MINISTRY OF HEALTH PROTECTION OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
DEPARTMENT OF INTERNAL MEDICINE №1

APPROVED
Vice-rector for reserch and educational work
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METHODICAL DEVELOPMENT FOR INDUVIDUAL WORK OF HIGHT EDUCATION APPLICANTS IN THE ACADEMIC DISCSPLINE

Current issues of management of patients with cardiac pathology

Higher education level: second (master's)
Field of knowledge: 22 "Healthcare"
Specialty: 222 "Medicine"
Educational and professional program: Medicine

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Approved:
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Topic 1.Management of a patient with arterial hypertension. Hypertensive crises, peculiarities of treatment tactics.

Purpose: to explain the essence of the arterial hypertension, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: essential arterial hypertension, secondary hypertension, atherosclerosis.

Plan

I. Theoretical questions for the lesson:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.

2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.

3) Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 20th Edition - (August 13, 2021). - 736 pages

4) Current Medical Diagnosis and Treatment /McGraw-Hill Education; Updated edition (14 Sept. 2021). - 1840 pages

2. Questions for self-control

1.Give definition of EH
2.Etiology and pathogenesis of AH
3.To know classification of EH
4.Risk-factors
5.Clinical manifestations of EH
6.Laboratory and instrumental diagnostics of EH
7.Complications of EH
8.Principles and methods of EH treatment.

3. Approximate tasks for the study of theoretical material

Make a dictionary of basic concepts on the topic:

Term	Definition
AH	
Essential AH (primary AH or hypertonic disease)	
Secondary (symptomatic) AH	
Malignant AH	
Hypertensive crisis	

Practical work (tasks) that will be performed in class:

1. Patient K., 34 years old, was admitted urgently to the cardiology department with complaints of headache, dizziness, impaired visual acuity, palpitations, fear, thirst, frequent urge to urinate. Considers himself sick for 6 months. The disease proceeds in the form of attacks that occur suddenly, after physical exertion, emotional stress, last from 15 to 45 minutes and go away on their own. Objective data. General condition of moderate severity. The patient is agitated, the face is pale, the skin is covered with cold sweat. Pulse - 94 per minute, rhythmic, tense. AD 250/130 mm Hg The left border of the heart is 1 cm outward from the left midclavicular line. The 1st tone over the apex of the heart is preserved, the accent of the 2nd tone over the aorta is heard. When examining the respiratory system and abdominal organs, no changes were found. Additional research data. Complete blood count: erythrocytes - 3.96 x 1012 / l, hemoglobin - 120 g / l, CI - 0.9, leukocytes - 5.9 x 109 / l, eosinophils - 1%, stab neutrophils - 2%, segmented neutrophils - 63%, lymphocytes - 26%, monocytes - 8%, ESR - 8 mm / year. The general analysis of urine is transparent, the reaction is slightly acidic, the relative density is 1019, the protein is traces, erythrocytes are 0-3, leukocytes are 3-5 in the field of view, oxalate crystals are single in the field of view. Biochemical blood test: glucose - 7.9 mmol / L, billirubin - 14.4 mmol / L, potassium - 4.4 mmol / L, sodium - 125 mmol / L, calcium - 2.15 mmol / L. Ultrasound data - the length of the right kidney is 10 cm, the width is 6 cm, the thickness is 4 cm, the left kidney is 11, 6.5, 4.5 cm, respectively; size of the right adrenal gland - 35 mm, left - 24 mm

QUESTIONS.

1. Give an assessment to the biochemical blood test.
2. Interpret the UltraSound data.
3. Determine the most likely diagnosis.
4. Determine the most informative additional laboratory test to verify the diagnosis.
5. Choose the most effective remedy for symptomatic treatment.

2. Patient S., 45 years old, complains of headache, thirst, weakness, leg muscle cramps, frequent (8-10 times a day) urination with the release of a significant (up to 5 liters) amount of urine per day. Considers herself sick for 8 months, she did not seek help. Objective data. General condition of moderate severity. Muscle weakness is pronounced, and therefore difficulty in walking. Pulse 76 bpm, rhythmic, tense. BP - 180/100 mm Hg The left border of the heart is 0.5 cm outward from the left midclavicular line. The 1st tone over the apex of the heart is weakened, the accent of the 2nd tone over the aorta is determined. When examining the respiratory system and abdominal organs, no changes were found. Additional research data. Complete blood count - no changes. Biochemical blood test: sugar - 5.6 mmol / l, bilirubin - 16.93 mmol / l, calcium - 2.25 mmol / l, potassium - 2.8 mmol / l, sodium - 145 mmol / l. General urine analysis: alkaline reaction, relative density - 1005, protein - traces, leukocytes 3-4, erythrocytes 1-2 in the field of view.
QUESTIONS:
1. Give an interpretation to the biochemical blood test.
2. Determine the most likely diagnosis.
3. Assign a diagnostic test to verify the diagnosis.
4. Select a drug for conservative treatment of the patient.

