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## ASSESSMENT MATERIALS FOR INTERMEDIATE CERTIFICATION IN A DISCIPLINE

### Pathological syndromes in clinical medicine

Code, direction of preparation	05.31.01 General Medicine
Directivity (profile)	General Medicine
Form of study	full-time
Department-developer	Pathophysiology and general pathology
Graduate department	Internal diseases

### TYPICAL TASKS FOR TEST WORK

#### (7 SEMESTER)

**Abstract** (from Latin refero - report, report) - a presentation of the results of an analysis of modern literature on a chosen topic, based on the study of various literary sources (articles in medical journals, including foreign ones, monographs, textbooks, reference books) and presented in a structured form. The structure of the abstract includes: the relevance of the chosen topic (epidemiology, place in the structure of morbidity, unstudied pathogenetic mechanisms, ineffectiveness of existing treatment as an inducer for studying this process or is it new data that is important for diagnosis and treatment), purpose (corresponds to the topic and is aimed at revealing it), sections, the content of which reveals the topic, discussion and conclusions, list of references used.

The abstract is presented in the form of a presentation and in printed form and is defended publicly during class.

#### **Abstract topics:**

1. Respiratory support for ARDS. Selection of methods.
2. Features of the course of COPD in the elderly.
3. Bronchial asthma in pediatric practice.
4. Principles of treatment of status asthmaticus.
5. Immune status in patients with bronchial asthma.
6. Hereditary hemophilia.
7. DIC in sepsis.
8. Hemostasis disorders in liver diseases.
9. DIC and pancreatitis.
10. Prevention of pulmonary embolism in the preoperative period.
11. Asymptomatic pulmonary embolism.
12. PE in cancer patients.
13. The role of preventing complications in varicose veins of the lower extremities.
14. Obstetric pathology and systemic inflammatory response syndrome.
15. Sepsis: a modern view of the problem.
16. Otogenic sepsis.
17. Sepsis and septic shock.
18. Sepsis of newborns.
19. Causes of chronic cerebral ischemia, compensation mechanisms.
20. Modern aspects of diagnosis and treatment of chronic cerebral ischemia.

21. Neurological manifestations of acute cerebral ischemia.
22. Pathophysiological approach to pharmacotherapy of coronary heart disease.
23. Changes in biochemical parameters during myocardial reperfusion injury.
24. Conditions after myocardial reperfusion ( revascularization ).
25. The role of arterial hypertension in post-infarction remodeling .
26. Post-infarction cardiac remodeling .
27. Arterial hypertension during pregnancy. Preeclampsia . Eclampsia.
28. Endocrine arterial hypertension (with primary hyperaldosteronism , with pheochromocytoma ).
29. Arterial hypertension and diabetes mellitus.
30. Arterial hypertension associated with kidney pathology.
31. Malignant arterial hypertension
32. Accelerated atrioventricular conduction syndromes (Wolf-Parkinson-White syndrome, Clerk-Levy- Christesco syndrome ).
33. Operative principles for the treatment of cardiac arrhythmias.
34. Metabolic disorders in the myocardium preceding the development of arrhythmia.
35. Necrotizing pancreatitis, treatment protocols.
36. Diet for chronic pancreatitis.
37. Antibacterial therapy of acute pancreatitis .
38. Transfusion -related lung damage TRALI.
39. Development of ARDS in sepsis.
40. Differences between SOPL and RDSV
41. Functional tests for diagnosing COPD.
42. Acute blood loss. Etiology, pathogenesis, stages of compensation.
43. Pathogenesis of acute posthemorrhagic anemia depending on the stage of compensation for acute blood loss. Blood picture by stages.
44. Chronic blood loss. Etiology, pathogenesis.
45. Chronic posthemorrhagic anemia as a symptom of chronic disease. blood loss. There is a picture of blood on her.
46. Features of posthemorrhagic anemia in children
47. Bronchopulmonary complications after heart surgery.

