Ministry of Health Care, the Republic of Belarus
Vitebsk State Medical University
Department of Phthisiopulmonology

A.M. Budritsky, N.V. Vasilenko, N.S. Pravada

METHODICS INSTRUCTIONS FOR PRACTICAL TRAINING

in Phthisiopulmonology
for 4th –year students of General Medicine Faculty

Рекомендовано учебно-методическим объединением по высшему медицинскому, фармацевтическому образованию в качестве учебно_методического пособия для студентов учреждений высшего образования, обучающихся по специальности 1-79 01 01 «Лечебное дело»

VITEBSK, 2020

УДК 616-002.5:37.022=111(07)
ББК 55.4я73
В 92

Reviewers:
G.L. Borodina, PhD, head of Belarussian State Medical University phthisio-pulmonological department.
I.A. Zyuleva, deputy chief medical officer of the medical unit of Vitebsk State Tuberculosis Dispensary

В 92 Budritsky A.M. «Methodics instructions for practical training in Phthisiopulmonology for the 4-th courses students of medical faculty»: уч.-метод. пособие / A.M. Budritsky, N.V. Vasilenko, N.S. Pravada – Vitebsk: BGMU, 2020. – 104 с.

ISBN 978-985-466-970-0

This teaching guide is meant for self-training for practical courses and final examination session of 4-th year foreign faculty medical university students, studying in english. Methodic instructions include methodical recommendations for students to prepare for practical classes, clinical tasks with answers, medical card of a pulmonary tuberculosis in patient, program questions, list of basic practical skills, plan of x-ray description of pathological changes in lungs and mediastenum, clinical classification of tuberculosis, tests, achievement control to credit on phthisiopulmonology, requirements to competences.
This teaching guide includes the newest requirement for tuberculosis care in Belarus and worldwide.
The teaching guide is made in accordance with the curriculum and the teaching program of phthisiopulmonology for the medical faculty of medical universities, approved by the ministery of healthcare of the Belarussian Republic.

УДК 616-002.5:37.022=111(07)
ББК 55.4я73

ISBN 978-985-466-970-0

I. Methodical recommendations for students to prepare for practical classes

Practical classes №1

THEME: "The history of tuberculosis doctrine development, TB epidemiology, etiology of tuberculosis. Diagnosis and examination methods of patients with tuberculosis (laboratory, immunological methods)."

Duration:
6 ac.h / 270 minutes /.

The main aim and tasks of the work:

- to study the history of the doctrine of tuberculosis (TB);
- to study the epidemiology of tuberculosis, etiology of tuberculosis;
- to study the pathogenesis and pathological anatomy of tuberculosis, immunology of tuberculosis;
- to examine the methods of examination of patients with tuberculosis (laboratory, immunological methods).

Methods of study: practical work in the TB dispensary. Practical work in bronchological offices, clinical and bacteriological TB dispensary laboratories; practical work in children offices in the tuberculosis dispensary with the methodology staging Mantoux test and Diaskintest followed by self-assessment of its results; solving situational tasks.

MATERIAL EQUIPMENT AND ILLUSTRATIONS

1. Form 1-med / u-10 "Statement of medical documents."
2. Form № 029 / u "Medical- card of patient ".
3. Training tables, figures.
4. Tools and typical equipment of bronchoscopy room and aerosol offices.
4.1. Instruments for examination and collection of pathological material from the bronchi.
4.2. Bronchoscopy.
4.3. Apparatus for aerosol and inhalation of irritants.
4.4. Recipe irritating compounds for provoking inhalations.
5. Typical equipment clinical and bacteriological laboratories TB dispensary.
5.1. Microscope with laboratory equipment.
5.2. Sets of sputum smears from patients with TB colored by Ziehl-Nielsen.
5.3. A set of tubes with medium Lowenstein-Jensen, Finn-II and various variants of MBT growth.

5.4. Tube sets with solid medium to determine the drug resistance of MBT to various anti-TB drugs.
5.5. Automated BACTEC MGIT 960 system for the rapid detection of MBT and its sensitivity to anti-TB drugs.
5.6. PCR methods (HAIN-test, GeneXpert) for verification and determination of MBT and drug resistance.
6. Vials with PPD-L tuberculin, "Diaskintest".
7. Tuberculin syringes.
8. Transparent millimeter line length of 100 mm.
9. Children and patients whom previously done Mantoux test, "Diaskintest".
10. Form № 112 / u "History of development of the child."
11. The registration form number 025 / u "Medical-patient card".

QUESTIONS FOR SELF-TRAINING ACTIVITIES

1. The history and general pathology of tuberculosis.

1.1. The history of development of the TB doctrine, epidemiology of tuberculosis, the tuberculosis etiology.

The main stages of development of the doctrine of tuberculosis. The value of works of Hippocrates, Abu Ali Ibn Sina, R. Laennec. The discovery of causative agent of tuberculosis and tuberculin by R.Koch. The role of N.I. Pirogov, A.I. Abrikosov, A.I. Strukova, F.V. Shebanova, A.E. Rabuhina, A.G.Homenko in the development of the doctrine of tuberculosis. Discoveries in diagnosis, treatment and prevention of tuberculosis (K.Rentgen, C. Forlanini, K.Pirke, Sh.Mantu, A. Calmette, C. Guerin, Z. Waxman). The history of TB in Belarus. The contribution of scientists of the Republic in the theory and practice of TB (E.L. Marshak, N.G. Bely, M.N. Lomako, E.B. Meve).

Features of epidemic process of tuberculosis and factors that determine its development. Ways of spread of tuberculosis infection. The role of socio-economic factors in the development of tuberculosis. Tuberculosis in countries with different economic levels. Social risk for tuberculosis. Tuberculosis in prisons. Infection with Mycobacterium tuberculosis, incidence, morbidity and mortality from tuberculosis, the importance of epidemiologycal indicators in determining epidemiological situation of tuberculosis in different age groups, including residents of cities and villages. State and prospects of tuberculosis control in Belarus. Statistical accounting and monitoring of TB in the country.

Taxonomy and classification of mycobacteria. TB-pathogen: structure, basic properties. Types of Mycobacterium tuberculosis (MBT). The pathogenicity and virulence of MBT. Genetics of mycobacteria. Fast and slow growing mycobacteria, L-forms of Mycobacterium. The genetic basis of drug resistance development. Types of Drug resistance: primary and secondary,

mono-, polyresistance, multiple (MDR), extensively drug resistant (XDR). Nontuberculous mycobacteria and their importance in the development of lung diseases. Epidemiological and clinical significance of various types and forms of Mycobacterium.

1.2. Pathogenesis and pathological anatomy of tuberculosis, immunology of tuberculosis.

The sources of TB infection in people. Ways of introduction and transmission of tuberculosis infection in humans. Stages of pathogenesis of primary tuberculosis. Latent tuberculosis infection and the active disease. Types and duration of contacts with patients suffering from tuberculosis. Factors contributing to active TB. Second period of tuberculosis infection in humans. Local and general reactions to TB infection. Types of morphological reactions in tuberculous inflammation. The structure of tuberculous granulomas. The morphology of main clinical forms of tuberculosis. Features of morphological processes and in progression of healing of tuberculosis. Residual post-tuberculosis changes and their role in development of tuberculosis. The pathophysiological changes in tuberculosis. Tuberculosis pathomorphosis, its features in modern conditions.

Factors of non-specific resistance to tuberculosis. Humoral regulation system reactivity. The value of human genotype in occurrence and progression of TB. The mechanism of anti-TB immunity due to vaccination or infection with Mycobacterium tuberculosis. The spectrum of disorders of immunity in tuberculosis. Meaning of immunodeficiency in the development and progression of TB infection.

2. Diagnosis and examination methods of patients with tuberculosis.

The methods of obtaining pathological material in patients with pulmonary tuberculosis for MBT detection.

Laboratory diagnostic methods for MBT detection, a comparative assessment of their effectiveness. The method of bacterioscopic examination. Standard solid nutrient medium for the growth of MBT. The optimal, minimum and maximum terms of MBT growth on standard solid media. Methods of identification of mycobacteria, determining resistance and sensitivity to anti-TB drugs (BACTEC MGIT 960, HAIN-тест, GeneXpert MBT/RIF). Modern molecular genetic methods for detection of mycobacteria and identification its antituberculosis drug resistance: GeneXpert, LPA (Hain-test), the test system INNO-LIPA, biochips.

The objectives of tuberculin testing in clinical practice. Types of tuberculin. The concept of infection. The mechanism of human body's sensitivity to tuberculin and its specificity. Positive and negative anergy. The concept of infectious and post-vaccination allergies, differential diagnosis.

Methods of setting an intradermal Mantoux test with 2 TU PPD-L, evaluation of its results. Negative, doubtful, positive and hyperergic reac-

tions. The concept of the "viraj" tuberculin test. Methods of setting "Diaskintest", evaluation of its results. QuantiFERON®-TB Gold test.

QUESTIONS FOR CONTROL RELATED CLASSES

1. TB history.
2. Ways of transmission of tuberculosis infection.
3. The role of socio-economic factors in development of tuberculosis.
4. The epidemiological indicators in definition of epidemiological situation of tuberculosis in different countries.
5. Taxonomy and classification of mycobacteria.
6. The pathogenicity and virulence of mycobacteria.
7. Genetic basis for development of drug resistance.
8. Pathogenicity of various types of Mycobacterium tuberculosis and its epidemiological value in human disease.
9. The types of variability of Mycobacterium tuberculosis.
10. Stages of pathogenesis of primary tuberculosis.
11. Types of morphological reactions in tuberculous inflammation.
12. Residual post-tuberculosis changes and their role in development of tuberculosis.
13. Nonspecific resistance factors to tuberculosis.
14. The TB immunity species.
15. The methods of obtaining pathological material in patients with pulmonary tuberculosis for research MBT in the absence of sputum.
16. The most accessible methods of laboratory diagnostics for MBT detection.
17. What is tuberculin as a biological agent? This is antigen or allergen?
18. What are the basis of tuberculin testing and what tuberculin testing reveals in the human body?
19. The concept of the "viraj" tuberculin test.
20. "Diaskintest".
21. QuantiFERON®-TB Gold test.

PRACTICAL SKILLS

Students should

know:

- history of doctrines about tuberculosis;
- etiology and pathogenesis of TB;
- distinctive features of allergy and immunity in tuberculosis.

be able to:

- calculate the main epidemiological indicators of tuberculosis;

- determine the epidemiological situation in the country.

master:

- the technique of evaluating the epidemiological situation of tuberculosis.

THE LITERATURE:

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Современная бактериологическая диагностика туберкулеза : учебно-методическое пособие / И. И. Дюсьмикеева [и др.]. – Минск : БГМУ, 2018. – 30 с.

Normative legal acts:

5. Инструкция о порядке проведения иммунодиагностики и химиопрофилактики туберкулеза среди детского населения: приказ Министерства здравоохранения Республики Беларусь от 02.10.2015 № 977.

Practical classes №2

THEME: "Diagnosis and examination methods of patients with tuberculosis (X-ray diagnostics).

Duration:
6 ac.h / 270 minutes /.

The main aim and the tasks of the work:

- To learn the basic methods of radiological diagnosis of pulmonary tuberculosis and the plan to describing of pathological shadows into lungs on X-ray;
- To study according to the clinical classification of tuberculosis various forms and variants of the disease in the X-ray image.

Methods of study: practical work in the X-ray office of TB dispensary for examination of patients; viewing, reading and description of radiographs and tomograms with different forms and variants of pulmonary tuberculosis course.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Training table: "Clinical classification of tuberculosis."
2. Training tables: "The normal radiograph of the chest", "Segmental structure of the lung", "X-ray plan to describe pathological changes in the lungs."
3. A set of survey radiographs in frontal and lateral projections without pathological changes.
4. X-rays, tomograms with different variants of radiological manifestations of tuberculosis.
5. Light stand with radiographs: "Clinical forms of pulmonary TB"
6. The equipment of X-ray office: X-ray machine, pulmoskan.
7. Set the clinical (training) tasks on "Radiological diagnosis of pulmonary tuberculosis. Clinical classification of tuberculosis."

QUESTIONS FOR SELF-TRAINING ACTIVITIES

1. Diagnosis and examination methods of patients with tuberculosis.

Imaging techniques, the indications. Basic radiological syndromes of tuberculosis and other respiratory diseases. Computed tomography in diagnosis of tuberculosis and other diseases of the lungs, mediastinum, pleura, and in assessing the dynamics of tuberculosis. Radial methods of investigation with contrast of bronchi and blood vessels (bronchography, angiography). Modern digital technologes in X-ray diagnostics. The value of magnetic resonance tomography and ultrasound in the diagnosis of the pathology of TB.

Special X-ray methods of research in tuberculosis and other lung diseases, indications for their use. X-ray diagnostic of patients with extrapulmonary tuberculosis. Radioisotope research methods (scintigraphy, positron emission tomography) in diagnosis of TB.

Organization of TB control.

The use of low-dose digital radiographic methods of inspection to detect respiratory diseases.

The characteristic of pathological shadows on basic radiological signs:

- localization;
- the character of main shadows;
- the number of shadows;
- size;
- form;
- intensity;
- the structure;
- outlines (contours) of the main shadow;
- changes in the surrounding lung tissue;
- changes of the size and area of the lung fields;
- changes of the position and size of the mediastinum.
- X-ray conclusion

2. The clinical classification of tuberculosis.

Principles of TB classification. Categories of classification, reflecting the main clinical forms, characteristic of TB process and its complications, residual changes after the treatment of tuberculosis. The formulation of diagnosis of tuberculosis. The concept of active, inactive TB, primary and secondary tuberculosis.

QUESTIONS FOR CONTROL RELATED CLASSES

1. Advantages and disadvantages of radioscopy of the chest.
2. Advantages and disadvantages of radiography and fluorography.
3. Compute tomography in diagnosis of tuberculosis and other diseases of the lungs, mediastinum, pleura, and in assessing the dynamic of tuberculosis.
4. X-ray methods of investigation with contrast of the bronchi and blood vessels (bronchography, angiography).
5. The value of magnetic resonance tomography and ultrasound in diagnosis of the pathology of lung, pleura and mediastinum.
6. X-ray diagnostic methods in patients with extrapulmonary tuberculosis.
7. Radioisotope research methods (scintigraphy, positron emission tomography) in diagnosis of TB.

8. Demonstrate the lower boundary of the upper lobe of the left lung on chest radiograph in direct and lateral projections.
9. What sign on the X-ray evidence of "rigidity" of X-rays?
10. Radiological characterization of interpretation of lung pattern.
11. The basic radiological syndromes of tuberculosis. Radiographic signs that determine the activity of tuberculous process.
12. Principles of clinical diagnosis of pulmonary tuberculosis in accordance with the classification.

PRACTICAL SKILLS

Students should:

know:

- Indications for use, advantages and disadvantages of radial methods of TB diagnostics;
- Clinical classification of tuberculosis.

be able to:

- Assign main and additional methods X-ray examination to assess the results;
- Identify on X-ray of the chest symptoms of tuberculosis and execute protocol radiographic examination;
- Formulate and validate a clinical diagnosis of tuberculosis.

master:

- Assessment methodology radiographic studies.

THE LITERATURE:

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.

Additional:

3. Лучевая диагностика органов грудной клетки [Электронный ресурс] / гл. ред. тома В. Н. Троян, А. И. Шехтер - М. : ГЭОТАР-Медиа, 2014. - http://client.rosmedlib.ru/book/ISBN9785970428702.html
4. Лучевая диагностика [Электронный ресурс] : учебник / Г. Е. Труфанов и др.; под ред. Г. Е. Труфанова. - М. : ГЭОТАР-Медиа, 2016. - http://client.rosmedlib.ru/book/ISBN9785970439609.html
5. The annoficial guaid to radiology: 100 practice chest X-rays, with full colour annotations and full X-ray reports [Электронный ресурс] /Mochammed Rashid Akhtar, Naeem Achmed, Nihad Khan, edited by Mark Rodrigues and Zeshan Qureshi –Chesh repablic. : Finidr, 2017.- https://unofficialguidetomedicine.com/wp-content/uploads/2017/01/UGRad-Chest-PREVIEW.pdf

Practical classes №3

THEME: "Organization modern strategy to stop TB (early detection of TB in adults, TB dispensaries, medical-rehabilitation expert committee)".