Test tasks for self-control:

1. Which of the following drugs is an inhibitor of angiotensin converting enzyme?
A. Propranolol
B. alpha-methyldopa
C. Hydralazine
D. Gidrokhlorisiazit
E. Enalapril

2. The upper limit of normal diastolic blood pressure:
A. 80 mm Hg
B. 84 mm Hg
C. 89 mm Hg
D. 94 mm Hg
E. 99 mm Hg

3. The upper limit of normal systolic BP:
A. 119 mm Hg
B. 139 mm Hg
C. 154 mm Hg
D. 159mm Hg
E. 179 mm Hg

4. Microalbuminuria is the loss of protein in the urine:
A. 5-15 mg/day
B. 30-300 mg/day
C. 30-40 mg/day
D. 2-5 mg/day
E. 500-700 mg/day

5. Which of the following drugs belongs to the antihypertensive drugs of the second line?
A. Hypothyosid
B. Nifedipine
C. Enalapril
D. Metoprolol

E. alpha-methyldopa

6. Which of the following clinical signs/symptoms of complicated characterizes hypertensive crisis?
A. Headache
B. Pain in the heart area
C. Dizziness
D. Cardiac asthma
E. Pronounced heartbeat

7. Which of the following antihypertensive drugs is the drug of choice in patients with hypertensive disease in combination with angina?
A. Metoprolol
B. Gidrokhlorisiazit
C. Clonidine
D. alpha-methyldopa
E. Raunatin

8. Tactics in uncomplicated hypertensive crisis:
A. The mandatory hospitalization in the therapeutic department
B. Hospitalization is not required
C. Hospitalization is required in an intensive care unit
D. Compulsory hospitalization in the cardiology department
E. It is Necessary to reduce the BP in for one hour

9. Which of the following drugs belongs to the first-line drugs in the treatment of hypertension?
A. Moxonidin
B. Doxazosin
C. Verapamil
D. Hydralazine
E. Methyldopa

10. The most common side effects of ACE inhibitors include:
A. Hypokalemia
B. Hypercholesterolemia
C. Hyperglycemia
D. Bertrille
E. Dry cough

Individual tasks for applicants on the topic of the lesson:

Variant 1.

Task 1.

Fill in the table of classification of hypertension by blood pressure (mm Hg)

Categories	Systolic BP	Diastolic BP

Task 2.

Fill in the table the main symptoms or clinical signs of damages of the organs/systems with AH:

System/organ	Signs of damage

The brain	
Heart	
Kidney	

Task 3.
Fill in the table to mandatory laboratory investigations of the patient with AH:

№	Method of investigation	Aim of investigation
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Task 4.
List the main directions of non-drug therapy in hypertension:
3. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Task 5.
Optimum combinations of antihypertensive drugs:
-
-
-

Task 6.
Fill in the table of differential treatment of patients with complicated hypertensive crises:

A drug	Method of use, dose	Note

Variant 2.
Task 1.

Fill in the table of classification of hypertension by the damage of target organs

Stage of AH	Target organs	Signs of damage of targets organs

Task 2.
Fill in the table the main symptoms or clinical signs of damages of the organs/systems with AH:

Organs/systems	Signs of damages

Task 3.
Fill in the table to mandatory laboratory investigations of the patient with AH:

Method of investigation	Aim of investigation

Task 4.
List of antihypertensive drugs of the first line, and give examples of drugs:
1. _____
2. _____
3. _____
4. _____

Task 5.
Fill in which of hypertensive crisis are complicated:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Task 6.
Fill in the table of treatment of uncomplicated hypertensive crises:

A drug	Method of use, dose	Side effects

Recommended reading list

Basic:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.
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Additional:

1) Lippincott Connect Standalone Courseware for Bates' Guide to Physical Examination and History Taking 1.0 /LWW; 13th ed. edition (23 Mar. 2023).
2) https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines
3) Oxford Medicine Online [Electronic resource] / Oxford University Press. – Access mode:www.oxfordmedicine.com.
4) Oxford ACADEMIK Journals [Electronic resource] / Oxford University Press. – Access mode: http://www.oxfordjournals.org.
5) The BMJ (British Medical Journal) [Electronic resource] // Mode of access:http://www.bmj.com/archive .
6) Scopus [Electronic resource] / Mode of access: https://www.scopus.com.

Topic 2.Management of a patient with cardiac pain.

Purpose: to explain the essence of the chronic forms of IHD, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: atherosclerosis, ischemic heart disease, stable angina, vasospastic angina, cardiosclerosis, heart failure.