### **TYPICAL QUESTIONS FOR CREDIT: (7 SEMESTER)**

- 1.** Ischemic and reperfusion damage to the myocardium. Changes in the physicochemical properties and structure of membranes, enzyme activity, ion balance and electrophysiological parameters of cardiomyocytes . Violation of the genetic program of myocardial cells and the mechanisms of their implementation. Disorders of the sympathetic and parasympathetic mechanisms of regulation of cardiac activity. Cardiac remodeling . Reversible ischemia-reperfusion injury of the myocardium. Adaptive reactions of the myocardium in response to ischemia- reperfusion . Principles of pathogenetic treatment.
- 2.** Respiratory distress syndrome. Pathogenesis of perfusion , diffusion, and ventilation disorders during the development of respiratory distress syndrome. Features of the clinical picture depending on the degree of gas exchange dysfunction and the stage of the process. Diagnostic criteria for RDS. Features of the pathogenesis of neonatal respiratory syndrome. Pathogenetic ways of correcting respiratory distress syndrome.
- 3.** Principles of interaction between pathogens and macroorganisms. Factors contributing to the emergence of infectious diseases. General patterns of damage to vital organs in the development of SIRS. Specific and nonspecific manifestations Pathophysiology of SIRS. General principles of therapy of infectious process. Principles of antibacterial therapy.

4. The role of the hemostasis system in maintaining the constancy of the internal environment of the body. Hypo- and hypercoagulation . Acute and chronic DIC syndrome. Characteristics of local DIC syndrome. Thromboembolic complications. Pathogenetic basis for the correction of disorders of the hemostatic system, taking into account the underlying pathology.

5. Typical forms of changes in total blood volume or hematocrit. Hypohydration . Types of blood loss. Causes, classification and mechanisms of development of acute and chronic blood loss. Clinical picture of acute blood loss. Mechanisms for immediate and long-term compensation. Algorithm of actions for bleeding and acute blood loss Anemic syndrome as a complication of blood loss. Posthemorrhagic anemia. Acid-base imbalance due to blood loss. Metabolic acidosis. Ischemic damage to the myocardium and brain. Pathogenetic principles of therapy for blood loss, hypoxia, anemia, acidosis.

6. Hemolytic -uremic syndrome. The role of cytokines in the pathogenesis of HUS. Hemolytic -uremic syndrome associated with HIV infection. Features of the course of HUS in children. Very rare forms of hemolytic -uremic syndrome are autosomal recessive and autosomal dominant. Complications. Principles of treatment. Diagnosis of HUS

7. The concept of multiple organ failure syndrome. Etiopathogenesis of multiple organ failure syndrome . The role of systemic inflammatory response syndrome in the formation of multiple organ dysfunction. The role of endogenous intoxication in the formation of multiple organ dysfunction. Metabolic basis of multiple organ failure syndrome. Classification of multiple organ failure syndrome. Acute respiratory failure. Acute heart failure. Acute renal failure. Acute liver failure. Disseminated intravascular coagulation. Treatment of multiple organ failure syndrome.

**TASK No. 1** . The operation is performed using a heart-lung machine, the following indicators are obtained:

pH 7.34

pCO<sub>2</sub> ( mmHg ) 37

SB ( meq /l) 14

BB( meq /l) 29

BE( meq /l) –12

**Question:** Determine the type of thyroid hormone disorder, name the possible mechanisms of their development.

**TASK No. 2.** A 65-year-old patient with chronic bronchitis after a myocardial infarction developed signs of sluggish pneumonia: cough with a moderate amount of viscous sputum, dullness in the lower posterior parts of the lungs on percussion, fine rales on auscultation, mild fever. Blood test: erythrocytosis, leukocytosis with a shift of the leukocyte formula of neutrophils to the left to promyelocytes , accelerated ESR, hyperglobulinemia , increased C reactive protein, amyloid, HbO<sub>2</sub> below 100 g/l.

**Questions:**

1. What are the possible reasons for the mild severity of the inflammatory process in the patient?
2. What are the mechanisms of development of each of the patient's listed symptoms?
3. What measures can be used to increase the effectiveness of adaptive mechanisms (name them) that develop during inflammation?

**TASK No. 3.** Patient K., 50 years old, after recovering from a serious condition caused by heavy bleeding that suddenly began at home from a tumor-affected stomach, underwent gastrectomy (removal of the stomach) under anesthesia using mechanical ventilation. During anti-shock therapy and surgery, the patient was administered various plasma substitutes (within 1.0 l) and 2.5 l of whole donor blood was transfused after two days of storage. On the 3rd day after the operation, despite the restoration of Hb concentration in the blood to normal, the patient's condition continued to remain severe: weakness, headache, dizziness, cold skin of the hands and feet, hypotension (70/30 mm Hg ).