Duration:
6 ac.h / 270 minutes /.

The main aim and tasks of the work:

- To study the methodology of early detection of tuberculosis in adults;
- To study the system of TB services by X-ray and its objectives in the Republic of Belarus;
- Examine the legislation on reception and temporary disability of patients with tuberculosis in the Republic of Belarus.

Methods of study: practical work in the X-ray department of TB clinic, acquaintance with the organization of the medical-rehabilitation expert committee.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. The stationary fluorograph.
2. "Pulmoskan-760."
3. Computed Radiography Mobile office "Pulmo Express".
4. Records of a fluorography cabinet.
5. The sets of fluorograms, digital fluorograms of healthy individuals and patients with different forms of tuberculosis.
6. The table "The risk groups for tuberculosis", "Mandatory contingents subject to regular preventive X-ray examination"
7. Dispensary groups of patients with tuberculosis.
8. A set of clinical (training) tasks relating to the topic.

QUESTIONS FOR SELF-TRAINING ACTIVITIES

Organization of modern strategy to stop TB

The concept of early, timely and late detection of tuberculosis.

The main methods of identifying patients with tuberculosis: X-ray examination methods, microbiological testing, immunodiagnostics. Organization and planning of activities for the early detection of tuberculosis among the population. X-ray screening of the population. X-ray fluorography screening of population for tuberculosis: massive and differentiated methods. The risk groups for tuberculosis and mandatory group. Using the Mantoux test with 2 TU and Diaskintest for detection of tuberculosis in different age

groups. Groups risk of tuberculosis among children. Indications for examination of children in the TB dispensary.

The role of health care organizations in early detection of patients with tuberculosis. Bacterioscopy examination method for the detection of acid-fast bacilli. Indications for bacteriological examination of adults and children. Identification of patients with tuberculosis at mass inspections in high-risk groups and in seeking medical help.

Methods for early detection of patients with extrapulmonary tuberculosis. Risk groups, the organization of their examinations.

Tasks of TB dispensary, methods and organization of its work. Types and structure of tuberculosis dispensary. A comprehensive plan for TB control activities in the area.

The grouping patients of TB health care organizations, the amount and frequency of surveys, observation periods.

Organizational and methodical management of TB dispensary for “stop TB” strategy of health organizations in urban and rural areas. Management measures for diagnosis, prevention of tuberculosis, X-ray inspections, bacteriological testing for Mycobacterium tuberculosis.

TB control work of health care organizations. Modern approaches to prevention and detection of tuberculosis. The organization of TB control in the clinic, health center, in the hospital, in institutions, in the rural medical district. The algorithm of examination of patients in an outpatient setting with suspected tuberculosis disease. Groups of social and health risk of TB disease, indications for referral to TB specialists.

TB control work of Hygiene and Epidemiology Center. An analysis of dynamics of the epidemic situation of tuberculosis in the area of clinic services. TB control in household and industrial nidi of tubercular infection. Compliance with the rules of TB infection control in health care organizations. Planning for mass screening for tuberculosis and immunization with BCG vaccine, control their conduct.

Temporary incapacity for tuberculosis, timing.

QUESTIONS FOR CONTROL RELATED CLASSES

1. The concept of timely detection of patients with pulmonary tuberculosis, not timely identified and advanced forms of tuberculosis.
2. The advantages of fluorography method of examination of population, over other methods of radiological diagnostics.
   Advantages of X-ray Computer examination of the chest.
3. Terms and X-ray frequency of different population groups with preventive purpose.
4. Methodology and frequency of radiological examination of patients in the clinic for medical reasons.

5. The objectives of the TB dispensary.
6. The Grouping patients of TB health care organizations, the amount and frequency of surveys, observation periods.

PRACTICAL SKILLS

Students should:

know:

- organization of early and timely detection of tuberculosis; basics of clinical examination and rehabilitation, principles of prevention and medical and social assessment;
- organization of TB control activities, depending on the epidemiological situation;
- the structure, tasks and organization of the TB dispensary, an TB office; the role of general practitioner in the system of TB control in the conduct of TB control activities; principles of preventive examinations.

be able to:

- appoint basic and advanced survey methods to assess the results of laboratory and instrumental methods.

THE LITERATURE:

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Normative legal acts:

4. Руководство по организации и проведению противотуберкулезных мероприятий в амбулаторно-поликлинических организациях здравоохранения: утв. приказом МЗ РБ 23.05.2012 г. № 622.
5. Инструкция по группировке пациентов противотуберкулезных организаций, подлежащих диспансерному учету и динамическому наблюдению: приказ Министерства здравоохранения Республики Беларусь от 23.05.2012 № 621.
6. Инструкция о порядке выдачи листков нетрудоспособности и справок о временной нетрудоспособности: утв. приказом МЗ РБ 09.07.2002 г. № 52/97: в редакции постановления МЗ РБ и Мин. труда и соц. защиты РБ 21.03.2017г. № 27/13.

Practical classes №4

THEME: "Tuberculosis prophylaxis".

Duration: 6 ac.h / 270 minutes /.

The purpose of class:

- Examine the methods of preventing tuberculosis in clinically healthy individuals.

Methods of study: practical work in the dispensary department

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Study the table "Vaccination against TB."
2. Drawings of various types of vaccination reactions and complications in after BCG vaccination.
3. Study the table: "Differential-diagnostic signs of infectious and after vaccination allergies."
4. The vials with dry BCG-1 (BCG-M) and a solvent.
5. Tuberculin syringes, needles for intradermal administration of the vaccine.
6. Accounting form № 063 / y "Vaccination Form".
7. Accounting form № 112 / y "Outpatient card baby."
8. Children with post-vaccination reactions and signs.
9. Set the clinical (training) task on the theme "TB prevention".

QUESTIONS FOR SELF-TRAINING ACTIVITIES

Prevention of tuberculosis

Definition and social tuberculosis prevention tasks. Preventive measures of social orientation. The priority of a healthy lifestyle.

Definition of specific prevention of tuberculosis. Characteristics of vaccine BCG and BCG-M. Indications, contraindications to BCG vaccination, vaccination records local reactions. Complications of BCG vaccination: classification, clinical features, treatment.

Chemoprevention of tuberculosis: definition, indications. Organization of chemoprophylaxis.

Sanitary tuberculosis prevention. Focal point of tuberculosis infection, classification, characteristics, observation periods. Factors determining the focus of danger; conducting anti-epidemic prevention work in the hearth. TB Infection Control in Health Organisation definition, purpose, forms (levels). Areas with high risk of infection. Terms of use respirators.

Provision of sanitary and epidemiological welfare of tuberculosis among the population.

QUESTIONS FOR CONTROL RELATED CLASSES

1. The purpose of anti-TB vaccination of children.
2. Indications, contraindications to BCG vaccination.
3. Complications of BCG vaccination: classification, clinical features, treatment.
4. Objective indicators of immunological adjustment body of the child under the influence of BCG vaccine.
5. TB chemoprophylaxis: definition, indications.
6. Organization of chemoprophylaxis.
7. Focal point of tuberculosis infection, classification, characteristics, observation periods.
8. TB Infection Control in Health Organisation definition, purpose, forms (levels).
9. Areas with high risk of infection.
10. Terms of use of respirators.
11. Provision of sanitary and epidemiological welfare of tuberculosis among the population

PRACTICAL SKILLS

Students should

know:

- characteristic allergies and immunity of patients with tuberculosis;
- organization of TB vaccination;
- organization of TB control activities, depending on the epidemiological situation.

be able to:

- define indications for chemoprophylaxis of tuberculosis;
- determine the type and degree of danger of an epidemic TB focal point and planning measures for its improvement.

master:

- methods of TB prevention;
- modern methods of infection control;
- organization skills hygiene education to population

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке

спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Normative legal acts:

4. Закон Республики Беларусь от 07.01.2012 №345-З «О предупреждении распространения заболеваний, представляющих опасность для здоровья населения, вируса иммунодефицита человека».
5. Клиническое руководство по организации и проведению противотуберкулезных мероприятий в амбулаторно-поликлинических организациях здравоохранения. Приказ Минздрава Республики Беларусь № 622 от 23 мая 2012 г. – Минск, 2012. – 111 с.
6. Постановления МЗ РБ от г. № 73 «Санитарно-эпидемиологические требования к организациям, оказывающим медицинскую помощь, в том числе к организации и проведению санитарно-противоэпидемических мероприятий по профилактике инфекционных заболеваний в этих организациях».
7. Приказ МЗ РБ от 13.01.2014г. № 15 «Об утверждении инструкции по организации работы в очагах туберкулезной инфекции и выявлению контактных лиц».
8. Приказ МЗ РБ №64 от 20.03.2013 с целью снижения риска профзаболеваний туберкулезом в соответствии с планом инфекционного контроля учреждения и во исполнении приказа №1151 от 11.12.2009 «Об утверждении Методического руководства «Мероприятия по инфекционному контролю в противотуберкулезных организациях».
9. Приказ МЗ РБ № 6 от 03.01.2013г. на основании приказа №1151 от 11.12.2009 «Об утверждении Методического руководства «Мероприятия по инфекционному контролю в противотуберкулезных организациях» и с целью обеспечения безопасных условий работы сотрудников, снижения риска профессиональных заболеваний туберкулезом, профилактики внутрибольничной инфекции и перекрестного инфицирования больных» в работу врачей амбулаторно-поликлинического звена.
10. Приказ МЗ РБ № 977 от 02.10.2015г. «Об утверждении Инструкции о порядке проведения иммунодиагностики и химиопрофилактики туберкулеза среди детского населения».
11. Приказ МЗ РБ от 20.01.2014г. № 27 «Об утверждении инструкции по диагностике, лечению, профилактике и учету серьезных побочных реакций на профилактическую прививку против туберкулеза у детей».
12. Постановление МЗ РБ № 42 от 17.05.2018 «О профилактических прививках»

Practical classes № 5

THEME: "Treatment of patients with pulmonary tuberculosis."

Duration: 6 ac.h / 270 minutes /.

The purpose of the class:

- Learning the principles and methods of TB treatment.

Methods of study: demonstration of anti-TB drugs, the clinical analysis of the treatment plan for patients with various forms of active tuberculosis.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Sets and stand "TB drugs".
2. Study the table "Classification of anti-TB drugs."
3. Patients with tuberculosis.
4. Accounting form № 025 / y "Medical outpatient map".
5. Accounting Form 1-honey / u-10 "Statement of medical records."
6. Accounting form № 029 / y "Medical-patient card".
7. A sample of a framework contract with a patient with tuberculosis;
8. The sample framework contract with a patient with drug-resistant tuberculosis;
9. Accounting form № 089-1 / the "Notice of the patient: a first-ever diagnosis of active tuberculosis diagnosed in a given year the case of relapse (relapse) of tuberculosis cases diagnosed with MDR (multidrug-resistant) TB."
10. Registration smear and MBT culture in sputum during chemotherapy.
11. The registration form № 081-2/ У in "patient treatment card with rifampicin-resistant TB.
12. The form of the report of the patient registration with rifampicin-resistant TB.
13. A set of clinical (training) task on "Principles and methods of treatment of patients with tuberculosis."

QUESTIONS FOR SELF-TRAINING ACTIVITIES

Treatment of patients with pulmonary tuberculosis

Basic principles of treatment of patients with tuberculosis. Medical treatment and nutrition of patients suffering from tuberculosis. Etiotropic treatment of tuberculosis. TB drugs (ATD). Classification, dose, administration methods ATD. The main course, stages, chemotherapy regimens. Stand-

ard chemotherapy regimens. Controlled treatment. Card of treatment. Clinical monitoring.

The concept of drug-resistant tuberculosis. Types of drug resistance. The reasons for development of drug resistance, risk groups. Features of patients depending on type of drug resistance (RR-TB, RS-TB).

Adverse reactions to anti-TB drugs, their prevention and elimination. Treatment of TB patients in the outpatient setting. Formation of patient compliance to treatment.

Surgical interventions of tuberculosis, indications and contraindications for their use. Artificial pneumothorax and pneumoperitoneum: the main indications to imposition, contraindications, overlay technique, complications.

Medicines pathogenetic therapy, indications. Palliative treatment.

Organization of treatment of TB patients in outpatient settings in urban and rural areas.

QUESTIONS FOR CONTROL RELATED CLASSES

1. Basic principles of treatment of patients with tuberculosis. Medical treatment and nutrition of patients suffering from tuberculosis.
2. Anti-TB drugs. Classification, dose, administration methods, ATD combinations.
3. The main course, stages and chemotherapy regimens.
4. The standard chemotherapy regimens.
5. The concept of drug-resistant tuberculosis.
6. Controlled treatment. Card of treatment. Clinical monitoring.
7. Features of treatment of patients according to the type of drug resistance
8. Adverse reactions to anti-TB drugs, prevention and their elimination.
9. Treatment of TB patients in the outpatient setting.
10. Types of surgical interventions for tuberculosis: indications and contraindications for their use.
11. Artificial pneumothorax and pneumoperitoneum: main indications to imposition, contraindications, overlay technique, complications.
12. Medicines pathogenetic therapy, the indications.
13. Palliative care.
14. The treatment of TB patients in outpatient settings in urban and rural areas.

PRACTICAL SKILLS

Students should know:

– principles of treatment of TB patients in various stages of medical care;
– modern TB control strategy, the state program "Tuberculosis";

– principles of ethics and medical ethics in treatment of patients with tuberculosis.

be able to:

– appoint primary chemotherapy according to the type of drug resistance;
– identify adverse reactions to anti-TB drugs, prescribe treatment and to prevent adverse reactions.

master:

– the principles of treatment of patients with tuberculosis.

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Неотложные состояния в пульмонологии: учебно-методическое пособие / П.С. Кривонос, В.Л. Крыжановский, А.Н. Лаптев. Минск: БГМУ, 2012. 114 с.

Normative legal acts:

5. О применении клинического руководства в противотуберкулезной работе : приказ № 601 от 30.05.2017г. .
6. Приказ МЗ РБ № 1300 от 10.12.2014г. «О порядке оказания медицинской реабилитации в амбулаторных, стационарных условиях, в условиях дневного пребывания, а также вне организации здравоохранения».
7. Приказ № 479 от 23.10.2015г. «О создании консилиума по лечению больных туберкулезом с множественно-лекарственно устойчивой формой туберкулеза».
8. Приказ МЗ РБ № 995 от 07.10.2015г. «О контролируемом лечении пациентов, больных туберкулезом органов дыхания, в амбулаторных условиях в государственных организациях здравоохранения».
9. Постановление № 88 от 18 июля 2016 г. «Об утверждении клинических протоколов « Экстренная медицинская помощь пациентам с анафилаксией», «Диагностика и лечение системной токсичности при применении местных анестетиков».

Practical classes № 6

THEME: "The clinical classification of tuberculosis. Clinical forms of primary tuberculosis. Secondary forms of TB: disseminated pulmonary tuberculosis."

Duration: 5 ac.h / 225 minutes /.

The purpose of class:

- To study the causes and mechanisms of primary tuberculosis;
- To examine the features of primary tuberculosis;
- To learn the principles and methods of diagnosis of primary tuberculosis;
- To learn the principles and methods of treatment of primary tuberculosis;
- To study the causes and mechanisms of occurrence of disseminated tuberculosis;
- To learn the principles and methods of diagnosis of disseminated tuberculosis;
- To learn the principles and methods of treatment of disseminated tuberculosis.