Plan

I. Theoretical questions for the lesson:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.
3) Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 20th Edition - (August 13, 2021). - 736 pages
4) Current Medical Diagnosis and Treatment /McGraw-Hill Education; Updated edition (14 Sept. 2021). - 1840 pages

2. Questions for self-control

1. Definition of IHD
2. To know classification of IHD.
3. Give definition of AP and unstable AP.
4. Etiology and pathogenesis of AP.
5. Clinical manifestations of AP.
6. Diagnostics of AP
7. Differential diagnostic of AP
8. Principles and methods of IHD treatment
9. Principles of rehabilitation of patients with IHD
10. Prophylaxis of IHD

3. Approximate tasks for the study of theoretical material
Make a dictionary of basic concepts on the topic:

Term	Definition
IHD	
Ischemia	
Hypoxia	
Angina pectoris	
Stable angina of the tension	

Practical work (tasks) that will be performed in class:
1. At the patient of 50 years 2 weeks ago at fast rise on the 4th floor there was a pain in the lower third of a sternum of oppressive character, passing at rest. In the future, the pain began to occur when walking fast, climbing to the 2-3 floor.
1. Form of angina
2. doctor's tactics
3. a drug for pain relief
4. research plan
2. The patient, complained of a feeling of suffocation arising from brisk walking, passes alone at rest. Three days ago there was an attack of intense pain behind the sternum, lasting up to 20 minutes, accompanied by nausea.
From the anamnesis of life: for 10 years suffers from high blood pressure (up to 170/110), is treated irregularly, smokes for 25 years.
On examination: high nutrition. In the lungs vesicular respiration, no wheezing, BH 22 per minute. The border of the heart is expanded to the left by 2 cm. Heart tones are clear, heart rate 80 beats / min. Frequent extrasystole are heard. AD 180/115 mmHg For other bodies without changes. ECG: sinus rhythm, negative T teeth in V1-3.
1. Formulate a diagnosis 2.tactics of patient management
Test tasks for self-control:
1. Which of the following drugs is used to treat statins?
A. Propranolol
B. Rozuvostatin
C. Hydralazine
D. Hydrochlorothiazide
E. Enalapril

2. What is the level of total cholesterol targeted at patients at low risk of fatal cardiovascular events?
A. <2.5 mmol, l
B. <3.0 mmol, l
C. <4,5 mmol, l
D. <5.0 mmol, l
E. <5.5 mmol, l

3. What is the level of low-density lipoprotein cholesterol targeted at patients at high risk of fatal cardiovascular events?
A. <2.5 mmol, l
B. <3.0 mmol, l
C. <4,5 mmol, l
D. <5.0 mmol, l
E. <5.5 mmol, l

4. What clinical sign is characteristic for atherosclerosis of renal arteries?
A. Peripheral edema

B. Lumbar pain
C. Arterial hypertension
D. Fever
E. Polyuria

5. Which of the factors of cardiovascular risk belongs to those that are not modified? :
A. Smoking
B. Obesity
C. Arterial hypertension
D. Family history
E. Diabetes mellitus

6. Atherosclerosis of the thoracic aorta can manifest itself clinically:
A. Aorthalgia
B. Isolated systolic hypertension
C. Aortic aneurysm
D. Voice and difficulty in swallowing
E. All listed above

7. Non-medicated therapy for atherosclerosis consists of:
A. Appointment of low-calorie and hypocholesterol diet
B. Correction of overweight.
C. Increased physical activity.
D. Refusal of smoking.
E. All the above is listed

8. To lipid-lowering drugs do not belong:
A. Fenofibrate
B. Cholesterram
C. Niacin
D. Clopidogrel
E. Atorvastatin

9. The most common side effects of statins include:
A. Increase in liver enzymes
B. Fever
C. Hyperglycemia
D. Hypokalemia
E. Dry cough
10. What is the level of low-density lipoprotein cholesterol targeted at patients at low risk of fatal cardiovascular events?
A. <2.5 mmol, l
B. <3.0 mmol, l
C. <4,5 mmol, l
D. <5.0 mmol, l
E. <5.5 mmol, l

Individual tasks for applicants on the topic of the lesson:

Variant 1.

Task 1.

Fill in the table. Give a description of FC stable angina

Task 2
Describe the main features of a typical angina attack
1.
2_
3._
4_
5_

Task 3
Describe the possible changes to an electrocardiogram with stable angina and describe these changes.

Task 4
Specify the absolute contraindications for a metered-dose test:
1. Symptomatic aortic stenosis
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Task 5
Specify the main indications for coronavirentriculography, for surgical revascularization, patients with stable angina pectoris
1. Ineffective drug symptom control
1. _____
2. _____
3. _____
4. _____

Task 6
Fill in the table of the main groups of anti-ischemic drugs used to treat patients with stable angina pectoris indicating drugs and dosage

Group of drugs	Drugs and doses

Variant 2

Task 1
Indicate which patients are shown the implementation of pharmacological stress tests for the diagnosis of coronary heart disease

-
-
-
-

Task 2

Fill in the table of compulsory instrumental examinations of a CHD patient

Method	Aim of investigation

Task 3

Fill in the table, indicating the possible results of the test with the metered exercise

Task 4.

