgical approach in patients with congenital and acquired heart valve diseases and ischemic heart diseases –specific cases, demonstration and analysis, pattern of behavior.

EXERCISE #2

SURGICAL TREATMENT OF PERICARDIUM DISEASES (including puncture technique, permanent drainage, etc.)

TACTICS FOR RHYTHM AND CONDUCTION DISORDERS AND CARDIAC TRAUMA

EXERCISE #3

PHYSICAL AND INSTRUMENTAL EXAMINATION OF BLOOD VESSELS (palpation, auscultation, doppler examination, interpretation of rheography, plethysmography, angiography, etc.).

EXERCISE #4

EXAMINATION OF A PATIENT WITH ACUTE ARTERIAL INSUFFICIENCY (diagnosis and treatment tactics).

EXERCISE #5

CHRONIC ARTERIAL INSUFFICIENCY (etiology, clinic, diagnosis, treatment. Types of operations. Surgical tactics in the diseases of the extracranial vessels and Raynaud disease).

EXERCISE # 6

ANEURYSMS OF BLOOD VESSELS (types, clinic, diagnosis, behavior).

EXERCISE No7

DISEASES OF THE VENOUS SYSTEM (congenital, varicose disease, post thrombophlebitis disease, superficial and deep vein thrombosis – methods of diagnosis and treatment tactics).
PULMONARY THROMBOEMBOLISM (prevention, diagnosis, behavior).

EXERCISE #8

EXAMINATION OF A PATIENT WITH SURGICAL DISEASE OF THE LYMPHATIC SYSTEM (congenital and acquired lymphedema, elephantiasis – causes, diagnostics, conservative and operative treatment)..

EXERCISE #9

FIBRINOLYTIC AND ANTICOAGULANT TREATMENT IN VASCULAR SURGERY (indications, application technique, monitoring of the patient, possible complications and their prevention and treatment).

EXERCISE №10

ELECTROCARDIOSTIMULATION (indications, methods of implementation in outpatient and stationary conditions, control).

SYLLABUS FOR MEDICAL STUDENTS – IV-V COURSE – SPECIALIZED SURGERIES EXAM

CARDIOVASCULAR SURGERY

1. Anatomy of the heart and great vessels. Major vessels of the neck.
Mediastinum – definition, anatomy and contents.
2. Congenital heart defects - classification, diagnosis, surgery
3. Ischemic heart disease. Surgical treatment. Indications for myocardial revascularization. Arterial and venous bypass grafts
4. Surgical treatment of complications of acute myocardial infarction
5. Acquired valvular heart disease - etiology, diagnosis, operative technique, indications for surgery
6. Pulmonary embolism - etiology, clinical features, diagnosis, treatment
7. Aneurysms – classification, clinical manifestations, diagnosis, surgical treatment – indications
8. Acute aortic dissection - risk factors, classification, clinical manifestations, diagnosis, indications and operative techniques
9. Cardiac tumors – clinical manifestation, diagnosis and treatment
10. Cardio-vascular injuries - diagnosis and treatment. Iatrogenic injuries

11. Temporary and permanent electrocardiostimulation
12. Acute arterial insufficiency of the extremities and mesenteric arteries - clinical features, diagnosis, treatment
13. Chronic arterial occlusive disease of the extremities – clinical features, classification, diagnosis, operative techniques
14. Obliterating atherosclerosis, Thromboangiitis obliterans, diabetic angiopathy - specific features
15. Raynaud's disease, Raynaud syndrome

16. Superficial and deep thrombophlebitis. Phlegmasia cerulea dolens
17. Varicose disease - etiology, clinical manifestations, treatment
18. Postphlebotic syndrome. Paget–Schroetter disease – clinical features and treatment
19. Acute and chronic lymphatic insufficiency
20. Anticoagulant and fibrinolytic therapy in surgery – principles
21. Stenotic-obliterative diseases of extracranial arteries - surgical techniques

Resources:

1. *Lecture course*
2. *Manual of Cardiac and Vascular Surgery- 2019.*
3. *Cardiac Surgery, Kirklin/Barratt-Boyes, 4th edition*
4. *Rutherford's Vascular Surgery, 8th edition*
5. *Multimedia manual of cardiac surgery. (ctsnet.org)*

