

**THEMATIC PLAN OF PRACTICAL CLASSES**  
**for " Phthysiopulmonology" cycle**  
**for the 4th year students of the Faculty for training for foreign countries**  
**7-8 semester**

*Thematic plan was approved at a meeting of the Department of Phthysiopulmonology with PD and PC (protocol No. 9 dated 31.08.2023).*

- 1. Introduction. Ethical and deontological aspects in TB hospital. Bacteriological diagnostics of tuberculosis.**
  - 1.1. Common rules in anti-TB hospital. Basic requirements and problems of medical ethics and medical deontology.
  - 1.2. Common rules in anti-TB hospital. Basic requirements and problems of medical ethics and medical deontology.
  - 1.3. Bacteriological investigation. Clinical specimens. Collection of samples.
  - 1.4. Laboratory tests. Sputum smear microscopy and culture. Ziehl-Neelsen staining and AFB microscopy. Fluorescent auramine staining. Classic method of cultivation on Löwenstein-Jensen media. Automated culture methods. MBT identification and drug resistance detection.
  - 1.5. Genotypic methods of MBT identification and drug resistance detection.
- 2. Diagnostics of tuberculosis.**
  - 2.1. Specialty of examining patients with tuberculosis. Diagnostic methods.
  - 2.2. Symptoms and signs of tuberculosis. History of disease. Physical examination of patient.
  - 2.3. Radiographic procedures in diagnosis (chest radiography, computer tomography, magnetic resonance imaging). Certain radiographic abnormalities are consistent with tuberculosis.
  - 2.4. Tuberculin skin test. Diaskin-test. IFN- $\gamma$  Release Assays (IGRAs).
  - 2.5. Additional diagnostic Procedures. Fiberoptic bronchoscopy. Lung biopsy. Spirography. Pleural puncture. Surgical methods of diagnostic (thoracoscopy, mediastinoscopy).
- 3. Classification of tuberculosis. Primary tuberculosis in children. Disseminated forms of TB.**
  - 3.1. Clinical forms of tuberculosis. Signs and criteria of active TB disease. Primary and postprimary (secondary) tuberculosis. ICD-10 classification.
  - 3.2. Primary tuberculosis in children. Risk factors. Pathogenesis and histomorphology.
  - 3.3. Progressive primary TB in children. Clinical forms of primary tuberculosis: common and extra pulmonary symptoms. Primary TB complex (tuberculous mediastinal lymphadenitis and endobronchial tuberculosis).
  - 3.4. Miliary TB disease. Definition, pathogenesis and histomorphology, clinical variants, diagnostics, outcomes.
  - 3.5. Disseminative TB. Definition, pathogenesis and histomorphology, clinical variants, diagnostics, outcomes.

#### **4. Secondary pulmonary tuberculosis.**

4.1. Subacute TB forms. Pathogenesis, histopathology and clinical aspects depending on host's immune response and reactivity.

4.2. Radiographic appearance of subacute TB forms. Laboratory verification. Course and prognosis.

4.3. Acute progressive pulmonary TB. Risk and determining factors. Pathogenesis, histopathology and clinical signs of caseous pneumonia. Course and prognosis.

4.4. Tuberculoma – pathogenesis, histopathology and clinical aspects. Radiographic features and verification methods. Course and prognosis. Indication for surgical treatment.

#### **5. Chronic TB forms. Complications of tuberculosis.**

5.1. Stages of cavitation in TB. Elastic and rigid caverns. Clinical and X-ray manifestation.

5.2. Reasons and conditions for developing of chronic pulmonary TB. Symptoms and course of chronic TB disease. X-ray signs.

5.3. Criteria of healing and reactivation. Post-TB sequels.

5.4. Systemic complications of TB: lung-heart insufficiency, amyloidosis.

5.5. Haemoptysis and lung haemorrhage. Diagnostic approach and management.

5.6. Spontaneous pneumothorax. Closed and tension pneumothorax. Signs and symptoms, diagnostic and management. Urgent needle decompression of the pleural cavity.

#### **6. Extrapulmonary tuberculosis.**

6.1. Tuberculous meningoencephalitis – risk factors and clinical features. Lumbar puncture and examination of the cerebrospinal fluid. Cerebral tuberculoma - clinical aspects, course and prognosis.

6.2. Pleural tuberculosis - pathogenesis and clinical aspects. Physical signs and radiographic features. Thoracentesis examination of the pleural fluid.

6.3. Tuberculosis of the upper airways. Indication for bronchoscopy.

6.4. Peripheral lymph node TB. Genitourinary and genital TB. Skeletal tuberculosis. Less common extrapulmonary forms (gastrointestinal tuberculosis, tuberculous pericarditis and other).

#### **7. Treatment of tuberculosis. Drug resistant tuberculosis.**

7.1. Principles and aims of active TB treatment. First-line and second-line anti-TB drugs. Modes of action, dosages. TB treatment regimens. Initial (intensive) phase and a continuation phase of treatment.

7.2. Side effects of anti-TB drugs. Symptom-based approach to management of drug side-effects. Prevention.

7.3. Adjunctive therapy of tuberculosis. Surgical treatment of TB – indications and contraindications. Adequate diet for TB patients.

7.4. Preventing drug resistance. Primary and acquired (secondary) resistance. Reasons and mechanisms of drug resistance developing. Course and prognosis of DR-TB. Principles of DR-TB treatment. Palliative and end-of-life care. Sanatoria for TB patients.

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## **8. Prevention in the community. Biosafety and hospital control.**

8.1. Social risk factors of active TB disease developing. Improving access to care for high-risk groups.

8.2. Bacille de Calmette et Guérin vaccine. Organization of BCG-vaccination in high and low TB prevalence countries. Individual contraindications and complications of the BCG vaccination. Treatment of latent tuberculous infection (preventive chemotherapy).

8.3. Sanitary prophylaxis. Respiratory isolation of persons with active TB disease as a measure to limit MBT transmission. Screening and management of active TB contacts. Tuberculosis in cattle - bovine TB control.

8.4. Biosafety in the hospital and in the laboratory. Tuberculosis infection control activities aims and levels. The high TB transmission risk zones. TB transmission control measures (administrative, engineering, and individual protection). The rules of individual protection masks using.

8.5. Tuberculosis infection control measures in outpatient health care institutions.

## **9. Principles of Tuberculosis Control.**

9.1. Tuberculosis as a global problem. WHO promoted TB control measures – DOTS, Stop TB and The End TB strategies. Evaluation of a National Tuberculosis Program. Basic, intermediate and national level of management. NTP in Belarus.

9.2. The passive case-finding of patients presenting with symptoms suggestive of tuberculosis (suspects). Smear-positive individuals identifying.

9.3. The role of radiography and tuberculin skin test in case-finding.

9.4. Tuberculosis register. Categories of TB patients for registration on diagnosis. Monitoring patients during treatment - sputum conversion, clinical and chest X-ray monitoring. Treatment outcome recording and “cohort analysis” of treatment results.

9.5. Epidemiological indices (tuberculosis morbidity and mortality rate, disease incidence and prevalence, drug resistant TB and HIV-TB surveillance).