Fill in the table of the main groups of anti-ischemic drugs used to treat patients with stable angina pectoris indicating drugs and dosage

Group of drugs	Aim of using

Task 5

Indicate the possible complications of stable angina pectoris

1.
2.
3.
4.

Task 6

Indicate in which cases aortic coronary artery bypass surgery has advantages over percutaneous coronary intervention, in order to improve the long-term prognosis for life expectancy

1.
2. _____
3. _____

Recommended reading list

Basic:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
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2) https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines
3) Oxford Medicine Online [Electronic resource] / Oxford University Press. – Access mode:www.oxfordmedicine.com.
4) Oxford ACADEMIK Journals [Electronic resource] / Oxford University Press. – Access mode: http://www.oxfordjournals.org.
5) The BMJ (British Medical Journal) [Electronic resource] // Mode of access:http://www.bmj.com/archive .
6) Scopus [Electronic resource] / Mode of access: https://www.scopus.com.

Topic 3.Management of a patient with acute coronary syndrome. Management of a patient with shortness of breath

Purpose: to explain the essence of the acute coronary syndrome, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.
Key words: ischemic heart disease, atherosclerosis, acute coronary syndrome, unstable angina, myocardial infarction, coronary death, heart failure.

Plan

I. Theoretical questions for the lesson:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.
3) Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 20th Edition - (August 13, 2021). - 736 pages
4) Current Medical Diagnosis and Treatment /McGraw-Hill Education; Updated edition (14 Sept. 2021). - 1840 pages

2. Questions for self-control

1. Give definition of ACS.
2. Give definition of MI
3. Give definition of Unstable angina.
4. Classification of MI.
5. Etiology and pathogenesis of MI.
6. Clinical manifestations of MI.
7. Diagnostics of ACS
8. differential diagnostics of MI.
9. Principles and methods of MI treatment
10. Complications of MI.

3. Approximate tasks for the study of theoretical material

Make a dictionary of basic concepts on the topic:

Term	Definition
Acute coronary syndrome	
MI	
Unstable angina	
Aneurysm of the heart	
Rehabilitation of patients with MI	

Heart troponin	

Practical work (tasks) that will be performed in class:

1. Patient A. was disturbed for 3 years short-term pain in the left half of the chest, irradiation in the neck. The day before there were very intense pains in left half of the chest with irradiation in the neck, arm, abdomen, lasting 30 minutes. The temperature rose to 37 0 C. Heart tones are weakened. Leukocytes - 7 * 10 9 / l. AST - 40 U / L (norm to 31), CPK - 150 U / L (norm up to 170). On the ECG, the T wave in the leads III and avF negative, pointed. After 3 days of ECG normalized.

1. Your diagnosis?
2. Assign the necessary additional research

2. A 49-year-old man consulted a doctor due to severe pain in the sternum, arising during snow removal 3 days ago, and remaining at the time of treatment.

At registration of an ECG at reception the frontal myocardial infarction, a subacute stage was revealed, in connection with which he was hospitalized. Reperfusion therapy was not performed. From the anamnesis it is known that the patient smokes. Has a burdensome family history of cardiovascular disease diseases (father - myocardial infarction at 45 years). Objectively: weight 81 kg, height 181 cm, blood pressure 100/60 mm Hg, pulse 60 beats in 1 min. In the rest is objective without features. Laboratory tests

LDL - 3.0 mmol / l Glucose 4.4 mmol / l Sodium 139 mmol / L

ECG: sinus rhythm, PBLNPG

ECHO: 20% EF, thrombus in the left ventricular cavity, aneurysm in the apex heart, moderate mitral and aortic regurgitation.

1. Formulate and justify a preliminary diagnosis. Highlight risk factors.
2. Evaluate the results of the survey. Select the survey method, which must be performed on the patient first.
3. Prescribe treatment

Test tasks for self-control:

1. Sign resorcine-necrotic syndrome in acute it is:

A. Leukopenia within 8-10 days
B. Decrease in body temperature within 2-5 days
C. Lymphocytosis up to 5-6 days of illness
D. Increased activity of CPK in the blood
E. Neutrophilic leukocytosis with a maximum of 2 - 4 days

2. What drug is proven to improve the prognosis of patients after MI:

A. Acetylsalicylic acid
B. Nitroglycerin
C. Nifedipine
D. Verapamil
E. Dipyridamole

3. Which of the following diseases can be a complication of acute MI?

A. Dressler Syndrome
B. The Syndrome Of Wolff-Parkinson-White
C. Acute pulmonary heart
D. Thromboembolism of the pulmonary artery
E. Constrictive pericarditis

