

## OCCUPATIONAL DISEASES

### Task 1

Male N., 50 years old, came to the clinic with complaints of cough, shortness of breath, chest pain. The patient considers himself ill for the last 10 years, when a chronic cough first appeared. His health condition has been gradually declining. His current decline is due to hypothermia last week.

Anamnesis reveals that the patient has worked in a mine in Lugansk region as a miner and electrician and was exposed to harmful factors.

Determine complete clinical diagnosis in accordance with the clinical and functional and radiological classification of pneumoconiosis.

Additional data on the clinic, sanitary-hygiene characteristics of work conditions, laboratory and instrumental examination are added to the task.

Male, 50 years old

#### ***Harmful and dangerous factors of labor conditions:***

Dust, hypothermia, considerable physical exertion. The concentration of dust containing 75% of free SiO<sub>2</sub> in the workplace is 150 mg/m<sup>3</sup> (normal is 0.5 mg/m<sup>3</sup>).

#### ***Complaints:***

cough, shortness of breath, pain in the chest.

#### ***Objectively***

Acrocyanosis, percussion - lung sound with box shade. During auscultation - vesicular breathing is weakened, a significant amount of scattered dry wheezing is present.

#### ***Laboratory research***

Complete blood count (CBC): RBC - 5.5 T/l, Hb - 175 g/l, color index - 0.95, WBC - 5.4 g/l, leukocyte formula without features.

Sputum analysis: Quantity - 15 ml, viscous, odorless, microscopy - leukocytes – 10 per field, er. - 1-2 per field, epithelium of the bronchi, alveolar macrophages - 20-40 per field.

#### ***X-ray examination***

Diffused mesh-cellular deformation and strengthening of the pulmonary pattern, numerous small blackouts, the roots of the lungs are deformed.

#### ***Functional studies:***

ECG: sinus rhythm. correct, heart rate - 72 / min., dextrogram, "pulmonary heart"

FEB: reduced respiratory function by the type of generalized obstruction and restriction, RF II stage.

Radiograph is attached

**Algorithm for solving the problem:**

1. Determine harmful factors and associate it with an occupational disease
2. Assess clinical syndromes
3. Characterize signs of occupational disease based on data of laboratory and instrumental examination
4. Establish complete clinical diagnosis of pneumoconiosis in accordance with the generally accepted classification.

**Task 2**

Female aged 38, during 14 years has been working at furniture factory in contact with solvents. Benzol concentration in air of working place was from 5 to 30 mg/m<sup>3</sup> (while maximum permissible concentration – MPC - 5 mg/m<sup>3</sup>). After 5 years from the beginning of work she began to experience generalized weakness, decrease of capacity for work, periodical nasal bleedings. During last year signs of asthenization increased, with addition of pain and numbness in hands. On objective examination: paleness of skin, heart tones are dull, tachycardia, blood pressure 100/60 mm Hg. Liver is palpated at 2-3 cm below costal margin. Spleen could not be palpated. Cuff test is positive. Blood analysis: Hb - 84 g/l, erythr.-  $3,3 \cdot 10^{12}/l$ , CI - 0,70, leuc. -  $2,9 \cdot 10^9/l$ , thromb. -  $130 \cdot 10^9/l$ , bleeding time - 5 minutes.

1. On the basis of sanitary-hygienic characteristics, data of objective examination and laboratory investigation determine the diagnosis.
2. Point-out diagnostically important hematological changes.
- 3 Determine a conclusion about the health and professional fitness of an employee

**Algorithm for solving the problem:**

1. Determine the harmful factor and associate it with an occupational disease.
2. Characterize the signs of the professional nature of the disease;
3. Find medical significant hematological changes.
4. Decide on the ability of the employee to continue working in hazardous conditions.

**Task 3**

Worker from a chemical warehouse performed pesticides unloading. After several hours since the start of working he experienced a headache, hypersalivation, lacrimation and dyspnea. Objective examination: general state is of moderate severity. The patient is anxious. Skin is wet. Miotic pupils. Convulsions in separate face muscles. Hard breathing, dry and sonorous big-bubbling moist wheezing. Respiration rate– 26 /min. Heart tones are muted, rhythmic. Pulse - 100 b.p.m., of weak filling. Arterial blood pressure - 120/70 mm Hg.

1. Make a provisional diagnosis.
2. What method of laboratory diagnosis is the most informative?

3 Assign an emergency antidote therapy.

**Algorithm for solving the problem:**

1. Suggest the most likely harmful factor leading to acute poisoning;
2. Assess the severity of the condition on the basis of clinical examination data;
3. Characterize the signs of acute occupational intoxication based on laboratory examination data;
4. Establish a preliminary diagnosis
5. Offer the most informative diagnostic method to confirm the diagnosis
6. Offer drugs for emergency antidote therapy.

**Task 4**

Worker at a car battery factory, 39 years old, experiencing attack-like pains in abdomen, constipation, feeling of metallic taste in mouth. Objectively: skin – of sallow-pallid coloration. BP-180/90 mm Hg. Abdomen – spastic segments of large intestine on palpation. Blood analysis: er.-  $4,1 \cdot 10^{12}/l$ , Hb –100 g/l, reticulocytosis - 40%, basophilic granularity of erythrocytes, ESR – 12 mm/hour.

**Tasks:**

Formulate a preliminary diagnosis and draw a diff. diagnosis of "acute abdomen."

**Algorithm for solving the problem:**

1. Determine harmful factors and associate it with an occupational disease;
2. Describe the clinical syndromes
3. Characterize the changes in laboratory findings and instrumental examination;
4. Offer the most likely preliminary diagnosis and give at least three diff. diagnostic differences from acute surgical pathology.

**Task 5**

Patient of 30 years old, riveter for 6 years. Complaints on sharp pain in shoulder girdl, especially at night. Numbness and albication of hand fingers at low temperatures. Increased irritability. Objectively: puffy hands, cold, cyanotic. Considerable decrease of all types of sensitivity (pain, temperature, vibrational). At cooling test – symptom of «dead fingers ». Weakness in adductors of V finger, changed electro-irritability. Tendon and periosteal reflexes are increased.

**Tasks:**

- 1 Establish the most likely disease
- 2 Identify the leading disease syndromes
3. Specify research methods to identify the main syndromes of the disease.

**Algorithm for solving the problem:**

1. Identify the most likely harmful factors leading to the disease;
2. Assess the severity of the condition from the clinical examination data;
3. Characterize the leading syndromes of the disease;
4. Establish a preliminary diagnosis
5. Identify additional research methods to determine the main syndromes of the disease.