Methods of study:

Clinical examination of patients with primary tuberculosis, disseminated tuberculosis; reading radiographs, the decision of situational tasks.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Medical documents of TBpatients.
2. Training charts: "Tuberculosis granuloma," "Primary tuberculosis complex", "Tuberculosis of intrathoracic lymph nodes," "Clinical classification of tuberculosis", "Differential diagnosis of tuberculosis intoxication."
3. Patients with primary pulmonary tuberculosis.
4. Patients with disseminated pulmonary tuberculosis.
5. Light stand with radiographs: "Clinical forms of pulmonary tuberculosis"
6. X-ray sets with primary pulmonary tuberculosis in children and adults.
7. X-ray sets with different variants of disseminated pulmonary tuberculosis, residual changes after treatment.
8. A set of clinical (training) task on "The clinical examination of a patient with primary tuberculosis."
9. A set of clinical (training) task on the topic: "Miliary tuberculosis, subacute and chronic disseminated pulmonary tuberculosis".

QUESTIONS FOR SELF-TRAINING ACTIVITIES FOR THE CONTENTS

1. The clinical classification of tuberculosis.

2. Clinical forms of primary tuberculosis.

Pathogenesis and pathological anatomy of primary tuberculosis. The risk factors of primary forms of tuberculosis. Primary infection. Latent TB infection. The value of immunodiagnostics to identify primary tuberculosis.

The forms of primary tuberculosis. Tuberculous intoxication in children. The clinical course, diagnostics, treatment.

Tuberculosis of intrathoracic lymph nodes: pathogenesis, clinical and radiological forms, clinic, diagnostics features, complications, treatment and outcomes.

Primary tuberculosis complex: pathogenesis, clinical signs, diagnostics, treatment, complications. Outcomes of primary TB and the value of residual changes in pathogenesis of secondary forms of tuberculosis.

Chronic primary tuberculosis. Pathogenesis, clinical signs, diagnostics, treatment.

3. Secondary forms of TB: disseminated pulmonary tuberculosis.

The concept of secondary forms of tuberculosis.

Miliary tuberculosis: definition, incidence, pathogenesis and patomorfology, clinical variants, diagnostics, complications, treatment, outcome, prognosis.

Subacute and chronic disseminated pulmonary tuberculosis: definition, diagnostics, clinical signs, treatment, prognosis.

QUESTIONS FOR CONTROL RELATED CLASSES

1. Pathogenesis and pathological anatomy of primary tuberculosis.
2. Risk-factors of primary forms of tuberculosis.
3. Primary infection. Latent TB infection.
4. The value of immunodiagnostics in diagnosis of primary tuberculosis.
5. Tuberculous intoxication in children.
6. The clinical course, diagnostics and treatment of primary tuberculosis.
7. Tuberculosis of intrathoracic lymph nodes (clinical variants, diagnosis, outcomes).
8. Primary tuberculosis complex: clinical features, diagnosis, outcomes.
9. Chronic primary tuberculosis: clinical features, diagnosis, outcomes.
10. The concept of secondary forms of tuberculosis.
11. Miliary tuberculosis: clinical variants, diagnosis, outcomes.
12. Subacute disseminated pulmonary tuberculosis: diagnosis, clinical signs, treatment.

13. Chronic disseminated pulmonary tuberculosis: diagnosis, clinical signs, treatment.

PRACTICAL SKILLS

Students should

know:

- classification, clinical signs, diagnosis and treatment of primary tuberculosis;
- classification, clinical picture, diagnosis and treatment of miliary and disseminated tuberculosis.

be able to:

- collect anamnesis, carry out an objective examination of a patient with pulmonary tuberculosis;
- identify clinical symptoms of primary tuberculosis and disseminated tuberculosis;
- identify on X-ray signs of primary tuberculosis and disseminated tuberculosis;
- appoint survey methods to assess the results of laboratory and instrumental methods of examination of patients with primary tuberculosis;
- appoint survey methods to assess the results of laboratory and instrumental methods of examination of patients with disseminated tuberculosis;
- formulate and validate a clinical diagnosis of tuberculosis;
- appoint chemotherapy of TB patients.

master:

- methods of clinical and laboratory examination, principles of treatment of patients with primary tuberculosis;
- methods of clinical and laboratory examination, principles of treatment of patients with disseminated tuberculosis.

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Кривонос, П.С. Туберкулез у детей: учебное пособие / П.С. Кривонос, Ж.И. Кривошеева, Н.С. Морозкина. – Минск: Регистр, 2015. – 232 с.
5. Алексеев, Д.Л. Фтизиопульмонология. Дифференциальная диагностика туберкулеза органов дыхания : метод. пособие к практ. занятиям для студентов VI курса / Д.Л. Алексеев, К.Г. Тярасова; под общ. ред. А.Н. Шишкина. Санкт-Петербург, 2011. 46 с.
6. Король, О.И. Туберкулез у детей и подростков: руководство (серия «Спутник врача») / О.И. Король, М.Э. Лозовская; под. ред. О.И. Король. – СПб.: Питер, 2005. – 432 с.
7. Кривонос, П.С. Диагностика, лечение и профилактика туберкулеза у детей: пособие для врачей / П.С. Кривонос, Ж.И. Кривошеева и др. Минск. 2012. – 160 с.

Normative legal acts:

8. О применении клинического руководства в противотуберкулезной работе : приказ № 601 от 30.05.2017г. .
9. Приказ МЗ РБ № 1300 от 10.12.2014г. «О порядке оказания медицинской реабилитации в амбулаторных, стационарных условиях, в условиях дневного пребывания, а также вне организации здравоохранения».
10. Приказ № 479 от 23.10.2015г. «О создании консилиума по лечению больных туберкулезом с множественно-лекарственно устойчивой формой туберкулеза».
11. Приказ МЗ РБ № 995 от 07.10.2015г. «О контролируемом лечении пациентов, больных туберкулезом органов дыхания, в амбулаторных условиях в государственных организациях здравоохранения».
12. Постановление № 88 от 18 июля 2016 г. «Об утверждении клинических протоколов « Экстренная медицинская помощь пациентам с анафилаксией», «Диагностика и лечение системной токсичности при применении местных анестетиков».

Practical classes № 7

THEME: "Secondary forms of tuberculosis: focal, infiltrative pulmonary tuberculosis, caseous pneumonia, lung tuberculoma."

Duration: 5 ac.h / 225 minutes /.

The purpose of class:

- to examine the causes and mechanisms of secondary forms of TB (focal, infiltrative pulmonary tuberculosis, caseous pneumonia, pulmonary tuberculoma);
- examine the features of course of secondary forms of TB (focal, infiltrative pulmonary tuberculosis, caseous pneumonia, pulmonary tuberculoma);
- study the principles and methods of diagnosis of secondary forms of TB (focal, infiltrative pulmonary tuberculosis, caseous pneumonia, pulmonary tuberculoma);
- study the principles and methods of treatment of secondary forms of TB (focal, infiltrative pulmonary tuberculosis, caseous pneumonia, pulmonary tuberculoma)

Methods of study: practical work in the hospital to examine TB patients under the supervision of a teacher; examination and analysis of patients with secondary forms of TB (focal, infiltrative pulmonary tuberculosis, caseous pneumonia, pulmonary tuberculoma); reading radiographs; clinical decision of situational tasks.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Training charts with different variants of focal, infiltrative pulmonary tuberculosis, lung tuberculoma, caseous pneumonia.
2. Sets of radiographs and tomograms with different variants and phases of focal, infiltrative pulmonary tuberculosis, lung tuberculoma, caseous pneumonia.
3. Light stand with radiographs: "The clinical forms of pulmonary tuberculosis"
4. Patients with focal pulmonary tuberculosis, infiltrative pulmonary tuberculosis, lung tuberculoma and their medical documents.

QUESTIONS FOR SELF-TRAINING ACTIVITIES FOR THE CONTENTS

Secondary forms of tuberculosis: focal pulmonary tuberculosis, infiltrative lungs tuberculosis, caseous pneumonia, lung tuberculoma.

Focal pulmonary tuberculosis: definition, incidence, pathogenesis, diagnostics, clinical signs, treatment and outcomes of focal pulmonary tuberculosis. Symptoms of active TB process. X-ray research methods for detection and diagnosis of focal tuberculosis.

Infiltrative pulmonary tuberculosis: definition, incidence, pathogenesis, clinical and radiological variants of infiltrative tuberculosis, diagnostics, prognosis, treatment, medical and social examination, outcomes.

Caseous pneumonia: definition, incidence, pathogenesis, clinical signs, radiological signs, diagnostics, treatment, complications, medical and social examination, outcomes.

Lung tuberculoma: definition, incidence, pathogenesis, types, clinical course, diagnostics, treatment, medical and social examination, prognosis, outcomes.

QUESTIONS FOR CONTROL RELATED CLASSES

1. Focal pulmonary tuberculosis: definition, incidence.
2. Pathogenesis and pathomorphology acute and chronic focal pulmonary tuberculosis.
3. Diagnostics, clinical signs, treatment, medical and social examination, outcomes of focal pulmonary tuberculosis.
4. Signs of activity of tuberculosis process in patients with focal pulmonary tuberculosis.
5. The value of radiological research methods for detection and diagnosis of focal tuberculosis.
6. Infiltrative pulmonary tuberculosis: definition, incidence, pathogenesis and pathomorphology.
7. Clinical and radiological variants infiltrative tuberculosis, peculiar properties its currents and diagnosis, prognosis, treatment.
8. Outcomes of infiltrative pulmonary tuberculosis.
9. Caseous pneumonia: definition, incidence, pathogenesis and pathomorphology, clinical signs.
10. Clinical and radiological forms of caseous pneumonia, diagnosis, treatment, complications.
11. Medical and social expertise, outcomes of caseous pneumonia.
12. Lung tuberculoma: definition, incidence.
13. Pathogenesis, pathomorphology and types of tuberculoma.
14. The clinical course, diagnosis of lung tuberculoma.
15. Treatment, medical and social examination, outcomes of lung tuberculoma.

PRACTICAL SKILLS

Students should

know:

– definition, incidence, pathogenesis, diagnostics, clinical signs, treatment and outcomes of focal lungs tuberculosis, infiltrative pulmonary tuberculosis, caseous pneumonia, lung tuberculoma.

be able to:

– collect anamnesis, carry out an objective examination of patients with focal pulmonary tuberculosis, infiltrative pulmonary tuberculosis, caseous pneumonia, lung tuberculoma;
– develop a plan for examination of patients with focal pulmonary tuberculosis, infiltrative pulmonary tuberculosis, caseous pneumonia, lung tuberculoma;
– identify on X-ray plain the signs of focal pulmonary tuberculosis, infiltrative pulmonary tuberculosis, caseous pneumonia, lung tuberculoma and execute protocol radiographic examination;
– appoint survey methods to assess the results of laboratory and instrumental methods of investigation of patients with focal pulmonary tuberculosis, infiltrative pulmonary tuberculosis, caseous pneumonia, lung tuberculoma;
– formulate and substantiate a clinical diagnosis of tuberculosis;
– appoint the basic chemotherapy according to patient's clinical categories.

master:

– methods of clinical and laboratory examination, principles of treatment of patients with focal pulmonary tuberculosis, infiltrative pulmonary tuberculosis with caseous pneumonia, lungs tuberculoma.

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Фтизиатрия: национальное руководство / под ред. М.И. Перельмана. М.: ГЭОТАР-Медиа, 2007. 512 с.

5. Фтизиопульмонология : учебник для студентов мед. вузов / В.Ю. Мишин [и др.]. Москва : Гэотар-Медиа, 2010. 502 с.

Normative legal acts:

6. О применении клинического руководства в противотуберкулезной работе : приказ № 601 от 30.05.2017г. .
7. Приказ МЗ РБ № 1300 от 10.12.2014г. «О порядке оказания медицинской реабилитации в амбулаторных, стационарных условиях, в условиях дневного пребывания, а также вне организации здравоохранения».
8. Приказ № 479 от 23.10.2015г. «О создании консилиума по лечению больных туберкулезом с множественно-лекарственно устойчивой формой туберкулеза».
9. Приказ МЗ РБ № 995 от 07.10.2015г. «О контролируемом лечении пациентов, больных туберкулезом органов дыхания, в амбулаторных условиях в государственных организациях здравоохранения».

Practical classes № 8

THEME: "Cavernous, fibrous-cavernous, cirrhotic pulmonary tuberculosis."

Duration: 5 ac.h / 225 minutes /.

The purpose of class:

- Mastering of methods of diagnosis and treatment of patients with cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis.

Methods of study: examination and analysis of patients with cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis; X-ray reading.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Training charts with cavernous pulmonary tuberculosis, fibrous-cavernous pulmonary tuberculosis, cirrhotic pulmonary tuberculosis.
2. Sets of radiographs and tomograms with cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis.
3. Light stand with radiographs: "Clinical forms of pulmonary tuberculosis."
4. Patients with cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis.
5. History of disease inpatients with cavernous, fibrous-cavernous and cirrhotic pulmonary tuberculosis with radiographs.

QUESTIONS FOR SELF-TRAINING ACTIVITIES FOR THE CONTENTS

Cavernous pulmonary tuberculosis, fibrous-cavernous pulmonary tuberculosis, cirrhotic tuberculosis.

Cavernous pulmonary tuberculosis: definition, incidence, pathogenesis and morphological structure. Clinical, radiological and laboratory signs of a cavity into lung, different variants of cavity recovering. Diagnosis of cavernous pulmonary tuberculosis, treatment, medical and social examination, forecast outcomes.

Fibrous-cavernous pulmonary tuberculosis: definition, incidence, causes of formation. Pathogenesis and pathological anatomy fibrous-cavernous pulmonary tuberculosis, variants of clinical course, diagnosis, treatment, assessment of the epidemiological risk prediction, outcomes.

Cirrhotic pulmonary tuberculosis: definition, incidence, pathogenesis and patomorfology, clinical course, diagnosis, treatment, prognosis and outcomes. Complications of chronic forms of tuberculosis (amyloidosis of internal organs, chronic pulmonary heart).

QUESTIONS FOR CONTROL OF CLASS-RELATED AND PRACTICAL SKILLS

1. Definition of cavernous pulmonary tuberculosis as a clinical form of secondary tuberculosis.
2. Symptoms, methods of diagnosis and treatment of cavernous tuberculosis.
3. Definition of fibro-cavernous pulmonary tuberculosis as a clinical form of secondary tuberculosis.
4. Clinical and radiological options of fibro-cavernous pulmonary tuberculosis.
5. Symptoms, methods of diagnosis and treatment of fibro-cavernous tuberculosis.
6. Definition of cirrhotic pulmonary tuberculosis as a clinical form of secondary tuberculosis.
7. Clinical and radiological options of cirrhotic pulmonary tuberculosis.
8. Symptoms, methods of diagnosis and treatment of cirrhotic tuberculosis.
9. Complications of chronic forms of tuberculosis (amyloidosis of internal organs, chronic pulmonary heart).

PRACTICAL SKILLS

Students should

know:

– clinical signs, diagnosis of cavernous, fibrous-cavernous, cirrhotic pulmonary tuberculosis;
– principles of treatment of cavernous, fibrous-cavernous, cirrhotic pulmonary tuberculosis.

be able to:

– collect anamnesis, carry out an objective examination of patients with cavernous, fibrous-cavernous, cirrhotic lung tuberculosis,
– identify on chest X-ray of symptoms of cavernous, fibrous-cavernous, cirrhotic pulmonary tuberculosis and execute protocol radiographic examination;
– formulate and validate clinical diagnosis of cavernous, fibrous-cavernous, cirrhotic pulmonary tuberculosis;
– appoint the main course of chemotherapy in patients with cavernous, fibro-cavernous, cirrhotic pulmonary tuberculosis.

master:

– the methods of clinical and laboratory examination, principles of treatment of patients with cavernous, fibrous-cavernous, cirrhotic pulmonary tuberculosis.