4. The pain characteristic of MI?

A. Constant nagging pain, a feeling of heaviness in the heart, is reduced when bending for- ward
B. Acute increases with movement of the trunk
C. gripping pain behind the sternum, giving in the left hand under the left shoulder blade, lasts from several minutes up to 15 minutes is relieved with nitroglycerin
D. Squeezing, crushing, burning behind the breastbone, radiating to the left arm under the left shoulder blade, continues for more than 30 minutes, is not removed by nitroglycerin

E. Aching, stabbing, lasting minutes, hours and days.

5. Over what period remains elevated concentrations troponins with MI?
A. 10-14 days
B. 2 days
C. 7 days
D. 18 days
E. 28 days

6. Indications for intravenous nitroglycerin in acute MI:
A. the Existing pain syndrome.
B. the right ventricle.
C. Cardiogenic shock.
D. Syndrome Of Dressler.
E. Astrogational pericarditis.

7. Thrombolytic include:
A. Streptokinase
B. Heparin
C. Enoxaparin
D. Aspirin
E. Clopidogrel

7. ACS include:
A. Unstable angina
B. cardiac syndrome X
C. Vasospastic angina
D. Stable angina FC III
E. Stable angina of II FC

8. A patient with MI for 2-3 days in the overall analysis of blood observed
A. Eosinophilia
B. Moderate leukocytosis
C. Leukopenia
D. Lymphocytosis
E. Anemia

9. Secondary prevention of sudden coronary death after myocardial infarction is carried out by receiving:
A. Antiarrhythmic drugs class III
B. Beta-blockers
C. Antiarrhythmic drugs class IV
D. Antiarrhythmic drugs class I
E. Intravenous nitroglycerin

Individual tasks for applicants on the topic of the lesson:

Variant 1.

Task 1.
Write the classification of MI
3.
2.
3.

Task 2
Append the etiology of ACS (unstable angina, acute myocardial infarction)

Task 3
Describe the pain that occurs when acute myocardial infarction (complete the table)

Task 4
List the atypical clinical variants of the course of AMI

Task 5
Fill in the table of contraindications to thrombolysis

Contraindications to thrombolytic therapy	
Absolute	**relative**

Task 6
Write what diseases should conduct a differential diagnosis with corticosteroids
1.
2.
3.
4.
5.

Variant 2

Task 1
Write the classification of unstable angina
-
-
-
-

Task 2
Write the characteristics of progressive angina pectoris
-
-
-
-
-

Task 3

List the causes of increase of level troponin T and I in blood

Task 4

Fill in the table the dynamics of changes in markers of myocardial necrosis.

Figure	**Start increasing ac tivity, h**	**Maximum increase in activity, h**	**Normalizing, day**

Task 5

Add topical ECG diagnosis of MI

Localization of MI	**Leads, reflecting the potential of a particular area of myocardial ischemia:**
Front-membrane	
Front-top	
Front-side	
Back-diaphragmal	
Back-side	

Task 6

List the complications that can arise as a result of thrombolytic therapy.

-
-
-
-

Recommended reading list

Basic:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
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4) Oxford ACADEMIK Journals [Electronic resource] / Oxford University Press. – Access mode: http://www.oxfordjournals.org.
5) The BMJ (British Medical Journal) [Electronic resource] // Mode of access:http://www.bmj.com/archive .
6) Scopus [Electronic resource] / Mode of access: https://www.scopus.com.

Topic 4. Management of a patient with heart murmurs. Management of a patient with cardiomegaly. Management of a patient with heart failure

Purpose: to explain the essence of the heart murmurs, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: heart failure, congenital heart defects, atrial septal defect, ventricle septal defect, coarctationof aorta, Tetralogy of Fallot, mitral stenosis, mitral regurgitation, aortic stenosis, aortic regurgitation, heart failure.

Plan

I. Theoretical questions for the lesson:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.
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4) Current Medical Diagnosis and Treatment /McGraw-Hill Education; Updated edition (14 Sept. 2021). - 1840 pages

2. Questions for self-control

1. Give definition of congenital heart disease.
2. Classification of congenital heart diseases.
3. Etiology of Congenital heart disease
4. Clinical manifestations of pulmonary thromboembolism
5. Clinical manifestations of cor-pulmonale.
6. Clinical manifestations of congenital heart disease.
7. Laboratory diagnostics of Congenital heart disease
8. Instrumental diagnostics of Congenital heart disease
9. Management of patients with congenital heart defects
10. Differential diagnostics of congenital heart defects
11. Principles of surgical treatment.

3. Approximate tasks for the study of theoretical material

Make a dictionary of basic concepts on the topic:

Terms	Definition
Heart disease	
Open arterial duct	
Mitral regurgitation	
Mitral stenosis	
Aortic valve stenosis	
Aortic valvve regurgitation	

Practical work (tasks) that will be performed in class:

1.. A 17-year-old patient was admitted to the hospital with complaints of shortness of breath, aggravated by physical exertion, rapid fatigue, palpitations.

