TOPIC OF THE PRACTICAL LESSON № 3:
Treatment of tuberculosis: basic principles. Anti-TB drugs. Standart drug regimens.

Actuality of theme. Introduction of etiotropic into medical practice anti-tuberculosis drugs changed the prognosis in patients with tuberculosis, led to a significant reduction in mortality, made it possible to cure severe forms of tuberculosis. Cessation of bacterial excretion in most patients reduces their epidemiological danger and becomes an important factor prevention of new cases of infection and tuberculosis.

The purpose of the lesson: to teach students the methods of treatment of patients with tuberculosis.

The student must know:
- classification of anti-TB drugs, their properties, dosage, side effects;
- general principles of treatment of patients with tuberculosis;
- modern schemes of etiotropic chemotherapy of tuberculosis;
- criteria for clinical treatment of patients with tuberculosis.

The student must be able to:
- prescribe treatment to different categories of patients with tuberculosis;
- diagnose side effects of anti-TB drugs and determine measures for their prevention.

Interdisciplinary integration.

Subject	Know	Be able
Previous:		
Anatomy	Respiratory anatomy.	
Physiology	Respiratory physiology.	
Pathological physiology	Pathophysiology of diseases respiratory system.	
Microbiology	Morphological structure, properties, pathogenicity and virulence of MBT, their methods detection in sputum and others pathological materials, methods determination of resistance of MBT to anti-TB drugs.	Collect material for bacteriological research. Evaluate the results obtained.
Pharmacology	Classification and mechanisms of action anti-TB drugs.	Assign Antimycobacterial preparations.
Propaedeutics	Methods of objective review.	Make objective

Internal diseases		examination of the patient, evaluate the results obtained.
Radiology	X-ray features chest organs are normal and in pathology, radiological syndromes.	Identify and interpret radiological changes in the lungs.
The following:		
Internal medicine	Clinical manifestations, radiosemiotics of diseases respiratory system.	Carry out differential diagnosis lung diseases.
Intra-subject integration:	Different treatment methods clinical forms of tuberculosis respiratory system.	Prescribe treatment patients with various clinical forms tuberculosis of the organs breath.

Content of the lesson topic:

General principles of antimycobacterial therapy: complexity, combination, controllability, two-phase treatment, duration and continuity, stage sequence, individual approach, free of charge. Antimycobacterial (anti-TB) drugs: classification, mechanisms of their action, properties (bacteriostatic or bactericidal activity, ability to penetrate cell membranes), dosage, pathways and multiplicity introduction into the patient's body. Adverse reactions to antimycobacterial drugs, their prevention and methods of elimination.

Classification of antimycobacterial drugs
The most active: isoniazid (H), rifampicin (R);
Secondary activity: ethambutol (E), pyrazinamide (Z).

Standardized treatment regimen recommended for patient categories for sensitive tuberculosis: 2HRZE and 4HR.

Groups of drugs recommended for use in individualized long-term treatment regimens for drug-resistant tuberculosis

Groups of drugs and their purpose	Preparation	
Group A	levofloxacin or moxifloxacin	Lfx Mfx
Inclusion of all three drugs	bedaquiline	Bdq

	linezolid	Lzd
Group B Addition of one or both drugs	clofazimine	Cfz
	cycloserine or terizidone	Cs Trd
Group C Addition to complete the composition of the scheme and if it is impossible to use drugs of groups A and B	ethambutol	E
	delamanid	Dlm
	pyrazinamide	Z
	imipenem-cilastatin or meropenem	Ipm-CIn Mpm
	amikacin (or streptomycin)	Am (S)
	ethionamide or prothionamide	Eto Pto
	paraaminosalicylic acid	PAS

Short-term oral treatment of multidrug-resistant tuberculosis:
4–6 Bdq-Lfx/Mfx-Cfz-Z-E-H_h-Eto / 5 Lfx/Mfx-Cfz-Z-E

Plan and organizational structure of the lesson:
Preparatory stage (10-20% of working time): organization of classes, goal setting, control of the initial level of knowledge.
The main stage (60-90% of working time): the formation of professional skills and abilities. Students independently and under the supervision of the teacher carry out supervision of patients: collect anamnesis, master the skills of the objective examination, interpret radiological and laboratory data, substantiate clinical diagnosis, prescribe a comprehensive antimycobacterial, pathogenetic and symptomatic therapy.
The final stage (10-20% of working time): level control and correction professional skills and abilities, summarizing, homework.