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Фтизиатрия: национальное руководство / под ред. М.И. Перельмана. М.: ГЭОТАР-Медиа, 2007. 512 с.
5. Фтизиопульмонология : учебник для студентов мед. вузов / В.Ю. Мишин [и др.]. Москва : Гэотар-Медиа, 2010. 502 с.

Normative legal acts:

6. Закон Республики Беларусь от 07.01.2012 №345-З «О предупреждении распространения заболеваний, представляющих опасность для здоровья населения, вируса иммунодефицита человека».
7. Приказ МЗ РБ от 22.03.2013 № 377 «Об утверждении руководства по лабораторной диагностике туберкулеза»
8. Приказ МЗ РБ от 23.05.2012г. № 622 «Об утверждении клинического руководства по организации и проведению противотуберкулезных мероприятий в амбулаторно-поликлинических организациях здравоохранения».
9. О применении клинического руководства в противотуберкулезной работе : приказ № 601 от 30.05.2017г. .
10. Приказ МЗ РБ № 1300 от 10.12.2014г. «О порядке оказания медицинской реабилитации в амбулаторных, стационарных условиях, в условиях дневного пребывания, а также вне организации здравоохранения».
11. Приказ № 479 от 23.10.2015г. «О создании консилиума по лечению больных туберкулезом с множественно-лекарственно устойчивой формой туберкулеза».
12. Приказ МЗ РБ № 995 от 07.10.2015г. «О контролируемом лечении пациентов, больных туберкулезом органов дыхания, в амбулаторных условиях в государственных организациях здравоохранения».

Practical classes № 9

THEME: "Complications of pulmonary tuberculosis. Extrapulmonary tuberculosis."

Duration: 5 ac.h / 225 minutes /.

The purpose of class:

- to examine the complications of pulmonary tuberculosis and know emergency care when complications arise;
- to examine the causes and mechanisms of extrapulmonary tuberculosis;
- to study the peculiarities of extrapulmonary tuberculosis (tuberculosis of the central nervous system, tuberculous meningitis, tuberculosis of peripheral and mesenteric lymph nodes, tuberculous pericarditis, tuberculosis upper respiratory tract and bronchi);
- to study the principles and methods of diagnosis and treatment of extrapulmonary tuberculosis.

Methods of study: examination and analysis of patients with extrapulmonary tuberculosis; examination and analysis of patients with complications of lungs tuberculosis (pulmonary hemorrhage, spontaneous pneumothorax, acute respiratory distress syndrome), diagnostics, emergency care; reading radiographs, clearance supervised medical history of the patient, the clinical decision of situational problems.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Training charts "Differential diagnosis of pulmonary and gastric bleeding", "TB meningitis".
2. X-ray sets with partial, subtotal and total spontaneous pneumothorax.
3. Patients with complications of pulmonary tuberculosis: spontaneous pneumothorax, hemoptysis, pulmonary hemorrhage.
4. Multimedia presentation on the topic.
5. History of disease inpatients with radiographic documentation.
6. Set the clinical (training) tasks relating to: central nervous system tuberculosis, tuberculous meningitis, tuberculosis of peripheral and mesenteric lymph nodes, tuberculous pericarditis, tuberculosis of upper respiratory tract and bronchus. "

QUESTIONS FOR SELF-TRAINING ACTIVITIES FOR THE CONTENTS

1. Complications of pulmonary tuberculosis

Pulmonary hemorrhage, spontaneous pneumothorax, acute respiratory distress syndrome: pathogenesis, pathological anatomy, classification, clinical

picture, diagnosis, differential diagnosis, emergency care, outcomes, prognosis.

2. Extrapulmonary tuberculosis.

Tuberculosis of the central nervous system. TB meningitis: pathogenesis and pathological anatomy, clinical forms, diagnosis, treatment, medical and social examination, forecast outcomes. Laboratory tests of cerebrospinal fluid in tuberculous meningitis.

Tuberculosis of peripheral and mesenteric lymph nodes: pathogenesis and pathological anatomy, clinical forms, diagnosis, treatment, prognosis, and outcomes.

Tuberculous pericarditis: pathogenesis, clinical forms, diagnosis, treatment, prognosis, and outcomes.

Tuberculosis of the upper respiratory tract and bronchus: definition, incidence, pathogenesis, pathology, diagnosis, treatment, prognosis, and outcomes.

QUESTIONS FOR CONTROL RELATED CLASSES

1. Pulmonary hemorrhage: pathogenesis, pathological anatomy, classification.
2. Pulmonary hemorrhage: clinical picture, diagnosis, differential diagnosis.
3. Pulmonary hemorrhage: emergency care, outcomes, prognosis.
4. Spontaneous pneumothorax: pathogenesis, pathological anatomy, classification.
5. Spontaneous pneumothorax: clinical picture, diagnosis, differential diagnosis.
6. Spontaneous pneumothorax: emergency care, outcomes, prognosis.
7. Acute respiratory distress syndrome: pathogenesis, pathological anatomy, classification.
8. Acute respiratory distress syndrome: clinical picture, diagnosis, differential diagnosis.
9. Acute respiratory distress syndrome: medical emergency, outcomes, prognosis.
10. Tuberculosis of the central nervous system. TB meningitis: pathogenesis and pathological anatomy, clinical forms.
11. TB meningitis: diagnosis, Laboratory tests of cerebrospinal fluid.
12. TB meningitis: treatment, medical and social examination, forecast outcomes.
13. Tuberculosis of peripheral lymph nodes: pathogenesis and pathological anatomy.
14. Tuberculosis of peripheral lymph nodes: clinical forms, diagnosis, treatment, prognosis, and outcomes.

15. Tuberculosis of mesenteric lymph nodes: pathogenesis and pathological anatomy, clinical forms, diagnosis, treatment, prognosis, and outcomes.
16. Tuberculous pericarditis: pathogenesis, clinical forms, diagnosis, treatment, prognosis, and outcomes.
17. Tuberculosis of the upper respiratory tract and bronchi: definition, incidence, pathogenesis, pathology, diagnosis, treatment, prognosis, and outcomes.

PRACTICAL SKILLS

Students should

know:

- classification, clinical picture, diagnosis, especially evaluation of patients with extrapulmonary tuberculosis (tuberculosis of the central nervous system, tuberculous meningitis, tuberculosis, peripheral and mesenteric lymph nodes, tuberculous pericarditis, tuberculosis, upper respiratory tract and bronchus);
- main clinical manifestations of emergency conditions of TB patients and its treatment.

be able to:

- collect anamnesis, carry out an objective examination of patients with extrapulmonary tuberculosis (tuberculosis of the central nervous system, tuberculous meningitis, tuberculosis, peripheral and mesenteric lymph nodes, tuberculous pericarditis, tuberculosis, upper respiratory tract and bronchus), to make the plan of inspection;
- appoint survey methods to assess the results of laboratory and instrumental methods of research;
- formulate and validate a clinical diagnosis of tuberculosis;
- appoint the basic chemotherapy of TB patients;
- define the indications for lumbar puncture, evaluate the results of the study of cerebrospinal fluid.

master:

- the method of clinical and laboratory examination, principles of treatment of patients with extrapulmonary tuberculosis (tuberculosis of the central nervous system, tuberculous meningitis, tuberculosis peripheral and mesenteric lymph nodes, tuberculous pericarditis, tuberculosis, upper respiratory tract and bronchus);
- methods of emergency treatment of pulmonary hemorrhage, spontaneous pneumothorax.

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Неотложные состояния в пульмонологии: учебно-методическое пособие / П.С.Кривонос, В.Л. Крыжановский, А.Н. Лаптев. Минск: БГМУ, 2012. 114 с.
5. Фтизиатрия: национальное руководство / под ред. М.И. Перельмана. М.: ГЭОТАР-Медиа, 2007. 512 с.
6. Фтизиопульмонология : учебник для студентов мед. вузов / В.Ю. Мишин [и др.]. Москва : Гэотар-Медиа, 2010. 502 с.

Normative legal acts:

7. Приказ МЗ РБ от 22.03.2013 № 377 «Об утверждении руководства по лабораторной диагностике туберкулеза»
8. О применении клинического руководства в противотуберкулезной работе : приказ № 601 от 30.05.2017г. .
9. Приказ МЗ РБ № 1300 от 10.12.2014г. «О порядке оказания медицинской реабилитации в амбулаторных, стационарных условиях, в условиях дневного пребывания, а также вне организации здравоохранения».
10. Приказ № 479 от 23.10.2015г. «О создании консилиума по лечению больных туберкулезом с множественно-лекарственно устойчивой формой туберкулеза».
11. Приказ МЗ РБ № 995 от 07.10.2015г. «О контролируемом лечении пациентов, больных туберкулезом органов дыхания, в амбулаторных условиях в государственных организациях здравоохранения».
12. Постановление № 88 от 18 июля 2016 г. «Об утверждении клинических протоколов « Экстренная медицинская помощь пациентам с анафилаксией», «Диагностика и лечение системной токсичности при применении местных анестетиков».

Practical classes № 10

THEME: "Tuberculous pleurisy. Pulmonary tuberculosis in combination with other diseases."

Duration: 5 ac.h / 225 minutes /.

The purpose of class:

- to examine the causes and mechanisms of tuberculous pleurisy;
- to examine the features of tuberculous pleurisy;
- to study the principles and methods of diagnosis of tuberculous pleurisy;
- to study the principles and methods of treatment of tuberculous pleurisy;
- to examine the features of the course, diagnosis and treatment of pulmonary tuberculosis in combination with other diseases (peptic ulcer, diabetes mellitus, chronic nonspecific inflammatory respiratory diseases, HIV infection, alcoholism, drug addiction and lung cancer. Tuberculosis and motherhood).

Methods of study: examination and analysis of patients with tuberculous pleurisy, pulmonary tuberculosis in combination with other diseases.

MATERIAL EQUIPMENT AND ILLUSTRATIONS OF

1. Training charts "TB exudative pleurisy", "Classification of tuberculous pleurisy".
2. X-ray sets with different forms of exudative pleurisy.
3. Light stand with radiographs: "Clinical forms of pulmonary tuberculosis".
4. Patients with tuberculous pleurisy.
5. Patients with pulmonary tuberculosis in combination with other diseases.
6. A set of clinical tasks on the topic.

QUESTIONS FOR SELF-TRAINING ACTIVITIES FOR THE CONTENTS

Tuberculous pleurisy. Pulmonary tuberculosis in combination with other diseases.

Pleural tuberculosis: definition, incidence, pathogenesis, pathology, classification. The clinical picture of tuberculosis of pleura, diagnosis, treatment, prognosis and outcome. Therapeutic and diagnostic puncture of the pleural cavity: indications, technique of realization, laboratory examination of exudate and transudate.

Tuberculosis of the respiratory system combined with professional lung diseases. TB in HIV-infected and AIDS patients. The combination of tuberculosis with diabetes mellitus, chronic nonspecific inflammatory diseases

of respiratory, gastrointestinal disease, mental illness, alcoholism, drug addiction and lung cancer. Tuberculosis and motherhood.

QUESTIONS FOR CONTROL RELATED CLASSES

1. Tuberculous pleurisy: definition, incidence, pathogenesis, pathological anatomy.
2. Classification of tuberculous pleurisy.
3. Indications for puncture of pleural cavity.
4. Specific changes in pleural fluid in tuberculous pleurisy.
5. Treatment of tuberculous pleurisy.
6. The course of pulmonary tuberculosis in combination with other diseases, its diagnosis and treatment.

PRACTICAL SKILLS

Students should
know:

- etiology, pathogenesis, classification, clinical picture, diagnosis of tuberculous pleurisy;
- principles of treatment of tuberculous pleurisy;
- characteristics of the course, diagnosis and treatment, of respiratory tuberculosis combined with other diseases.

be able to:

- collect anamnesis, carry out an objective examination of patients with tuberculous pleurisy;
- formulate and substantiate the clinical diagnosis of patients with tuberculous pleurisy;
- determine the indications for pleural puncture, evaluate the results of examination of pleural fluid;
- appoint a basic course of chemotherapy in patients with tuberculous pleurisy;
- collect anamnesis, carry out an objective examination and treatment patients with pulmonary tuberculosis in combination with other diseases.

master:

- methodology of clinical and laboratory examination, principles of treatment of patients with tuberculous pleurisy;
- methodology of clinical and laboratory examination, principles of treatment of patients with pulmonary tuberculosis in combination with other diseases.

Literature

Main:

1. Кошечкин В. А. «Tuberculosis» : пособие / В. А. Кошечкин, З. А. Иванова. - Москва, 2008.
2. Будрицкий А. М. «Фтизиопульмонология»: пособие / А. М. Будрицкий, Н. В. Василенко, И. В. Кучко. – Витебск: ВГМУ, 2016. – 250 с.
3. Буйневич, И. В. Туберкулез = Tuberculosis : учеб.-метод. пособие к практ. занятиям для студентов 4 и 6 курсов фак-та по подготовке спец. для заруб. стран медвузов / И. В. Буйневич, С. В. Гопоняко. - Гомель : ГомГМУ, 2015. - 112 с.

Additional:

4. Фтизиатрия: национальное руководство / под ред. М.И.Перельмана. М.: ГЭОТАР-Медиа, 2007. 512 с.
5. Фтизиопульмонология : учебник для студентов мед. вузов / В.Ю. Мишин [и др.]. Москва : Гэотар-Медиа, 2010. 502 с.

Normative legal acts:

6. О применении клинического руководства в противотуберкулезной работе : приказ № 601 от 30.05.2017г. .
7. Приказ МЗ РБ № 1300 от 10.12.2014г. «О порядке оказания медицинской реабилитации в амбулаторных, стационарных условиях, в условиях дневного пребывания, а также вне организации здравоохранения».
8. Приказ МЗ РБ № 995 от 07.10.2015г. «О контролируемом лечении пациентов, больных туберкулезом органов дыхания, в амбулаторных условиях в государственных организациях здравоохранения».
9. Приказ МЗ РБ от 23.05.2012г. № 622 «Об утверждении клинического руководства по организации и проведению противотуберкулезных мероприятий в амбулаторно-поликлинических организациях здравоохранения».
10. Приказ Министерства здравоохранения Республики Беларусь от 08.10.2013г. № 1034 «Об утверждении инструкции по организации противотуберкулезной помощи пациентам с ВИЧ-инфекцией».
11. Приказ МЗ РБ от 22.03.2013 № 377 «Об утверждении руководства по лабораторной диагностике туберкулеза».

II. Clinical tasks

TASK № 1.

Pulmonary tuberculosis was found in a 66-year-old patient five years ago during preventive fluorography. She then traveled to another city and she was not observed by the doctor. Periodically she noted deterioration amplified cough in the spring and autumn. It was treated with home remedies. Due to the sharp deterioration of general condition and appearance of hemoptysis hospitalized.

She complains of severe coughing, unsharp chest pain on the right, dyspnea, weakness, increased body temperatureing up to 38 ° C, weight loss.

Objectively: the patient eats enadequately, the right half of the chest behind in the act of breathing, intercostal spaces on the right are narrowed.

Percussion from the top to the 2-nd rib on the right shortening lung sound, lower - with boxed shade. Breathing in the same place is hard, in the interscapular area dry and moist rales. Respiration rate - 22 per minute. From the heart - heart sounds dull, accent 2 tones of the aorta, and tachycardia. 100 ud.v minutes pulse. Hemogram: ESR - 48 mm/h, l - 9,1 • 10^9 /l, stab neutrophils - 13% lymphs. - 16%. Urine analysis are normal. In sputum microscopy revealed MBT 10-15 in 100 fields of view. Mantoux test with 2TU PPD-L - 5 mm.

Chest X-ray: right lung is reduced in volume, the proportion of intensively shaded upper horizontal interlobar slit is projected at 2 ribs. In the projection of the upper lobe is defined by the annular formation of 5 × 3,5 cm. The bodies of mediastinum shifted to the right. In the left lung between 3 and 5 ribs in the root zone foci of low intensity with unclear contours are determined by.

The diagnosis and its rationale?

TASK № 2.