Objectively: there is a lag in physical development, pallor of the ski n.

Auscultation reveals a rough "machine" systolic-diastolic murmur in the 2nd intercostal space to the left of the sternum. The noise is conducted into the interscapular space and on the vessels of the neck. In the lungs, breathing is vesicular. Pulse - 70 beats per minute, blood pressure - 100/60 mm Hg. Radiographically - increased pulmonary pattern, signs of left ventricular hypertrophy, bulging of the pulmonary artery arch. On the ECG - the norm. On aortography - simultaneous contrasting of the

pulmonary artery.

Preliminary diagnosis? Survey methods?

Indications for surgery?

2. The parents of an 8-year-old child drew attention to the pronounced development of the muscles of the shoulder girdle in the child in comparison with the underdevelopment of the muscles of the lower extremities.
Objectively: developmental imbalance. Systolic blood pressure in the upper extremities is 150 mm Hg., and on the lower limbs - 60 mm Hg. X-ray - expansion of the borders of the heart to the left. ECG
- signs of left ventricular hypertrophy. On auscultation, the heart sounds are sonorous, clear, the accent of the 2nd tone above the aorta, systolic murmur on the vessels of the neck, under the right collarbone. In the lungs, breathing is vesicular. The abdomen is soft, painless. The pulsation of the abdominal aorta is sharply weakened, the pulse in the arteries of the thigh is sharply weakened.
Preliminary diagnosis? Survey methods? Treatment?

Test tasks for self-control:

1. Which of the following statements is true for coarctation of the aorta?
A. Systolic noise in the III-IV interterritorial space to the left of the sternum edge.
B. There is an increase in blood pressure in the upper extremities and lower blood pressure on the lower extremities
C. Hypertrophy of both ventricles and dilatation of the left atrium
D. Systole-diastolic noise is heard in the second inter-ribbed gap to the left of the sternum edge.
E. The tone of Troub over the femoral artery is listening

2. With a defect of the atrial membrane may be:
A. Systolic noise and accent II of the tone in the second intercross gap to the left
B. Extension of the limits of cardiac dullness to the right due to right ventricular dilation and right ventricular
C. ECG is a complete or incomplete RBBB
D. All listed - not true
E. All listed right

3. Enlargement of the right ventricle of the heart is characteristic for:
A. Aortic stenosis
B. Defect between the atrial septum
C. Insufficiency of the aortic valve
D. Mitral valve deficiency
E. Coarctation of the aorta

4. Which of the following statements is true for the defect of the interventricular septum?
A. Harsh rudimentary systolic noise on the apex, which is carried out in the armpit.
B. Characteristic systole-diastolic noise over the pulmonary artery
C. A frequent complication is atrial fibrillation
D. Frequently complicated by Eisenmenger syndrome
E. Radiological trait is the impoverishment of the pulmonary pattern

5. Name the ECG-signs of hypertrophy of the right ventricle:
A. Deep Stem S in V1-V2-leads, high R in V5-V6-leads
B. Increase in the amplitude of the R wave in the V1-V2 leads and amplitude S in the V5-V6 leads
C. Deep sinus S in V1-V2 leads and negative T-pin in V5-V6 leads
D. High R to aVL and deep S in III and aVF leads
E. Deep throat S in and out and pathological Q in III throw

6. Diffuse cyanosis is a characteristic feature:
A. Syndrome Eisenmenger
B. Defect interatrial septum
C. Aortic Coarctation
D. Defect of interventricular septum
E. Opened arterial duct

7. Name ECG - signs of left ventricular hypertrophy:
A. Deep wave S in V1-V2, high R in V5-V6 leads
B. High wave R y V1-V2, deep S y V5-V6 leads
C. Negative T-wave in V1-V2 leads
D. Deep wave S in I standard, aVL leads and high wave R in III, aVF leads
E. Deep wave Q in the third release and aVF

8. Complications of aortic coarctation:
A. Atrial fibrillation
B. Pulmonary hemorrhage
C. Stroke
D. Syndrome Eisenmenger
E. Acute left ventricular failure

9. The open arterial duct is:
A. Defect in the muscular part of the interventricular septum
B. Defect in the central part of the atrial partition
C. Abnormal communication between the aorta and pulmonary artery
D. Narrowing of the aortic lumen in the area of the isthmus
E. Dextroposition of the aorta

10. Features of the pulse during coarctation of the aorta:
A. High, fast, spasmodic at the upper and lower extremities
B. No peculiarities
C. At an older age, atrial fibrillation is often present
D. High, fast on the upper limbs and relaxed on the lower extremities
E. Soft, weakened on the upper and lower limbs

Individual tasks for applicants on the topic of the lesson:

Variant 1.