, severe respiratory disorders, renal failure and jaundice (yellowishness of the skin and sclera). The patient was transferred to mechanical ventilation.

**Questions:**

1. What condition was observed in the patient on the third day after surgery? Justify your answer.
2. What are the causes and mechanisms of development of hypoxia: a) in the preoperative period, b) during the operation, c) on the third day of the postoperative period?

**TASK No. 4.** A 45-year-old female accountant was admitted to the clinic with complaints of weakness, dizziness, tinnitus, and spots flashing before her eyes.

The patient has a history of hemorrhoids ten years ago, twice surgical interventions for hemorrhoidal bleeding.

Objectively: the skin and visible mucous membranes are pale. The language is clean. Peripheral lymph nodes are not palpable. The chest organs are unremarkable. The liver and spleen are not enlarged.

Blood test: Hb 62g/l, er.  $10 \cdot 10^{12}/l$ , color . indicator 0.6, l. 4200, item 6%, p. 51%, lymph. 40%, mon . 3%, reticulocytes 3%, platelets 180,000, ROE 15 mm per hour. Smear – anisocytosis , poikilocytosis , hypochromia of erythrocytes. The iron content in blood serum is 160 mcg/l.

**Question:**

What type of anemia occurs in this case?

**TASK No. 5.** Patient D., 56 years old, was admitted to the hospital. Within one month, he had two cerebral ischemic episodes that developed acutely against the background of prolonged paroxysms of atrial fibrillation with disorders of consciousness, convulsions in the right limbs, speech disorders, right-sided hemiparesis (which then completely regressed) and left-sided hemiparesis.

Diagnosis upon admission: repeated ischemic strokes in the territories of the left posterior cerebral artery, left middle cerebral artery and right middle cerebral artery with aphasia and left-sided hemiparesis. Magnetic resonance imaging (MRI) shows multiple foci of cerebral ischemia in the right parietal and left occipital lobes.

**Questions:**

1. What is the cause of multiple foci of cerebral ischemia in D.?
2. What are the main links in the mechanism of ischemic damage to brain cells during ischemic stroke?

**TASK No. 6.** Patient Zh., 52 years old, came to the therapeutic clinic with complaints of shortness of breath, worsening at night, as a result of which her sleep was disturbed. On examination: height 162 cm, weight 98 kg, acrocyanosis , hypertrichosis on the face, orthopnea (increased shortness of breath when lying down), blood pressure 155/90 mm Hg. st , pasty legs, ultrasound of the abdominal organs revealed gastropnoxis, hepatomegaly and signs of fatty liver, stones in the gall bladder, spirometry showed a decrease in vital capacity due to the reserve capacity of the lungs, ECG showed signs of overload and hypertrophy of the myocardium of the right ventricle of the heart.

**Questions:**

1. What forms of pathology does Zh. have?
2. What is the reason for the increase in body weight of Zh.? Is it possible to say that she is obese?
3. What additional information do you need to clarify the patient's condition?
4. What are the principles and methods of treating conditions similar to those identified in Zh.? Name and describe them.

**TASK No. 7.** Victim A. was taken to a surgical clinic from the scene of a car accident with multiple injuries to the chest, abdomen, legs and loss of a large amount of blood.

Objectively: consciousness is preserved, but the victim is not oriented in time and situation; pale skin, tachycardia, “thread-like” pulse, blood pressure 65/15 mm Hg . A. an operation was performed to ligate the bleeding blood vessels, 1200 ml of donor blood (shelf life from 2 to 17 days) and 2000 ml of blood substitutes were transfused.

In the intensive care unit: A.'s condition is serious; tachycardia, arterial hypotension, and shortness

of breath persist; daily diuresis is significantly less than normal; bleeding occurred from small vessels of damaged tissues. Laboratory data indicate a decrease in blood clotting, hypoprothrombinemia, hypofibrinogenemia and thrombocytopenia. On the second day, symptoms of acute renal failure developed. A.'s death occurred from progressive renal and cardiovascular failure. An autopsy revealed signs of multiple thrombosis of small vessels of internal organs.

**Questions:**

1. What pathological process developed in A.: a) soon after the injury; b) in the intensive care unit?
2. What is the pathogenesis of the pathological process that developed in the patient in the intensive care unit?
3. What are the mechanisms of development: a) renal failure; b) cardiovascular failure in the patient?
4. Transfusion therapy was ineffective. Make a guess why?