Osh State University

Medical Faculty

Department "Biochemistry, Pathophysiology and Pharmacology"

**APPROVED**

Head. chair of MD, PhD Muratov Zh.K

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GUIDELINES FOR TRAINEES

TO EXTRACURRICULAR WORK INDEPENDENTLY

TITLE:**Typical forms of heart pathology**

TOPIC: **Heart failure. Arrhythmia types and mechanisms.**

Developed: teacher Ismailov I.Dzh.

Methodical instructions approved at a meeting of the department

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OSH

**Study subject:** Heart failure. Arrhythmia types and mechanisms.

**Aim of the lesson**: to study the basic mechanisms of systemic blood flow disturbances, heart failure and compensative and study the types and mechanisms of arrhythmias.

**Format:** Preparing for the practical exercises.

**Questions for self-study:**

1. Definition, general causes and classification of heart failure.

2. Myocardial and nonmyocardial cardiac insufficiency.

3. Adaptive reactions during acute and chronic heart failure: Frank-Starling mechanism, myocardial hypertrophy, redistribution of cardiac output, salt and water retention, activation of the sympathetic system.

4. Pathogenesis of the myocardium decompesation during hypertrophy.

5. Structural and hemodynamic abnormalities in heart failure.

6. Clinical features of heart failure: the syndromes of cardiac edema and cachexia.

7. Cardiac arrhythmias: types, mechanisms development, hemodynamic consequences.

8. Reentry arrhythmias: conditions required for reentry, types and mechanisms of reentry, examples of arrhythmias based on reentry.

**List of practical skills**

 1. Using the algorithm of analysis of the electrocardiogram, be able to identify the main types of arrhythmias associated with the communication I breach automaticity and conduction.

2. Using the algorithm of analysis of the electrocardiogram, to be able to determine the combined cardiac arrhythmias.

**Recommendations to UIRS:**

1. Making the album with the relevant tasks relating to using educational and methodological literature.

2. Master the techniques of creative use of the program material on this topic by using problem solving.

**Self-control on test tasks:**

*1. What factor leads to heart insufficiency as a result of its volume overload?*

a) ischemic heart trouble

b) myocardithis

c) valving foramen stenosis

d) tricuspid valve insufficiency

*2. What factor leads to heart pressure overload?*

a) ischemic heart trouble

b) myocardithis

c) mitral foramen stenosis

d) tricuspid insufficiency

*3. What changes of hemodynamics occur in heart insufficiency?*

a) reduction of systolic outcome

b) reduction of minute volume of blood

c) reduction of residual volume of blood

*4. What change of hemodynamics verifies heart insufficiency?*

a) augmentation of residual volume of blood

b) augmentation of minute volume of blood

c) augmentation of systolic outcome

*5. In what kind of cardial insufficiency Frank-Starling mechanism plays the important role?*

a) in volume overload

b) in pressure overload

*6. What is characteristic of decompensated heart insufficiency induced by volume overload?*

a) increase of diastolic filling

b) reduction of systolic outcome

c) increase of isometric strain of myocardium

*8. The heart hypertrophy is characterized by:*

a) the conductive system of heart lags from increase of myocardium mass

b) the conductive system of heart advances from increase of myocardium mass

c) growth of vessels is behind the increase of cardiomyocytes mass

d) growth of vessels leaves behind the increase cardiomyocytes mass

*9. Paroxismal tachycardia is characterized by*

a) chaotic excitation and contraction of some cardiomyocytes

b) paroxismal significant increase of heart contractions

c) alternating of the periods of normal rhythm, tahy- and bradycardia

d) high frequency of correct rhythm contractions (more than 200 per minute)

*10. Sinus arrhythmia is characterized by:*

a) chaotic excitation and contraction of some cardiomyocytes

b) paroxismal significant increase of heart contractions

c) alternating of the periods of normal rhythm with tahy- and a bradycardia

e) high frequency of correct rhythm contractions (more than 200 per minute)

LITERATURE:

1. Lecture material.

2. General and clinical pathophysiology/ Ed. by A. V. Kubyshkin –

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4. Pathophysiology of disease: an introduction to clinical medicine/ ed. By

S. J. McPhee, W. F. Ganong. – 2006. – P. 300 – 326.

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