Task 1.
Write down the factors that increase the risk of developing a disability, especially in the first trimester of pregnancy:

1	
2	
3	
4	
5	

Task 2.
Complications of an interventricular septal defect:
1.
2. _____
3. _____
4. _____

Task 3.
Fill in the table:

Diagnosis	Features of systolic noise
Defective of IVS	
Defective IAS	
Coarctation of the aorta	

Task 4.

Instrumental examinations for defect diagnostics of IAS (list the features of changes).

ECG	
Chest X-ray	
Doppler echocardiography	
Catheterization of the heart	

Task 5.
Write the ECG-signs of hypertrophy of the atrial:
-
-
-
-

Task 6.
Fill in the differential diagnostic table:

Method of instrumental	Defecation of interatrial septum	Defect of interventricular septum

Recommended reading list

Basic:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.
3) Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 20th Edition - (August 13, 2021). - 736 pages
4) Current Medical Diagnosis and Treatment /McGraw-Hill Education; Updated edition (14 Sept. 2021). - 1840 pages

Additional:

1) Lippincott Connect Standalone Courseware for Bates' Guide to Physical Examination and History Taking 1.0 /LWW; 13th ed. edition (23 Mar. 2023).
2) https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines
3) Oxford Medicine Online [Electronic resource] / Oxford University Press. – Access mode:www.oxfordmedicine.com.
4) Oxford ACADEMIK Journals [Electronic resource] / Oxford University Press. – Access mode: http://www.oxfordjournals.org.
5) The BMJ (British Medical Journal) [Electronic resource] // Mode of access:http://www.bmj.com/archive .
6) Scopus [Electronic resource] / Mode of access: https://www.scopus.com.

Topic 5. Management of a patient with a heart rhythm disorder. Management of a patient with impaired cardiac conduction

Purpose: to explain the essence of the arrhythmia and conduction disorders, the causes of its occurrence, the role of various factors in the etiopathogenesis, approaches to diagnosis, treatment and prevention.

Key words: Morgagni-Adams-Stokes syndrome, Cardiac conduction system, Frederick syndrome,

Extrasystoles, Paroxysmal tachycardia, Atrial Fibrillation, Atrial Flutter, Ventricular fibrillation, antiarrhythmic drugs

Plan

I.Theoretical questions for the lesson:

1) ECG in practice. The ECG in Practice : a study guide / John R. Hampton ; translation of the 7th Eng. edition. - Kyiv: Medicine, 2023. - 560 p.
2) Davidson's "Principles of Practice of Medicine" 24th edition 2022, Elsevier limited.
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2. Questions for self control:

1. Definition of the concept of "violation of the rhythm of the heart."
2. Etiological factors and the main pathogenetic mechanisms of heart rhythm disturbances.
3. Classification of heart rhythm disturbances.
4. Clinical picture of heart rhythm disturbances.
5. Diagnostic criteria for heart rhythm disturbances.
6. Differential diagnosis for heart rhythm disturbances.
7. Principles of treatment of heart rhythm disturbances.
3. Symptoms and signs of conduction disorders
4. Diagnosis of conduction disorders
5. Treatment of conduction disorders

3. Approximate tasks for the study of theoretical material

Make a dictionary of basic concepts on the topic:

Term	Definition
Conduction system of the heart	
Morgagni-Adams-Stokes syndrome.	
The Samoilov-Wenckebach Periods	

Practical work (tasks) that will be performed in class:

Task 1 35-year-old man was admitted with complaints of palpitations, shortness of breath, general weakness. He considers himself to be sick for about 3 days - he fell ill after a viral infection. On the ECG, the P wave is not recorded. There are atrial F waves with a frequency of 300 per minute, the same in length, shape and height, consist of a steep ascending and gently sloping descending knee (saw teeth), clearly visible in leads II, III, avF, V1. The R-R intervals are the same. The QRS complex is not changed.

1.What rhythm disturbance is possible in the patient?
2.Plan of investigations?
3.Treatment plan?

Task 2. A 55-year-old man was admitted with complaints of palpitations, shortness of breath, general weakness. Patients consider themselves about 3 days, a history of myocardial infarction. On the ECG, the P wave is not recorded. There are atrial F waves with a frequency of 250 per minute, the same in length, shape and height, consist of a steep ascending and gently sloping descending knee (saw teeth), clearly visible in leads II, III, avF, V1. The R-R intervals are the same. The QRS complex is not changed. What rhythm disturbance does the patient have?

1.What is the most likely diagnosis?
2.Plan of investigations?
3. Treatment plan?
4. What rhythm disturbance does the patient have?

