TOPIC OF THE PRACTICAL LESSON № 5:

Prevention of tuberculosis.

Actuality of theme. Understanding the patterns of transmission and pathogenesis of tuberculosis is essential to developing a prevention strategy. In the broad sense, prevention may be viewed in the following components: early suspicion leading to aggressive efforts at diagnosis, prompt initiation of effective chemotherapy, physical isolation of the patient, protective devices to reduce the number of viable bacilli in inhaled air. Prevention of disease involves two technical measures of unequal efficacy: BCG vaccination and prescription of chemoprophylaxis for groups at risk. A balanced approach emphasizing both individual patient care and public health principles of disease control is essential to reduce the suffering and economic losses from TB.

The purpose of the lesson: to teach students to carry out tuberculous prevention.

The student must know:
- the types of tuberculous prevention;
- the categories of foci of tuberculous infection;
- the methods of vaccination (revaccination) BCG;
- the complications of vaccination (revaccination) BCG;
- the indications for chemoprevention.

The student must be able to:
- make a plan of preventive measures in the foci of tuberculous infection;
- determine the indications and contraindications for vaccination and revaccination BCG;
- select persons for chemoprevention.

Interdisciplinary integration.

Subject	Know	Be able
Previous:		
Microbiology	The morphological structure, properties, pathogenicity and virulence of MBT, their methods detection in sputum and others pathological materials.	To collect material for bacteriological research. To evaluate the results obtained.

Pharmacology	The classification and mechanisms of action anti-TB drugs.	
Epidemiology	The links of the epidemiological process (source of infection, ways of transmission infections).	
General hygiene	The methods of prevention diseases.	
The following:		
Allergology and immunology	The forming mechanisms innate and acquired immunity.	
Pediatrics	Pediatrics indications and contra-indications to vaccination and revaccination of children and adolescents.	To select people for BCG revaccination.
Social medicine, organi-zation Health Care	Organizational aspects of the event tuberculosis prevention.	

Content of the lesson topic:

Social prevention.

Sanitary prevention, its tasks. The concept of the center of tuberculosis infections. Categories of cells according to the degree of epidemiological danger. Work in the center of tuberculosis infection for tuberculosis prevention. Sanitary - educational work.

Classification of foci of tuberculosis infection

Group 1 (epidemiologically the most dangerous) - detection in a patient who lives in the cell:

a) **massive** (permanent or periodic) bacterial excretion;

b) **scanty** bacterial excretion, if the cell is inhabited by children or adolescents or in the presence of aggravating factors (unsatisfactory living conditions, non-compliance with sanitary and hygienic rules, abuse alcohol).

Group 2 (epidemiologically less dangerous) - detection of the patient:

a) **scanty** bacterial excretion, when only adults live in the cell and there are no aggravating factors;

b) **formal** bacterial excretion, when children live in the cell or adolescents or present in it at least one of the aggravating factors.

Group 3 (epidemiologically potentially dangerous) - the patient has formal bacterial excretion, and only adults live in the cell and in it has no limiting factors.

The list of activities carried out in the center of tuberculosis infection:
- hospitalization of the patient;
- carrying out final disinfection (by SES forces);
- current disinfection;
- isolation of children from bacterial excreta (hospitalization of patients or placement of children in children's institutions);
- vaccination of newborns or revaccination of uninfected with the vaccine BCG;
- regular examination and conduct of persons in contact chemoprophylaxis;
- sanitary and hygienic education of patients and members of their families;
- improvement of living conditions;
- intensive treatment of the patient in the hospital with the following controlled chemotherapy at the outpatient stage.

BCG and BCG-M vaccination, BCG revaccination. BCG and BCG vaccine -M. Technique of vaccinations and revaccinations. Indications and contraindications to vaccination and revaccination. Complications of TB vaccinations.

Absolute contraindications to vaccination of newborns:
- immunodeficiency states;
- enzymopathy;
- Generalized BCG infection found in other children in the family.

Relative contraindications to vaccination:
- prematurity, when the birth weight is less than 2300 g;
- intrauterine infection;
- birth injuries with neurological symptoms;
- acute diseases;
- purulent-septic diseases;
- hemolytic disease of newborns;
- generalized skin lesions.

Contraindications to revaccination:
- infected children and adolescents or tuberculosis in the past;
- doubtful reaction of Mantoux with 2TU PPD-L;
- complications of the vaccine at birth;
- allergic diseases in the acute stage;
- acute diseases with a period of convalescence;
- chronic diseases in the acute stage;
- malignant blood diseases and tumors;

- immunodeficiency, long-term treatment with immunodepressants.

Chemoprevention of tuberculosis, indications, methods.

Primary chemoprevention is performed on uninfected persons for the purpose prevention of Mycobacterium tuberculous infection and disease tuberculosis:

- children, adolescents, healthy adults from family contacts with bactericidal or patients with the active form of tuberculosis - prescribe isoniazid at a rate of 5 mg / kg for 3 months. 2 times a year;
- newborns vaccinated with BCG vaccine born from sick mothers, not detected in time - are also used isoniazid (5 mg / kg) for 3 months. Once a year for 2 years.