Materials of methodical providing of employment.
Test control.

1. What is the optimal duration of the main course of antimycobacterial therapy of a patient with FDTB (23.05.2019) of the upper lobe of the left lung (focal, infiltration phase), Destr- MBT-M-C-, Hist0, Cat3 Coh2 (2019)?
A. 2 months
B. 4 months
S. 6 months

D. 8 months
E. 10 months

2. What is the optimal scheme of antimycobacterial therapy in the initial phase a patient with FDTB (July 3, 2018) of the upper lobe of the left lung (tuberculoma), Destr-, MBT-M-,C-, Hist0, Cat1?
A. Isoniazid + rifampicin + ethambutol + pyrazinamide
B. Isoniazid + rifampicin + pyrazinamide + prothionamide
C. Isoniazid + streptomycin + pyrazinamide + ethionamide
D. Rifampicin + streptomycin + ethambutol + ofloxacin
E. Pyrazinamide + kanamycin + ethambutol + isoniazid

3. What drug is prescribed to prevent neurotoxic effects isoniazid?
A. Vitamin C
B. Vitamin A
C. Vitamin B6
D. Vitamin E
E. Diazolin

4. In what form and complication of pulmonary tuberculosis is most appropriate to prescribe prednisolone?
A. Infiltrative pulmonary tuberculosis complicated by exudative pleurisy
B. Chronic disseminated pulmonary tuberculosis, chronic pulmonary heart disease
C. Fibrous-cavernous pulmonary tuberculosis, amyloidosis of internal organs
D. Tuberculoma of the upper lobe of the right lung
E. Cirrhotic pulmonary tuberculosis

5. A 50-year-old patient was being treated for anti-tuberculosis hospitals. Clinical diagnosis: FDTB (13.04.2018) of the upper lobe of the left lung (caseous pneumonia), Destr +, MBT + M + C + Resist + (H) Hist0, Cat1 Coh2 (2018). Prior to obtaining the results of MBT sensitivity, the patient underwent the following treatment: Isoniazid + Rifampicin + Streptomycin + Pyrazinamide. Which is it better to prescribe the drug instead of isoniazid?
A. Rifabutin
B. Ftivazid
C. Ofloxacin
D. PASK
E. Kanamycin

6. What criterion determines the purpose of a particular scheme anti-tuberculosis therapy for a patient with chronic pulmonary tuberculosis?
A. Duration of therapy
B. The results of the study of the function of external respiration
C. The results of the study of the sensitivity of the pathogen
D. Presence or absence of bacterial excretion
E. Presence or absence of bronchial damage

Materials of methodical maintenance of self-preparation of students
Approximate map for the organization of independent work of students with educational literature:

Educational tasks	Instructions for the task	Answer
Examine: Classification antimycobacterial drugs	Classification. Antimycobacterial drugs, their properties, doses, methods and multiplicity of introduction in organism. Side effects, their prevention and elimination methods.	
General principles antimycobacterial therapy	Complexity, combination, controllability, two-phase treatment, duration and continuity, individual approach, stage consistency, free.	
Basic chemotherapy regimens	Categories of treatment of patients with tuberculosis. Treatment regimens for sensitive and chemoresistant tuberculosis. Monitoring the condition of patients with tuberculosis in the treatment process. Criteria for cure of tuberculosis.	

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