Test tasks for self-control:

1. ECG signs of atrial fibrillation

A. P wave is absent, ventricular complexes rare modified equidistantly

B. P wave is absent, different gaps between the widened, aberrant QRS complexes
C. P wave is absent, F waves, QRS complexes are regular and modified
D. P wave is absent, wave f, irregular ventricular rhythm, oscillations QRS complex amplitude
E. Negative P waves are after QRS complex, the same shape

2. For the prevention of thromboembolism with persistent F at high risk of thromboembolic complications are used:
A. Clopidogrel
B. Dipyridamole
C. Warfarin
D. Aspirin

3. ECG signs of atrial extrasystole:
A. Absence of P wave and change in QRS complex
B. Change in shape and premature P wave before the usual QRS complex
C. Expanded P wave and aberrant QRS complex
D. The presence of the P wave and the absence of the QRS complex
E. Negative P wave after QRS complex

4. At what arrhythmia can there be a pulse deficit?
A. sinus tachycardia
B. sinus bradycardia
C. Sinus Arrhythmia
D. Atrial fibrillation
E. paroxysmal tachycardia

5. The most informative method of arrhythmia diagnosis:
A. Holter monitoring of ECG
B. Scintigraphy of the myocardium
C. Electrophysiological examination
D. ECG at rest
E. Echocardiography

6. For ventricular extrasystole II class on Lown is characterized by:
A. Single rare ventricular extrasystoles (up to 1 for 1 minute or 30 for 1 year)
B. Early ventricular extrasystoles of the type "R to T", which are superimposed on the tooth of the previous ventricular complex and indicate a marked non-homogeneity of repolarization.
C. Polymorphic extrasystoles, that is, having a different shape in one lead.
D. Group ventricular extrasystoles.
E. Single frequent extrasystoles (more than 1 for 1 minute or 30 for 1 year)

7. Ventricular fibrillation is:
A. arrhythmic, uncoordinated and ineffective contractions of individual groups of ventricular muscle fibers
B. rhythmic, uncoordinated and ineffective contractions of individual groups of ventricular muscle fibers
C. Three or more consecutive ectopic ventricular impulses (QRS $\geq$0.12 c).
D. Atrial tachyarrhythmia with frequent (240-300 in 1 min) right atrial rhythm
E. Violation of the impulse to the ventricles with the development of asystole of the ventricles of the heart and fainting.

8. The drug is indicated for monitoring heart rate at a constant form of F in the presence of heart failure?
A. Digoxin
B. Atropine
C. Verapamil

D. Novocainamide
E. Lidocaine

9. ECG-signs of ventricular extrasystole:
A. Modified teeth P, QRS complexes altered
B. P wave extensible, QRS complex changed
C. The presence of a negative P wave after the QRS complex
D. Absence of a P wave, a broadened QRS complex with a full compensatory pause E. The presence of a negative P wave in front of the unchanged QRS complex

10. Transesophageal electropulse therapy is used to treat:
A. Ventricular extrasystole I class by Lown
B. sinus tachycardia
C. Ventricular extrasystole IV class by Lown
D. flutter
E. supraventricular extrasystole

Individual tasks for applicants on the topic of the lesson: Variant 1

Task 1.

Fill in the classification table of AF depending on the nature of the course and duration of arrhythmia:

Type of AF	Definition

Task 2.

The main ECG signs of ventricular extrasystole:
1. _____
2. _____
3. _____

Task 3.

Fill in the table of recommended laboratory tests in patients with arrhythmias:

method	purpose

Task 4. Write non-pharmacological vagal tests used to stop supraventricular rhythm disturbances:
1.
2.
3 .
4 .

Task 5.

Fill in the table with the characteristics of these groups of arrhythmic drugs:

Group	drug	dose	indications	contraindications	side effect

Task 6.
Write strategy for the prevention of thromboembolic events in patients with atrial fibrillation, using a scale CHA2DS2-VASc

risk factors thromboembolic complications	Points on a scale CHA2DS2-VASc	Recommended antithrombotic therapy

Variant 2.

Task 1. Fill the table of the etiology of AV-Blocks

Task 2.
Complications of conduction disorders of the heart?
1.
2.
3.
4.

Task 3.
Fill in the table of ECG-signs in violation of the impulse

Blockade	Diagnosis according to ECG data in 12 leads:

Task 4.
Formulate the concept of cardiac dyssynchrony. Mechanisms of cardiac resynchronization.
Cardiac dyssynchrony - is _____

_____

_____

Dyssynchrony of the heart is divided into:
1.
2.
3.
4.

Task 5.
What drugs are used to treat conduction disorders

Drug, dosage, way of injection	Mechanism of action

Task 6. Write indications for pacing:

For permanent pacemaker	By temporary pacemaker

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4) Oxford ACADEMIK Journals [Electronic resource] / Oxford University Press. – Access mode: http://www.oxfordjournals.org.
5) The BMJ (British Medical Journal) [Electronic resource] // Mode of access:http://www.bmj.com/archive .
6) Scopus [Electronic resource] / Mode of access: https://www.scopus.com.