Secondary chemoprevention is performed to prevent:

1) the disease;

a) first infected (children and adolescents with tuberculosis reactions);

b) children and adolescents with hyperergic Mantoux reaction with 2 TU PPD - L;

c) infected persons who come into contact with the bacterium or patients with the active form of tuberculosis.

Courses of secondary chemoprevention are:

a) first infected before the age of 30 - a continuous course of isoniazid for 2-3 months;

b) with a hyperergic reaction Mantoux - izoniazid is prescribed for 3 months. Twice for a year;

c) infected who have contact - take isoniazid for 3 months. 2 times a year during the entire period of contact and for another 2 years after its termination.

2) recurrence of tuberculosis - in persons who have relapsed into tuberculosis and have:

a) concomitant adverse diseases;

b) large residual changes;

c) concomitant aggravating diseases;

d) HIV - infected with a hyperergic reaction to tuberculin.

In these cases, secondary chemoprevention is performed twice a year (2-3 months). Isoniazid is prescribed at a dose of 5 mg / kg in combination with one of the drugs (ethambutol - 20-25 mg / kg; rifampicin - 10 mg / kg).

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. Students independently and under the control of the teacher make the plan preventive measures in the center of a tuberculosis infection, select persons for

chemoprophylaxis and revaccination of BCG.

The final stage (10-20% of working time): level control and correction professional skills, summarizing, homework.

Materials of methodical providing of employment.
Test control.

1. A 9-year-old girl 5 months after revaccination at the injection site BCG vaccine appeared swelling with a bluish tinge to the skin, when palpation - fluctuation? What complication did the girl have?
A. Lymphadenitis.
B. Cyst.
C. Colloidal scar.
D. Ulcer.
E. Cold abscess.

2. What is the dose for BCG vaccination?
A. 0.025 mg.
B. 0.5 mg.
C. 0.25 mg.
D. 0.05 mg.
E. 0.005 mg.

3. What period develops a specific anti-TB immunity after vaccination BCG?
A. After 6 months.
B. In 6-8 weeks.
C. After 1 year.
D. In 1-2 weeks.
E. After 2-4 months.

4. In women with fibro-cavernous pulmonary tuberculosis (MBT+), a healthy, full-term baby, weighing 3800 g, was born, who received 8 points for Apgar scale. Immediately after birth, the child was isolated from the patient mother. What action should be taken against the child?
A. Carry out chemoprevention.
B. to make an X-ray.
C. Vaccinate with BCG vaccine.
D. Vaccine with BCG-M vaccine.
E. Carry out a Mantoux test with 2 TU PPD-L.

5. The child is 8 months old. She has not been vaccinated in the maternity home due to disease of acute respiratory viral infection. Now a child healthy and she should be vaccinated. What research does the child need to do to address the possibility vaccination?
A. Mantoux test with 2 TU PPD-L.
B. General blood test.
C. Biochemical analysis of blood.
D. X-ray examination.
E. And immunological examination of blood.

6. What is meant by primary chemoprevention of tuberculosis?
A. Prescribing antimycobacterial drugs to uninfected MBT children and adolescents.
B. Prescribing antibacterial drugs to persons with "conversion" tuberculin reactions.
C. Prescribing antibacterial drugs to persons who have recovered from tuberculosis.
D. Prescribing antibacterial drugs to previously infected individuals in the presence of any risk factors for the development of tuberculosis.
E. In all these cases, prescribe primary chemoprevention.

7. A 35-year-old patient was hospitalized for FDTB (17.08.2022) S1-2 of the right lung (focal), Destr+, MBT+, M+, K+, Resist-,Hist0, Cat1, Coh3 (2022). In the second month of treatment of bacterial excretion stopped. The patient was discharged home 2 months after the start of treatment with a positive effect. The patient is considered formal bactericidal. He lives with his wife. To which group of TB foci does the patient's apartment belong?
A. II.
B. I.
C. III.
D. IV.
E. V.

8. What is the BCG and BCG-M vaccine?
A. Killed culture of mycobacteria.
B. Products of mycobacterial activity.
C. Live weakened culture of mycobacteria.
D. A mixture of purified tuberculin and killed mycobacteria.
E. Incompletely purified dry tuberculin.

9. What factor is most important in determining the epidemic danger foci of tuberculous infection?
A. Sanitary conditions in which the patient and his family live.
B. Massiveness of bacterial excretion.
C. Presence of children and adolescents in the family.
D. Clinical form of tuberculosis.
E. The life of the cell.

10. What is the term of BCG revaccination approved in Ukraine?
A. 3-5 days after birth.
B. 3-5 weeks after birth.
C. In 3-5 years.
D. At 7, 14 years.
E. At 17, 30 years.

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: Social prevention tuberculosis	The list of social measures prevention	
The task of sanitation prevention	The classification of focies tuberculous infection, measures that are held in the cell, current disinfection, final disinfection,sanitary and educational work.	
Vaccination, BCG revaccination	The vaccination and revaccination techniques. Indications and contraindications to vaccination and revaccination. Complications of TB vaccinations.	
Chemoprevention	The indications for conducting primary and secondary chemoprevention. Method carrying out.	

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