A 36-year-old patient did not work. Complains expressed general weakness, night sweats, cough. He considers himself sick about 2 months, the disease develops gradually. Previous photoroentgenography was taken 3 years ago. He lives with his wife and two children 8 and 12 years old. His apartment is without facilities. Any contact with patients suffering from tuberculosis denies. An illness does not mark. No harmful habits.

Objectively: patient's condition are serious, 38,8ºC body temperature. poor nutrition, normal skin, peripheral lymph nodes were not palpated. The shortening of percussion tones to the right subclavicular and above and interscapular areas are detected, moist rales are finely heard there.

Hemogram: ESR - 48 mm/h. In the biochemical analysis of blood the haptoglobin and seromucoid are increased. The Mantoux test with 2TU PPD-L - 13 mm papule. Smear in the sputum found 10-15 AFB in 100 fields of view, and bacteriological – 100 colonies of MBT with sensitivity to the drugs were detected.

Radiographs: all over the upper lobe of the right lung infiltration, major confluent heterogeneous focuses, interlobar pleura are seen. In the lower parts of the right lung and in all fields of the left lung foci bronchogenic dissemination are determined.

Diagnosis? Category epidemiological risk hearth of tuberculosis infection?

TASK № 3.

A 40-year-old patient, unemployed. No complaints. Changes in lungs were revealed during preventive examination in connection with the employment of work. Previous X ray was 3 years ago. From anamnesis she had episodes of colds and she was operated on uterine fibroids. She had no contact with patients suffering from tuberculosis. No harmful habits.

Objective: proper nutrition, normal skin, peripheral lymph nodes are not palpated. In the lungs vesicular breathing were heard. Body temperature is normal. Blood and urine tests are normal. Mantoux test with 2TU PPD-L - 8 mm papule. In the method of sputum microscopy and culture of Mycobacterium tuberculosis are not revealed.

Radiograph. In the 1-2 segment of the left lung a few focal shade of average intensity of up to 10-15 mm are determined. Changes are not revealed on the right.

Diagnosis? The standard regimen of chemotherapy?

TASK № 4.

A 55-year-old patient, retired. Complaints of general weakness, weight loss, dry cough, dyspnea when walking. This unsatisfactory state started about a year ago, but he did not seek for medical help. In the history: appendectomy. He has been smoking for 40 years. He had no contact with patients suffering from tuberculosis.

OBJECTIVE: poor nutrition, poor skin (pale). Peripheral lymph nodes are not palpated. In the upper parts of both lungs there is shortening of pulmonary sound and breath with bronchial tone, isolated dispersed dry rales are heard. Respiratory frequency 20 per minute. Hemogram: ESR - 52 mm/h, l - $8.5X10^9$/l. Mantoux test with 2TU PPD-L - negative. Smear in the sputum found 100 AFB (2-3 AFB in the field of view). Bacteriological growth received more than 100 colonies MBT with sensitivity to all antiTB drugs.

Radiographs: all over both lungs multiple different-sized foci low intensity are determined confluent with each other, on the background pulmonary picture is increased. On the upper lobe of the right lung thin wall of about 2.5-3 cm cavity is defined, on the left there is small cavity decay.

Diagnosis? The standard regimen of chemotherapy.

TASK № 5.

A 11-year-old girl with a positive tuberculin skin test was examined at children department of the tuberculosis dispensary.

No complaints. Normal skin. Proper nutrition. Peripheral lymph nodes were not enlarged. On the left shoulder there are two post-vaccination marks (she was vaccinated in the maternity hospital and then at the age of 7). The internal organs are normal. Blood and urine tests are normal. In past medical history: she had episodes of colds. She had no contact with patients suffering from tuberculosis.

Mantoux test with 2 TU PPD- L: 1 year - 11 mm papule, 2 years - 5 mm papule, 3-7 years - hyperemia, 8 years - 6 mm papule, 9-10 years - negative, 11 years - 10 mm papule.

There was no pathology on chest X-ray.

Diagnosis? Group dispensary? Medical tactics?

TASK № 6.

A 15-year- old girl with a positive tuberculin skin test was examined at children department of the tuberculosis dispensary. Anamnesis vitae: she suffered from frequent colds with symptoms of bronchitis. She had no contact with patients suffering from tuberculosis

She complains of a dry cough. The skin is normal. Peripheral lymph nodes were not enlarged. In the lungs there are no shadows. Other organs had no pathological changes. Two post-vaccination marks are on the left shoulder.

Blood and urine tests are normal. The examination of sputum for MBT is negative. Mantoux test with 2 TU PPD- L: 1 year - 10 mm papule, 2 years - 5 mm papule, 3-7 years - negative, 8 years - 5 mm papule, 9-14 years - negative, 15 years - 20 mm papule.

There was no pathology on chest X-ray.

Diagnosis? Group dispensary? Medical tactics?

TASK № 7.

A 18-year-old young man was treated in a therapeutic hospital because of exudative pleurisy on the left-side. 3-week anti-inflammatory treatment had no effect.

He had complains oo high fever, dry cough. Appearance of dyspnea was noticed. He thought his disease was associated with super-cooling. He had no contact with patients suffering from tuberculosis

Objectively: on the left shoulder, there is one post-vaccination scar. During breathing the left half of the chest is delayed. Respiratory rate - 28 per minute. In the lower part of the left lung dullness of percussion sound is marked (level of dullness from the 4-th rib to diaphragm). Auscultation: no breathing sounds at the same level. Heart sounds are muted, tachycardia. Hemogram: ESR - 41 mm / h, l - 9,2 • 10^9/l, eosinophils - 4%, neutrophils stab- 9%. lymphs. - 17%. Mantoux test with 2 TU PPD-L - 15 mm papule with vesicle.

Radiographs of the chest: lower parts of the left side of thoracic is determined homogeneous shading with oblique upper line at the level of 4th ribs. Mediastinum is shifted to the right. Pleural puncture produced 1.2 liters of fluid (straw-yellow color). Radiographs produced after pleural puncture: pleural overlay in the lower left, focal and infiltrative shadows in the lung parenchyma are not defined. Analysis of pleural fluid: density 1020, protein 35 g/l, neutrophils 20%, lymphocytes 80%; GeneXpert method detected M. tuberculosis complex sensitive to rifampicin.

The diagnosis and its explanation? Group dispensary? Standard regimen of treatment?

TASK № 8.

A 32-year-old patient had bilateral tuberculous process, MBT+ of smear 4 years ago while he had been in prison. It was treated irregularly, MBT- period was short, cavity in both lungs were not closed. After liberation from prison, he had antisocial lifestyle, hospital care received irregularly.

The patient noticed general weakness, persistent cough with moderate amounts of sputum, increased dyspnea on exertion. Patient was hospitalized due to hemoptypsis.

Radiographs: On the upper lobes of both lungs there are significant fibrosis defined by multiple focal shadows of different densities, as well as infiltration of focuses and shadows ringed with thick fibrous walls. The roots of both lungs displaced up. Increased transparency in the lower lung fields due to development of emphysema.

Hemogram: ESR - 32 mm/h, l - 7.8 • 10^9/liter. Mantoux test with 2 TU PPD-L - 7 mm papule. Smear in the sputum found BK, LPA-test –MBT resistant to isoniazid, rifampicin. ethambutol . According spirography indicators of external respiration correspond to respiratory failure 2 degrees.

Diagnose. Group dispensary?

TASK № 9

A 43-year-old man had been observing at the polyclinic with a single calcification in the root of the left lung as X-rays positive for several years. Changes in lungs are revealed by regular prophylactic fluorographys. Two years ago, he was operated (2/3 stomach resection) for peptic ulcer disease. He complains of fast fatigability, slight sweating.

Objectively: vesicular breathing is heard in lungs. Heart sounds are rhythmic. Abdomen is soft, painless. There is the postoperative scar in midline of the abdomen. Blood and urine tests are normal. Mantoux test with 2 TU PPD-L - 12 mm. MBT (isoniazid) resistent in sputum was detected.

Radiographs: In the 1-2 segment of the left lung a group of foci of different size with fuzzy outlines and low intensity is determined, on the background pulmonary picture is increased. In the left root calcification is seen.

The diagnosis and its explanation? The group dispensary?

TASK № 10

A 60-year-old patient. In his childhood he had a contact with his father, suffering from tuberculosis. At the age of 30 he was treated for pulmonary tuberculosis. The last 20 years he has been working on the railroad.

Objectively: general condition is satisfactory. No complaints. In the act of breathing the right half of the chest is delayed. A small shortening of percussion sound is determined over the scapula on right, breathing sounds are muted (reduced) by auscultation in the same area. Analysis of blood, urine without pathological changes. In the sputum BK were not found. Mantoux test with 2 TU PPD-L - 7 mm.

Radiographs: in 1-2 segments of right lung among pneumatic cirrhosis a group of high-intensity focal shadows is determined with distinct (well-defined) outlines. The right lung is slightly reduced in size, the root of the right lung is displaced up, trachea shifted to the right.

Comparative study of radiographic documentation shows stability in the lungs of the process in the last five years.

The diagnosis? Does the patient need to be followed in tuberculous dispensary or polyclinic and what diagnosis?

TASK № 11

A 8-year-old girl was born prematurely in the eighth month of pregnancy in asocial family. She fell behind in the physical status of her peers. Anamnesis vitae: she suffered from frequent colds. No data on vaccination in the hospital. The family moved from Central Asia. Information about the characteristics of tuberculin sensitivity is absent. She had a contact with her

grandmother, suffering from tuberculosis four years ago. The girl fell ill acutely. She had a temperature up to 40 ° C, headache, night sweats, fatigue, dry cough.

On examination: akrocyanosis, skin moist, dyspnea, tachycardia. Poor nutrition, skin is pale, flaccid turgor of muscles. 6 groups peripheral lymph nodes soft-elastic consistency to 5-6 mm in diameter are palpated. No BCG - scars. Breathing in lungs is hard, a few dispersed small bubbling rales are heard. Heart tones are muffled, tachycardia. The liver protruded from the costal arch to 1.5 cm. The abdomen is soft.

Hemogram: L - 11 • 109/l, stab leukocytes - 12%. lymphs. - 15%, ESR - 38 mm/hour. Urine tests are normal. Mantoux test with 2 TU PPD-L - 14 mm. In the sputum MBT were not found.

Radiographs: all the lung fields of the same type multiple small foci of low intensity are determined in both lungs. Wide spectrum of antibiotic treatment for two weeks had no effect.

The diagnosis? Explanation of the diagnosis?

TASK № 12

A 44- year-old patient has no job. He complains of general weakness, sweating. Changes in lungs are detected by medical examination in connection with the employment of job. He had no contact with patients suffering from tuberculosis. Previous fluorography of the chest was 4 years ago - the norm.

Objectively: normal skin, peripheral lymph nodes are not palpated. Pulmonary sound and hard breathing are listened in the lungs. Body temperature is normal. Blood and urine tests are normal. Mantoux test with 2 TU PPD-L - 12 mm papule. AFB are revealed by the sputum microscopy three times (1-2 in sight), the growthing more than 100 colonies MBT are received. MBT sensitivity to chemotherapy drugs is saved.

Radiographs: infiltrative shadows 3×2.5 cm of nonhomogeneous structure are detected in the 6-th segment of the right lung. There are low-intensity focal shadows in the lung tissue of the right lung and the 1-2-nd segments of the left lung.

The diagnosis? The massiveness of bacterial?

TASK № 13

A 42-year-old patient. He had no fluorography examination for more than two years. When referring to the ophthalmologist with complaints of poor eyesight the prophylactic fluorography of the chest was performed. Radiologically the pathology in the upper lobe of the right lung was suspected.

Radiographs: in 1-2-nd segments of the left lung a small thin-walled ring-shaped formation 2 cm in diameter is determined without the expressed

infiltrative and fibrotic changes around it with steam path to the root. Focal and infiltrative changes in other regions of lungs are not defined. Size of lung fields and mediastinum are normal. The general condition of a patient is satisfactory, no complaints. Data of physical examination are normal. A blood test without abnormalities. Mantoux test with 2 TU PPD-L - 10 mm papule. Smear in lavage of the bronchi MBT is not found, but by the culture method 20 colonies of MBT were received.

The diagnose?

TASK № 14

A 20-year-old patient, weight 60 kg, is a worker. Pathological changes are revealed in the lungs by the chest X-ray for the first time. No contact with patients suffering from tuberculosis.

The patient has no symptoms of intoxication. Physical signs of organs - without pathological features. Blood and urine tests are normal. The sputum smear was detected AFB once. Mantoux test with 2TU PPD-L - 19 mm.

Radiographs: in the 2nd segment of the right lung the low intensity focus 2.5 cm in diameter with a little enlightenment in the center and with "soft" foci around it is determined. Small calcifications are located in the root of the right lung.

The diagnosis? The chemotherapy scheme?

TASK № 15

A 28-year-old patient, working as a bricklayer. About 2 weeks ago he felt pains in the left side of the chest, small cough, subfebrile temperature. He thought his disease was associated with super-cooling.

OBJECTIVE: body temperature 38° C. In the act of breathing the left half of the chest is delayed. Respiratory rate - 30 per minute. Tachycardia - 100 per min. Shortening of the sound below the left scapula angle is determined by percussion, auscultation of the left lung in the middle-lower regions: lung sounds are not heard.

Chest radiograph: the round focus of shading 1.5 cm in diameter, medium intensity, homogeneous structure, with indistinct contours is determined in the 1-2 segment of the left lung. In the lower part of left lung the homogeneous shading with oblique upper level is determined, location of this shading: from the dome of the diaphragm to the 4 rib. mediastinum shifted to the right.

Hemogram: ESR - 44 mm / h, L - 8,2 • 10^9/liter, eosin. - 2%, stab neutrophils - 5%, lymphs. - 25%, segmented n.- 62%, mon. - 6%. AFB in sputum smear is not detected three times.

Diagnosis?

TASK № 16

A 34-year-old patient. Pathological changes were revealed in lungs by fluorography examination. Previous chest X-ray was about 3 years ago, because she was on leave for child care.

OBJECTIVE: condition is satisfactory, some underweight. Internal organs without pathological features. Peripheral blood and urine analysis are normal. Mantoux test with 2TU PPD-L - 10 mm.

Chest X-ray: in 1, 2-nd segments of the right lung some focal shadows of mild and moderate intensity are determined, small and medium size. 2-weeks course of anti-inflammatory treatment in pulmonology hospital was finished. Radiological improvement of the process in the lungs was not received.

AFB were found by sputum smear once.

Diagnosis? Chemotherapy Scheme?

TASK № 17

A 6-year- old child has periodically moderate weakness, fatigue, subfebrile temperature in the afternoon. These complaints are existing during 1 year.

Objectively: there is one post-vaccination scar on the left shoulder. Increasing of cervical, submandibular, supraclavicular and axillary lymph nodes are detected. Bluish purple-spotted skin changes appeared on the legs about two weeks ago. The breathing is hard in the upper parts of both lungs.

Tachycardia - 100 per min. Hemogram: ESR - 27 mm/h, L - $8.8 \cdot 10^9$/liter. X-ray of lungs and TMG of roots: pathology is not revealed. Mantoux test with 2TU PPD-L - 18 mm. Mantoux tests with 2TU PPD-L in ages of 4 and 5 were negative.

Diagnosis? Group dispensary? Medical tactics?

TASK № 18

A 43-year-old patient. Infiltrative tuberculosis of 1,2-nd segments of right lung, phase disintegration, MBT + was diagnosed in the patient six years ago. He was treated stationary, repeatedly violated the regimen, drugs are taken irregularly. He suffers from chronic alcoholism.

Objectively: poor nutrition. The body temperature is subfebrile. During breathing the upper part of the right half of the chest is delayed. Respiratory rate - 28 per minute. A lot of different-sized wet and dry rales were auscultated in both lungs, but most of the right side. Heart sounds are muffled, tachycardia.

Chest X-ray: right lung is reduced in volume by fibrosis in the upper-middle part, in the upper lobe a bean-shaped cavity is defined. In the lower part of the right lung and in all fields of the left lung pulmonary bronchogenic dissemination lesions are determined. Mediastinum shifted to the right.

Hemogram: ESR - 54 mm/h, L - $8.8 \cdot 10^9$/l, stab neutrophils - 12%, lymphs. - 14%. MBT found in the sputum smear and culture methods. MBT are resistant to streptomycin and rifampicin.

Diagnosis? Type of drug resistance?

TASK № 19

A 37-year-old patient. Shadowing focus up to 5 cm in diameter, of medium intensity with clear contours and excentrical enlightenment at the lower pole was found in the 2-nd segment of right lung by preventive fluorography examination. He is not surveyed radiographically last 3 years.

The general condition of a patient is satisfactory, sometimes increased sweating and slight cough appear. Body temperature is normal. Physical findings unremarkable. The hemogram is normal. Mantoux test with 2TU PPD-L - 22 mm papule. Smear in the washing waters of the bronchi revealed AFB.

Diagnose? The treatment plan of the patient?

TASK № 20

A 35-year-old patient complains of general weakness, subfebrile body temperature, body weight loss, cough with sputum.

The patient skin is pale, subcutaneous fat layer is poorly developed. A shortening of pulmonary sound from the tops of lungs to the scapula is determined by percussion. Breathing is hard, dry isolated crackles paravertebrally are detected by auscultation.

The method of sputum sediment found MBT. Hemogram: ESR - 28 mm/h, L - $9{,}1 \times 10^9$ /l, stab neutrophils - 8%, lymphomas. - 18%, monocytes - 12%. Mantoux test with 2TU PPD-L is negative.

Chest X-ray: in all lung fields both sides, more in the upper and cortical regions of the lungs, on the background of expressed limfangoit we can see a lot of foci medium intensity without clear contours, in the 2nd segment of the right lung a few thin-walled ring-shaped shadows 1.5 up to 3 cm in diameter with perifocal inflammation.

Smear in the sputum found AFB (2-3 AFB in each field of view). Bacteriological growth received more than 100 colonies MBT with sensitivity to all antiTB drugs.

Diagnose? The standard regimen of chemotherapy.

Answers to tasks

TASK № 1. Fibrous-cavernous pulmonary tuberculosis of the upper lobe of the right lung, phase of infiltration and dissemination, MBT (+), hemoptysis.

TASK № 2. Infiltrative tuberculosis of the upper lobe of the right lung (periscissuritis) phase of disintegration and dissemination, MBT (+). I category of the epidemiological risk hearth of tuberculosis infection.

TASK № 3. Focal tuberculosis of C1-C2 of the left lung, phase of infiltration, MBT (-). 2HRZE/4HR (H – isoniazid, R – rifampicin, Z – pyrazinamide, E – ethambutol)

TASK № 4. Caseous pneumonia of both lungs (lobular), phase of infiltration and disintegration, MBT (+).Treatment: 2HRZE/4HR

TASK № 5. «Virage». VIA dispensary group. Medical tactics: Diaskintest, inspection of contact persons for TB. If a patient with pulmonary TB of the lung is detected without a bacterial excretion or with RS-TB, give a 6-month child isoniazid chemoprophylactic treatment.

TASK № 6. «Virage». Hyperargic tuberculin sensitivity VIA dispensary group. Medical tactics: Diaskintest, CT of the chest. Inspection of contact persons for TB. If a patient with pulmonary TB of the lung is detected without a bacterial excretion or with RS-TB, give a 6-month child isoniazid chemoprophylactic treatment

TASK № 7. Left-sided exudative pleurisy of tuberulosis etiology, MBT (+). VA dispensary group. Treatment: 2HRZE/4HR

TASK № 8. Chronic disseminated tuberculosis of the upper lobes of the lung, phase of infiltration and disintegration, MBT (+), MDR (H, R, E), hemoptypsis. IIБ dispensary group.

TASK № 9. Focal tuberculosis of C1-C2 of the left lung, phase of infiltration, MBT (+), DR (isoniazid). Calcifications left hilar lymph nodes. The IIA dispensary group.

TASK № 10. Pneumatic cirrhosis in 1-2 segments of right lung. The patient needs to be followed in polyclinic and have an x-ray examination at least once a year.

TASK № 11. Miliary tuberculosis of lungs, phase of infiltration, MBT (-) Explanation of the diagnosis: acute onset of the disease, a temperature up to 40 ° a contact with her grandmother, suffering from tuberculosis four years ago, the absence of BCG – scars, positive Mantoux test, on X-ray - multiple small foci of low intensity in both lungs, the absence of positive effect from antibiotic treatment.

TASK № 12. Infiltrative tuberculosis of the 6-th segment of the right lung phase of disintegration and dissemination, MBT (+). Massive bacteria excretion.

TASK № 13. Cavernous tuberculosis of C1-C2 of the left lung phase of infiltration, MBT (+).

TASK № 14. Infiltrative tuberculosis of the 2nd segment of the right lung phase of disintegration, MBT (+). After detection of drug sensitivity of MBT start treatment 2HRZE/4HR (H – isoniazid, R – rifampicin, Z – pyrazinamide, E – ethambutol)

TASK № 15. Infiltrative tuberculosis of the 1-2nd segment of the left lung, MBT (-). Left-sided tuberculous pleurisy.

TASK № 16. Focal tuberculosis of C1-C2 of the right lung, phase of infiltration, MBT (+). After detection of drug sensitivity of MBT start treatment 2HRZE/4HR (H – isoniazid, R – rifampicin, Z – pyrazinamide, E – ethambutol)

TASK № 17. Early tuberculous intoxication. IA dispensary group. Medical tactics: Diaskintest, inspection of contact persons for TB. Give a child treatment: 2HRZE/4HR (H – isoniazid, R – rifampicin, Z – pyrazinamide, E – ethambutol).

TASK № 18. Fibro-cavernous tuberculosis of the right lung, phase of infiltration and dissemination, MBT (+). DR (R, S). Type of drug resistance: polyresistance.

TASK № 19. Tuberculoma of the 2-nd segment of the right lung, phase of infiltration and disintegration, MBT (+). After resection of tuberculoma and detection of drug sensitivity of MBT start treatment: 2 month HRZE/4HR (H – isoniazid, R – rifampicin, Z – pyrazinamide, E – ethambutol).

TASK № 20. Subacute disseminated tuberculosis of lungs, phase of infiltration and disintegration, MBT (+). Treatment: 2HRZE/4HR.

III. “MEDICAL CARD OF A PULMONARY TUBERCULOSIS IN-PATIENT”

A doctor of any speciality should be able to detect patients with active forms of pulmonary and extrapulmonary tuberculosis. In this connection the fourth year medical students should know compulsory, additional and facultative diagnostic minimum, be able to work with consumptives, to detect different risk factors, to manage the necessary examinations while assumption of tuberculosis in order to ascertain clinical form of tuberculosis and treat as clinically warranted.

Phthisiology is a separate medical and scientific speciality. Being infectious tuberculosis indicates the use of special antiepidemic measures, particular approaches in clinical examination and treatment. In this connection students must be able to make “Medical Card of In-patient” who is ill with pulmonary tuberculosis.

BASIC INSTRUCTIONAL LINES

Before the class students should study the methods of clinical examination of a consumptive (antecedent anamnesis, symptomatology, methods of physical, X-ray and laboratory examination). Monitoring of students’ knowledge includes oral testing. A teacher recites the goal and tasks of students’ individual work, supervises their work, and gives necessary consultations in the process of work. A student supervises a patient during course of studies. Cases of consumptives under supervision are discussed at practical classes. Then a student makes a “Medical Card of In-patient”, a teacher checks it up to evaluate student’s practical skills.

THE CONTENT OF A STUDY

Each student supervises one consumptive and presents his case for clinical analysis at a practical class. For this patient “Medical Card” is made. Students may use the table “Methods of tuberculosis detection and diagnosing where diagnostic minimum is presented: CDM - main or compulsory, ADM - additional, ODM - optional (see the table 1).

Table 1.

Methods of tuberculosis detection and diagnosing (Diagnostic minimum -DM)

CDM - mandatory or compulsory (all patients)	ADM - additional (part of patients)	ODM - optional (is not necessary)
Information about character and duration of contact with a TB-patient.	Tomography of lungs and other special methods of X-ray investigations.	Information about respiratory function (spirography)
Antecedent anamnesis data.	Bronchoscopy and other endoscopic methods of testing.	Electrocardiography.
Physical data (examination, palpation, percussion, auscultation).	Bacteriological sputum investigations.	Other biochemical parameters of blood (bilirubin, aldolases, thymol test, urea etc.).
Information about previous X-ray examinations (data, results)	Bactec LPA-test	
Information about the present X-ray examination with X-ray documents attached.	Subcutaneous introduction of tuberculin (Koch test).	information about functional condition of different organs.
General blood analysis.	Biochemical blood analysis (albium, globulin, protein fractions, haptoglobin, seromucoid)	
Bacterioscopic examination of sputum for MTB. GeneXpert		
Tuberculin Mantoux test	Histological examination of bioptic material.	
Diaskintest		

If a patient has caught tuberculosis for the first time it's more preferable to start learning the history of the disease and then the history of his life. While examining a patient with chronic tuberculosis it's better to start with asking about life anamnesis, as a patient's life is often nearly concerned in the history of the disease.

Anamnesis vitae

A student should collect and analyze information about a patient's life in order to find out the causes of the disease and possible connection of the disease with adverse conditions of a patient's life.

While talking a student should ask about:

1. Age. There are four age groups: newborn children - up to four weeks; infants - the first year of life; pre-preschool children - 1-3 years old; preschool children - 3-7 years old; schoolchildren - 7-13 years old; high school children - 12,13 -16,17 years old (girls and boys); mature people - 20,21-55,60 years old (women and men); senior people - 55,60-75 years old; elderly people - over 75 years old; long-livers - over 90 years old.

Children of tender years come down with tuberculosis very rarely, mainly if they are in bacillar nidus. Children of preschool age and midchildhood are remarked by high resistibility to tuberculosis infectious as a result of vaccination and re-vaccination. The development of local forms of tuberculosis is remarked very seldom in the pointed age groups. Teenagers and young people are infected and fall ill more often, specific gravity of local forms of pulmonary and extrapulmonary forms of tuberculosis. Primary and secondary forms of tuberculosis are remarked at a young (18-30 years old) age.

Information about a place of residence is important for teenagers and young people so that there are more infected people in the countryside nowadays.

Secondary forms of tuberculosis are remarked in mature (30-40 years old) people. They have few concomitant illnesses but some harmful habits (especially men). Elderly (over 50) and old (over 70) people often have combination of tuberculosis and many other diseases.

2. Education and occupation. In case of tuberculosis a doctor is interested in a patient's education and occupation by two reasons. On the one hand these factors define social status of a patient. There are professions that are incompatible with tuberculosis because of its danger to other people. On the other hand there are professions that are harmful to a patient himself (a miner, a chemist, a combiner, a hot shop worker, etc.).

3. Information about contacts with a consumptive. The division should be started with the information about family status of a patient and his family members' health. Many consumptives have family relation disturbed, incomplete families. As a result they can feel insecurity, have no stimulus to get healthy, no motivation to long-lasting treating, maladjustment, alcohol dependence, asocial behaviour, indifference to his health state.

Depending on conditions of a person's life and work contacts can be permanent or occasional, familial, everyday, working as well. The term of contact and the age of a person are important. According to this information the term of contamination, solidity of primary infection, superinfection and sometimes the character of the infection nidus can be presupposed. It should

be made a point of solidity of infection at tender age in the sense of immediate and long-term clinical outcome.

4. Earlier diseases. Many diseases together with social and epidemiological factors increase tuberculosis risk (see the table 3). Previous physical and psychic traumas, surgical interventions increase the disease risk.

Special attention should be paid to repeated flu, protracted pneumonia as tuberculosis can simulate these diseases.

If a patient once suffered from exudative pleurisy he should be interviewed about the age when it happened, duration of the disease, clinical outcomes in details.

Earlier exudative preurisy, lymphadenitis, phlyctenular ceratoconjunctivitis, erithema nodosum, scrofula allow to find out the terms of tuberculosis infection or earlier primary tuberculosis.

All the data should be accurately analyzed.

Women should be asked about the beginning and peculiarities of menstrual cycle, the number of pregnancies, childbirth and abortions, gynecological diseases and their treatment including surgical.

5. Tuberculin diagnostics. Tuberculin Mantous test and Diaskintest is the method of early detection of tuberculosis in children and teenagers. Information about the results of that test detects the terms of infection. The information about the time if tubercular test conversion appearing is of prime importance. Those with hyperergic tuberculin tests are at risk.

6. Adverse living conditions, harmful habits, asocial behaviour increase the risk of tuberculosis, make it worse.

Students should collect and analyze anamnestic data purposefully in order to find out the disease cause and possible connection of tuberculosis and adverse living conditions of a patient (see the table 2,3). All the information should be reflected in **the summary** of a patient's life history.

Summary: to reveal the factors that aid development of introduction and catching tuberculosis in a supervised patient.

Table 2.

Factors of tuberculosis developing

Peculiarities of macroorganism	Peculiarities of microorganism	Peculiarities of surrounding
1. Age	Type of causative agent	Occupational hazards
2. Vaccination and revaccination BCG	2. Virulence of causative agent	2. Supercoolong and overheating
3.Cemoprophylaxis	3. Solidity of infection	3. Radiation
4. Nutritional dystrophy	4. Superinfection	4. Chemical harmful substances
5. Avitaminosis	5. Resistance of causa-	5. Traumas

	tive agent	
6. Earlier diseases		6. Usage of immuno-suppressive agents and harmones
7. Pregnancy, childbirth, lactation period		
8. Psychological and physical traumas		
9. Harmful habits		

"THREATENED CONTINGENTS" HIGH-RISK GROUPS

"Threatened contingents" means the groups at tuberculosis risk 3 times and more as high as among the rest of the population because of high-risk factors.

Table 3.

These contingents include the following groups:

Social high-risk group	**Medical high-risk group**	**Epidemiological high-risk group**
persons of no fixed abode; refugees, migrants; persons who go at large; persons who live in asylums and homes for senior and disable citizens; persons who suffer from alcoholism and drug-addiction.	HIV infected and immuno compromised patients; patients who are ill with diabetes; patients with occupational lung diseases; patients with gastro-intestinal tract diseases including those operated; patients with obstructive lung diseases in case of at least one recrudescence a year; patients who are registered in narcological and psychiatric dispensaries; persons who suffered from exudative pleurisy or recrudescent dry pleurisy;	persons who are/were in close contact with consumptives; teenagers or adults who live, work or study together with consumptives; animals from tuberculosis risk areas ; persons who work in institutions of confinement and are in contacts with prisoners; persons who are dismissed from institutions of confinement during first 2 years after discharge.

	patients with cachexia; patients under corticosteroid, cytostatic or radial therapy; patients with signs of post-tuberculosis residual changes; women in down-lying period; persons who suffer from Chernobyl disaster.	

Above-mentioned persons should be X-rayed no less than once a year.

Anamnes of present disease (anamnesis morbi)

The following points of the present disease case should be studied:

1. The character of first symptoms of the disease and their development. While analyzing the symptoms one should remember that they can be representative of not only tuberculosis. Sometimes there can be no symptoms at all in spite of an active form of tuberculosis. It's important to fins out the term of the first symptoms appearing before tuberculosis detection.

Tuberculosis symptoms can be presented in the form of functional disorders typical for different infectious diseases (asthenia, anorexia, body weight loss, temperature rise, hyperhydrosis, etc.). There can be even signs of lesion in lungs, bronchus, pleura (cough, expectoration, bloody expectoration, pulmonary hemorrhage, dyspnea, chest pain and others). Many patients can recollect some symptoms only being questioned carefully. For the best idea of tuberculosis clinical aspects a student should ask about each symptom and its developing during the illness. Judging by the collected information a student should decide what diagnostic minimum to use.

2. Peculiarities of tuberculosis detection. Tuberculosis can be detected in a patient being consulted by a doctor because of poor health or in regular preclinical research. In case of late diagnostics of tuberculosis the reasons of it should be found out (late consulting of a patient, long-term care of another disease).

3. Information about applied methods of treatment. Information received from a patient can be added with some from his medical documents. Tuberculosis etiology of lung disease can be revealed by analyzing of efficiency of earlier therapy and comparing the received information with objective data.

Patients who treated tuberculosis earlier demonstrate evolution of the process, effectiveness of treatment, terms of exacerbation and recidivation,

drug resistance of MTB, acceptability of chemicals, applying of other methods of treatment (collapsotherapy, surgical methods), and bacterioexcretion dynamics. The terms of prodromal chemical therapy course should be specified accurately.

4. Information about previous X-ray tests. This information allows determining the time of tuberculosis development, if having X-ray documents observing the evolution of the process, activity of specific changes in lungs.

Summary: character of the disease manifestations or their absence, the peculiarities of tuberculosis detection, ineffectiveness of anti-inflammatory treatment, X-ray documents for preceding years can indirectly indicate specific character of pulmonary disease, its limited or extensive clinical form, the history of the disease in previously treated tuberculosis patients, attitude of a patient to the treatment, his drug tolerance, etc.

Physical examination data

Examination, palpation, percussion, auscultation of a patient is carried out.

1. Examination of a patient. General state of a patient, his constitution is estimated. But external examination doesn't always reveal the signs of tuberculosis. Only chronic long-lasting process with tuberculosis intoxication may change a patient's appearance. Paleness of skin, body weight loss, cyanosis of mucous tissue, acrocyanosis, changes of phalangettes' form, paraspecific implications of infection in essential forms of tuberculosis (nodal fever, tuberculides, phlyctenular ceratoconjunctivitis, changes of lymph nodes), widening of subcutaneous veins on the front the anterior wall of the chest and the belly.

Asymmetry of the chest and excursion of breath may be very important in the process of diagnosing of case. Retraction of sub- and supraclavicular spaces demonstrates shrinkage of apex pulmonis. Decrease of the volume of one art of the chest is the result of huge cirrhotic changes in lugs, the result of pulmonary fibrosis. An important sign of active tuberculosis process is respiration lagging in infected part.

The number of postinoculative paunches on the left shoulder should be paid attention to.

2. Palpation. While palpation the following things can be observed: enlarged lymph nodes, painfulness and tension of thoracic cage and girdle muscles (symptom of Pottenger-Vorobyov) which is functional defense as a result of the reflex from the inflamed pleura onto the corresponding muscle groups. Considerable atrophy of thoracic girdle muscles can be observed in case of progressing process. Evident painfulness of intercostals nerves can be found out in case of pleurisy, painfulness of chest – in case of mediastinitis. While palpating vocal tremor with pointed localization or lack of it can be cleared up.

3. Percussion. In comparative percussion the areas of changed percussion sound are found out that can be caused by changes as in lungs as in pleura. With the help of topographical percussion inferior lungs borders, the height of lung apex to collar bones and spinous process of vertebra prominens, width of Krening areas and mobility of lower lung borders are identified.

4. Auscultation. While examining a consumptive correct auscultation of lungs is of great importance. At first a patient should be auscultated while breathing in a usual way, then while breathing deeply with a half-open mouth. At this moment a patient is asked for soundless coughing and taking a deep breath. This method allows detecting catarrhal phenomena which are not identified while breathing as usual. “Alarm zones” should be auscultated thoroughly: supraclavicular fossas, interscapular and suprascapular regions, the lower corner of scapula. While auscultating the character of breathing and catarrhal phenomena is identified. There can be vesicular (diminished or exaggerated), harsh, bronchial, amphoric respiration. Vesicular respiration is auscultated above unchanged parts of lungs. It can be weak for example as the result of responsive narrowing of affected areas while breathing or as the result of contraction of lungs by exudates or air because of the massive pleural thickenings. Vesicular respiration can become rough because of the changed in the mucous membrane of bronchus.

Bronchial breathing is usually auscultated in front of trachea, behind the cervical vertebra and in the interscapular area above the bifurcation of trachea. Above the lungs bronchial breathing is auscultated in case of massive infiltration and induration of lungs which create conditions for conducting the sound from large bronchi. With less induration of lungs rough breathing is auscultated. Amphoric breath sounds are heard in case of large cavities (not less than 6 cm in diameter) with a good drainage function of the revehent bronchi. Bronchovesicular, vesicobronchial ad saccadic breathing can be identified.

The detection of heterogeneous dry and moist rattlings of different sonority is of great diagnostic value. In case of an active form of tuberculosis and incipient pulmonary disintegration small bubbling moist rattlings can be sometimes auscultated on a limited area and only while coughing.

Summary: objective information showing the localization, prevalence and character of the pathologic process in lungs should be revealed.

5. Information about other body organs examination. Other body organs should be examined according to Study Guide on propedeutics of internal diseases for medical students “A Therapeutic Patient Examination Technique” (Vitebsk, EE “VSMU”, 2007).

Summary: information about other body organs involved into the pathologic process should be noted; concomitant pathology may either be the

risk factor of developing tuberculosis or may complicate the process of treating.

Data of laboratory, X-ray and other tests

1. **Mycobacterial test.** Bacteriological and bacterioscopic methods, Bactec, GeneXpert, LPA-test are used to reveal mycobacterium in pathologic material. An object of research is often sputum and epithelial lining fluid of tuberculosis lungs. Stomach scourage researching is used in children. Punctates from close cavities, suppuration, biopsy material, urine are studied on account of mycobacterium either. When revealed the ruggedness of bacterioexcretion is taken into account. MB tests are done during the process of treatment and show the effectiveness of chemical therapy.
2. **Peripheral blood test.** Students study peripheral blood indices got on the day of admission of a patient to hospital and on the day of his supervision. Pathologic changes are estimated.

In case of tuberculosis ESR (erythrocyte sedimentation rate) index and the number of leukocytes (up to $10\text{-}12\cdot10^9$/l) are usually increased. Left leukogram shift, lymphopenia and monocytosis are also observed. Lymphosytosis can be revealed in case of limited form of tuberculosis.

3. **Urine test.** Protein, hyaline and granular cylinder can be observed in urine of a consumptive as the result of intoxication.
4. **Biochemical blood analysis.** Changes of albumin and globulin ratio can be revealed while examining protein profile of a consumptive. Increasing of the number of globulins because of £ 2 = and γ-fractions and decreasing of albumin-globulin coefficient are observed in case of far gone forms of tuberculosis. Glucose, urea, alanine and asparaginic transaminases indices are important.

Summary: to note pathologic changes of laboratory that this may reveal evident intoxication. In case if mycobacterium found in sputum or scourage of bronchial tubes a student should note that it is a reliable symptom of an active form of tuberculosis.

5. **Instrumental methods of research.** Bronchoscopy and some microsurgical interventions of bioptic character are also used in diagnostics and differential diagnostics of tuberculosis and other forms of pulmonary diseases.
6. **X-ray test.** X-ray tests are the main part of clinical examination of a consumptive. The main methods are radiography and fluorography. General, lateral oblique and enlargement X-ray films can be used. Additional or special methods of X-ray examination are rather numerous. Body-section radiography (tomography), computer tomography and magnetic resonance tomography are often used.

Students describe X-ray pictures, tomograms and other radio-documentation individually. They make an act of X-ray examination and formulate a provisional roentgenologic diagnosis.

7. Tuberculin diagnostics. Tuberculin tests and Diaskintest are used to diagnose and differentiate tuberculosis. The tests help to select those who need BCG revaccination. Tuberculin Monteux tests with 2 TE PPD-L are used prevalently. The results of tests are estimated by students on their own.

Substantiation of diagnosis

Substantiation of diagnosis is based on subjective, objective, laboratory and instrumental data got in the process of a patient's examination. This part consists of well-considered and logical summaries on each part of a medical history. The diagnosis is formulated according to the requirements of "Clinical classification of tuberculosis" and is written on the front page of a "Medical card of a hospital patient".

Plan of treatment

Based on proven clinical diagnosis of tuberculosis, the term of definition and duration of the disease, previous treatment and dynamics of the process a patient belongs to should be pointed first of all (according to "Clinical guidance on tuberculosis treatment"). Information about drug endurance, drug sustainability to MB and concomitant diseases should be taken into account while prescribing chemotherapy. Continuous poly-chemotherapy of tuberculosis for both in- and out-patients. If it is necessary surgical methods of treatment should be provided.

A journal

A student keeps a journal in a "Medical card of an in-patient". Medical prescriptions, their dosage and introduction methods, hygienic and dietary regimen are recorded there.

Prognosis

Prognosis for health and job placement should be based on the results of examinations and planned treatment.

Work in effective tuberculosis area

An effective tuberculosis area is a place where a person discharging bacteria lives. Depending on the ruggedness of bacterioexcretion, the presence of children and teenagers, living conditions, observance of sanitary and hygienic regulations of an effective tuberculosis area is divided into four groups. The work is underway in the following directions: work with an ill

person, work with those who were in contact, disinfection, solving of social and living problems. Students should describe the measures taken in an effective tuberculosis area in details.

ADVANCEMENT QUESTIONS

1. Sources of tuberculosis infection, characteristics of factors contributing to the infection.
2. People with high risk of tuberculosis developing.
3. Peculiarities of life anamnesis of a consumptive, characteristic of the factors contributing to development of tuberculosis.
4. Peculiarities of antecedent anamnesis of a consumptive.
5. Accurate signs of tuberculosis.
6. Peculiarities of physical examination of a consumptive.
7. Obligatory diagnostic minimum of examining a patient by a general practitioner if there is a suspicion of tuberculosis.
8. Principles of making a diagnosis according to modern classification.
9. Multimodality therapy of consumptives.
10. Peculiarities of treatment of TB patients.
11. Ways of introduction of antituberculous drugs, indications.
12. Classification of effective tuberculosis areas. Antiepidemic measures.

IV. PROGRAM QUESTIONS
to the credit test on Phthisiopulmonology
for 4-year students of Overseas Students Training Faculty

1. The sources of TB infection. Ways of infection (implementation) of Mycobacterium tuberculosis in humans.
2. Lung tuberculoma (classification, features of clinic and treatment).
3. Basic principles of chemotherapy of tuberculosis.
4. Features of Mycobacterium tuberculosis (classification, tinctorial properties, variability, sensitivity to temperature factor, disinfectants, antibiotics).
5. Infiltrative pulmonary tuberculosis (the definition of the clinical form, pathogenesis, clinical variants, outcomes).
6. The classifications of anti-TB drugs.
7. Laboratory methods for detection and identifying of Mycobacterium tuberculosis, and their comparative evaluation.
8. Tuberculous pleurisy (classification, clinical features, treatment, and outcomes).
9. Emergency care in spontaneous pneumathorax.
10. Mantoux test (types of tuberculin, methods of implementation, assessment of the reaction, the sample registration in medical history).
11. Primary tuberculous complex (the definition of clinical form, pathogenesis, clinical manifestations, outcomes).
12. Preventive measures among persons exposed to MBT.
13. The «Virage» of tuberculin tests, preventive measures.
14. Tuberculosis risk-groups and preventive measures for them.
15. Revealing of tuberculosis in adults according to clinically indicated, and prophylactic.
16. Diaskintest (indications, contraindications, evaluation of results).
17. The clinical signs of tuberculous meningitis (periods of development, the first symptoms, laboratory dates in the cerebrospinal fluid).
18. Indications and methods of surgical treatment of pulmonary tuberculosis.
19. Drug resistance of Mycobacterium tuberculosis and its importance in the chemotherapy (primary, secondary, mono- and poly-resistance, multidrug resistance, XDR).
20. The complications of lung cavity.
21. Mandatory contingents must be regularly screened for TB.
22. The definition of «virage» tuberculin test. Differential diagnosis between infectious and postvaccinal allergy on the Mantoux test with 2 TE PPD-L.
23. Miliary tuberculosis (clinical variants, the basic diagnostic techniques, outcomes).
24. The complications of BCG vaccination (classification, medical tactic).

25. The criteria and epidemiological danger groups of tuberculosis infection focuses.
26. Infection control in TB facilities.
27. Uncomplicated and complicated course of primary tuberculosis.
28. Characteristic of the factors of TB development.
29. The tuberculous intoxication (the definition of clinical forms, variants of the course, outcomes).
30. Indications and contraindications to the appointment of hormonal drugs for TB treatment.
31. Methods of early detection of tuberculosis in children.
32. Tuberculosis of intrathoracic lymph nodes (definition of the clinical form, pathogenesis, clinical variants, outcomes).
33. Chemotherapy regimen of patients with MBT sensitive TB.
34. Features history, examination and physical findings in tuberculosis.
35. Disseminated tuberculosis (definition of the clinical form, pathogenesis, clinical variants, outcomes).
36. Methods and means of pathogenetic treatment of patients with tuberculosis.
37. The BCG vaccination.
38. Fibrous-cavernous pulmonary tuberculosis (definition of the clinical form, pathogenesis, clinical variants of the course, treatment, and outcomes).
39. Chemotherapy regimen of patients with rifampicin resistant TB.
40. The clinical classification of tuberculosis. Principles of diagnosis according to the classification.
41. Focal pulmonary tuberculosis (definition of the clinical form, pathogenesis, clinical course options, outcomes).
42. Causes and conditions of different types of cavern's healing in the lung.
43. The paraspecific manifestations of primary tuberculosis.
44. The methods of obtaining pathological material for detection of MBT in patients with pulmonary tuberculosis.
45. Cavernous pulmonary tuberculosis (definition of the clinical form, pathogenesis, clinical outcomes).
46. Modern methods of treatment of patients with tuberculous meningitis.
47. Chemoprevention of tuberculosis.
48. Cirrhotic pulmonary tuberculosis (the definition of the clinical form, pathogenesis, clinical outcomes).
49. Differential diagnosis between pulmonary and gastric bleeding.
50. Clinical and radiological options infiltrative pulmonary tuberculosis.
51. Groups of dispensary registration of patients with tuberculosis.
52. Emergency care in pulmonary hemorrhage.
53. Compulsory diagnostic minimum of a patient with suspected tuberculosis examination when directed to dispensary.

54. Complex treatment of patients with tuberculosis.
55. Tuberculosis of peripheral and mesenteric lymph nodes. Clinic. Diagnostics.
56. The TB dispensary, its structure and objectives.
57. Side effects of chemotherapy patients with tuberculosis. Methods of prevention and ways to address them.
58. Comparative characteristics of radiological methods of research in tuberculosis.
59. Sanitary tuberculosis prevention. Classification of the focus of tuberculous infection. Antiepidemic actions in tuberculosis infection focus.

V. LIST OF BASIC PRACTICAL SKILLS on Phthisiopulmonology for 4-year students of Overseas Students Training Faculty

1. Methods of examination of patients with pulmonary tuberculosis.
2. Evaluation of the Mantoux tuberculin test.
3. Evaluation of results of bacterioscopic, bacteriological and molecular genetic methods for detection and identification of Mycobacterium tuberculosis.
4. Tuberculosis risk-groups and preventive measures for them.
5. Definition of the clinical forms of pulmonary tuberculosis on radiographic features.
6. Filling in "Emergency notification newly diagnosed with active tuberculosis patient."
7. Diagnosis of pulmonary hemorrhage, differential diagnosis of pulmonary and gastric bleeding, emergency care.
8. Diagnosis of spontaneous pneumothorax and emergency medical care.
9. Use of personal protective equipment for medical personnel complying with infection control.
10. Technique of the organization controlled treatment of outpatient patients with pulmonary tuberculosis.
11. Emergency medical care for patients with a closed spontaneous pneumothorax.
12. Emergency medical care for patients with valvular pneumothorax.
13. Order of determination of bacteriological conversion in patients with pulmonary tuberculosis, the timing of withdrawal from bacillary account.
14. Methods of diagnosis of exudative pleurisy.
15. Technique of BCG vaccinating of children.
16. The method of conducting pleural puncture in patient with exudative pleurisy.
17. Emergency medical care for a patient with open spontaneous pneumothorax.
18. The methods of identification and further examination of risk groups for TB disease among children and adolescents according to the results of Mantoux test.
19. Making patient referral to a TB specialist for suspected tuberculosis, indicating the mandatory diagnostic minimum.
20. Evaluation of Diaskintest.
21. Mandatory contingents, the group definition.

VI. PLAN OF X-RAY DESCRIPTION OF PATHOLOGICAL CHANGES IN LUNGS AND MEDIASTINUM

1. ***The localization of lesions:***

1.1. the lobe and segments of right lung or/and left lung
1.2. if we have one X-ray only we can describe localization according to ribs /by front parts of ribs/, intercostal spaces /by front parts/, according to zones /cortical, central, basal/.
1.3. localization according to groups of intrathoracic lymphatic nodes

2. ***The name of the main shadow:***

2.1. *focal* shadow /less than 1 sm/
2.3. *focus* shadow /more than 1-1,5 sm/
2.3. *common* shadow /more than 6 sm/
2.4. *ring-shaped* shadow /specify 2 contours – outer and inner contours/
2.5. *linear* shadows /straight or mesh type/
2.6. deformation and *enlargement of the root*

3. ***Number of shadows***

3.1. singl
3.2. several or group
3.3. dissemination

4. ***The size of shadows:***

4.1. *focal* shadow /mm/:
small /less than 3 mm/;
medium /4-6 mm/;
major /from 6 mm to 10 mm/.

4.2. *focus* shadow and *ring-shaped* shadow /sm/:
small size /from 1sm to 2 sm/;
medium size /from 2 sm to 4 sm /;
major size /from 4 sm to 6 sm /;
gigantic size /for ring-shaped shadow only – more than 6 sm/.

5. ***The form of a shadow:***

5.1. round
5.2. oval
5.3 triangular
5.4. polycyclic
5.5. incorrect
5.6. linear

6. ***Intensity of shadows***

6.1. low /compare with the longitudinal section of vessels/.
6.2. medium /compare with the transverse section of vessels/.
6.3. high /compare with a cortical rib layer or the shadow of mediastinum/.
6.4. different / low, medium, high / - in the case of a variety of shadows.

7. ***Structure of shadows***

7.1. homogeneuous structure
7.2. nonhomogenius structure
7.3. with areas of enlightenment
7.4. with calcification sites

8. ***Contours of shadows***

8.1. fuzzy, blurred
8.2. sharp, clear

9. ***Changes in surrounding lung tissue /besides the main shadow***

9.1. absence
9.2. foci
9.3. linear-mesh shadows
9.4. calcificats
9.5. pleural overlays
9.6. pneumosclerosis and fibrosis
9.7. areas of increased transparency

10. ***Changing the forms and size of lungs***

10.1. Asymmetry:
reduction of the lung's width
enlargement of the pulmonary region
10.2. change of the lung's apex /lowering, deformation/.
10.3. height of the diaphragm domes / lowering, elevation/.

11. ***Changing the shadow of the mediastinum***

11.1. displacement
11.2. enlargement

12. ***Conclusion of X-ray:***

Diagnosis according clinical classification of tuberculosis.

VII. CLINICAL CLASSIFICATION OF TUBERCULOSIS IN BELARUS

A. MAIN CLINICAL FORMS

Tuberculous intoxication in children.
Tuberculosis of intrathoracic lymphatic nodes
Primary tubercular complex
Miliary tuberculosis
Disseminated tuberculosis
Focal pulmonary tuberculosis
Infiltrative tuberculosis
Caseous pneumonia
Lung tuberculoma
Cavernouse tuberculosis
Fibrous-cavernouse lung tuberculosis
Cirrhotic tuberculosis
Tuberculosis pleurisies (including empyema)
Tuberculosis of upper respiratory tract
Tuberculosis of respiration organs combined with professional lung diseases
Tuberculous meningitis and tuberculosis of central nervous system
Tuberculosis of intestines, peritoneum, mesentery lymphatic nodes
Tuberculosis of bones and joints
Tuberculosis of genitor-urinal organs
Tuberculosis of skin and subcutaneous tissues
Tuberculosis of peripheral lymphatic nodes
Tuberculosis of eyes
Tuberculosis of other organs

B. DESCRIPTION OF TUBERCULAR PROCESS

Localization in lungs according to lobes and segments.
Phase:
a) infiltration, disintegration, dissemination;
b) resolution, condensation, scarring, calcification.
Bacterial expectoration:
a) with MBT expectoration (BK+ or MBT+);
б) without MBT expectoration (BK- or MBT-).

C. COMPLICATION OF TUBERCULOSIS

Hemoptysis, lung hemorrhage, spontaneous pneumothorax, pulmonary-cardiac insufficiency, atelectasis, amyloidosis, bronchial or thoracic fistulas and other.

D. RESIDUAL CHANGES AFTER TREATED TUBERCULOSIS

a) respiratory organs

Fibrosis, fibrotic focus, bullous-distrophy changes, calcinates in lungs or/and lymphatic nodes, pleuro-pneumosclerosis, cirrhosis, condition after surgical treatment, other.

b) other organs

scarring, changes in different organs and their consequences, calcification, condition after surgical operations.

VIII. TESTS FOR 4-YEAR STUDENTS OF FOREIGN CITIZENS TRAINING FACULTY ACHIEVEMENT CONTROL TO CREDIT ON PHTHISIOPULMONOLY

Clarification to the tests of achievement control doing: chose one correct (or the most correct) answer to each of test question and then compare to the sample of answers.

1. Optimal temperature setting for active propagation of tuberculosis mycobacteria
1) 20-20ºC
2) 37-38ºC
3) 42-45ºC
4) 50-55ºC

2. Temperature setting of tuberculosis mycobacteria destruction under 15-minute influence
1) -140ºC
2) 0ºC
3) +60ºC
4) +100ºC

3. Type of radiation tuberculosis mycobacteria are highly sensitive to under an hour influence
1) infrared solar radiation
2) ultraviolet solar radiation
3) constant or variable magnetic field
4) radioactive radiation

4. Optimal term of tuberculosis mycobacteria growth on solid medium of Lewenstein-Jensen
1) 2-3 days
2) 2 weeks
3) 1-1,5 month
4) 2,5-3 months

5. The most dangerous kind of infectious contact with an active form of a tuberculosis patient
1) family
2) home
3) occupational
4) bed

6. The most qualitative and informative way of getting pathological material in pulmonary patients for MTB and secondary flora
1) in natural stethocatharsis
2) in targeted bronchoscopy
3) in intratracheal bronchial lavage
4) with the help of trigger inhalation

7. Method of available and urgent laboratory diagnostics of MTB which can be done in any medico-prophylactic institution
1) bacterioscopy by flotation technique
2) direct bacterioscopy
3) bacterioscopic test
4) luminescent bacterioscopy

8. The most effective method of laboratory diagnostics of MTB
1) luminescent bacterioscopy
2) direct bacterioscopy
3) bacteriological method with typing of causative agent
4) bacterioscopy by flotation technique

9. The main transmission of tuberculosis
1) prenatal
2) alimentary
3) inhalant (aerogenous)
4) skin (contact)

10. What is tuberculin?
1) inactivated MTB with continued morphological structure
2) filtrate of autoclaved MTB with waste products
3) pathogenic MTB
4) alive but attenuated MTB

11. What is the potency of tuberculin in volume of 0,1ml with mass Mantoux version in children and teenagers?
1) 1 TE
2) 2TE
3) 5TE
4) 10TE

12. What is the conventional method of tuberculin injection in mass tuberculin diagnostics nowadays?
1) skin
2) intradermal

3) subdermal
4) endovenous

13. What size of “cocarde” with 2TE PPD-L is assumed as positive?
1) from 2mm
2) from 5mm
3) from 12mm
4) from 17mm

14. What size of “cocarde” with 2TE PPD-L is assumed as hyperergic in children and teenagers?
1) from 12mm
2) from 17mm
3) from 21mm
4) from 25mm

15. What is the case of tubercular tests conversion with 2TE PPD-L?
1) papule of 6mm (10mm after vaccination a year ago)
2) papule of 10mm (revaccination of BCG after negative test a year ago)
3) papule of 12mm (negative test a year ago, vaccination of BCG at maternity hospital five years ago)
4) papule of 2mm (vaccination of BCG precedently)

16. What age group has higher risk of tuberculosis in case of primary infection (case of conversion)?
1) 1-3 years old
2) 4-11 years old
3) 12-17 years old
4) 18-25 years old

17. When the outcomes of Mantoux test are measured?
1) after 12 hours
2) after 24 hours
3) after 48 hours
4) after 72 hours

18. What data of papule in 2TE PPD-L Mantoux test injection indicate children and teenagers are subjects to urgent searching tuberculosis examination?
1) 17mm and more
2) 10mm and more
3) 5mm and more
4) “0”mm

19. Method of 50-100TE tuberculin injection while diagnostical Koch test is
1) skin
2) intradermal
3) subdermal
4) intramuscular

20. The main method of X-ray diagnostics of thoracopathies at pulmonary clinics is
1) hospital middle-format fluorography
2) plan radiography in 2 views (frontal and lateral)
3) roentgenoscopy
4) tomography

21. X-ray hardness estimation of accuracy of lungs plan radiography in frontal view technique exactitude
1) no vertebra can be identified
2) only 3 upper dorsal vertebras can be identified separately
3) only 6 upper dorsal vertebras can be identified separately
4) all dorsal vertebras can be identified definitely

22. The right lung's sixth segment (C_6) view on plan radiography is
1) upper than the 2nd feather's anterior segment
2) in the middle zone of pulmonary field literal (subcortical)
3) in the middle zone of pulmonary field medial (close to the root)
4) lower than the 4th feather's anterior segment (above diaphragm)

23. The view of the middle lobe (C_4 and C_5) of the right lung on plan radiography is
1) in the middle zone of pulmonary field literal
2) in the middle zone of pulmonary field medial
3) in the lower zone of pulmonary field literal
4) in the lower zone of pulmonary field medial

24. The view of the upper lobe (C_1 - C_5) of the left lung on plan radiography is
1) from the apex to the 2nd feather
2) from the apex to the 3rd feather
3) from the apex to the 4th feather
4) from the apex to diaphragm

25. What lung segments are the most often damaged in secondary forms of tuberculosis?
1) C_1+C_2

2) C_3
3) C_4+C_5
4) C_8

26. Notation of pulmonary tuberculosis localization in clinical diagnosis is
1) per lobes and segments
2) per fields
3) per feathers
4) per intercostals

27. How many segments does the upper lobe of the left lung include?
1) five
2) four
3) three
4) two

28. How many segments does the upper lobe of the right lung include?
1) two
2) three
3) four
4) five

29. X-ray parameters of large focal shadow are
1) up to 3mm
2) from 3 to 6mm
3) from 6 to 10-15mm
4) from 15 to 20mm

30. X-ray parameters of small-sized shadowing focus are
1) from 0,5 to 1,0sm
2) from 1 to 2sm
3) from 2 to 4sm
4) from 4 to 6sm

31. Rate of young focal shadows in the lungs of tuberculosis etiology is
1) high
2) feeble
3) different
4) medium

32. The main goal of tomography in complex X-ray survey of consumptives is
1) placement of localization

2) mensuration of found shadows
3) detection of destruction zones in lungs
4) estimates of the shadows intensity

33. X-ray characteristics of active tuberculosis process with progressing course

1) focus of shadowing is of weak intensity with ring-shaped radiolucency inside and few focuses around
2) group of focal shadows of weak intensity of homogenous structure in C_1 and C_2 on the right
3) medium intensity focus of shadowing with locuses of concretion
4) high intensity focus of large shadowing with locuses of calcification

34. Nonrelevant X-ray sign of tuberculoma

1) round shadow of 4sm with shape-cut outlines and eccentric radiolucency
2) round shadow of 2sm with shape-cut outlines
3) rounded focus of shadowing of high intensity with 3sm diameter having heterogeneous structure with locuses of calcification
4) rounded isolated capillary cavity with no infiltration and fibrosis in surrounding pulmonary tissue

35. What phase of tuberculosis (except other processes) is certainly reflected in the final diagnosis while healing of cavern?

1) resolution
2) carnification
3) cicatrization
4) calcification

36. The most common clinical form of pulmonary tuberculosis among new patients nowadays is

1) focal
2) disseminated
3) infiltrative
4) tuberculoma

37. What form of pulmonary tuberculosis is found in between young and advanced chronic forms?

1) cavernous
2) disseminated
3) infiltrative
4) fibrous-cavernous

38. In what form of pulmonary tuberculosis extrapulmonary localizations of tuberculosis are observed?
1) focal
2) disseminated
3) tuberculoma
4) cavernous

39. What is BCG vaccine?
1) pathogenic MTB
2) inactivated MTB
3) alive but attenuated MTB
4) waste products of MTB

40. What is the conventional method of BCG injection in vaccination and re-vaccination of children and teenagers nowadays?
1) oral
2) skin
3) intradermal
4) subdermal

41. What is the difference between vaccine of BCG-M and vaccine of BCG-1?
1) more attenuated vaccine strain of BCG
2) the doze of vaccination is doubled
3) the doze of vaccination is halved
4) there is no difference but trademark

42. Peculiarities of antituberculous vaccination of preterm babies of more than 2000gr in maternity hospital
1) they are not vaccinated
2) they have BCG-1 vaccine jab
3) they have BCG-M vaccine jab
4) respite of vaccination till standard weight achievement

43. Normal term of vaccine infiltrate appearing in newborns after vaccine BCG-1 injection is
1) in 72 hours
2) in a week
3) in 4-6 weeks
4) to the end of the 2^{nd} month

44. Artificial antituberculous immunity elaboration period on newborns vaccination is
1) in 1-2 weeks
2) in 6-8 weeks
3) in 4 months
4) in 6 months

45. Normal term of definite post-vaccine cicatrization to vaccine BCG-1 in newborns is
1) in a week
2) in a month
3) in 3-4 months
4) in 6-8 months

46. What antituberculous remedy is as a rule used in drug prophylaxis to prevent tuberculosis?
1) streptomycin
2) isoniazid
3) rifampicine
4) ethambutol

47. Who needs compulsory isoniazid prophylaxis?
1) persons with small residual tuberculosis changes
2) adults who are in contact with close form of tuberculosis patients
3) HIV persons
4) children with positive Mantoux reaction during 3 years

48. What are the contradictions to chemical prophylaxis with isoniazid?
1) hypertensive disease
2) peptic ulcer
3) epilepsy
4) diabetes

49. The most important indication of the level of epidemiologic danger of pocket of tuberculosis infection is
1) living conditions of the family
2) material security of the family
3) sanitary and cultural level of the family
4) solidity of bacterioexcretion in the consumptive

50. The most important source of tuberculosis infection is
1) sputum of a consumptive
2) milk of diseased animals

3) orts of a consumptive
4) dishes used by a consumptive

51. The most important factor that decreases body resistance to tuberculosis infection is
1) smoking
2) undernutrition
3) alcohol abuse
4) catarrhal diseases

52. What measure is preferable to start complex of the following emergency antituberculous actions for restoration of pocket of tuberculosis infection with?
1) isolation of bacterioexcretor and stopping his contact with healthy people before
2) regular examination for tuberculosis of persons in touch
3) chemical prophylaxis to all healthy members of a family
4) current and final disinfection

53. Who does current disinfection in pockets of tuberculosis infection?
1) a district therapist with a nurse
2) a district phthisiatrician with a nurse
3) disinfection department of the Centre of Hygiene and Epidemiology
4) members of the family and a consumptive himself

54. Who does final disinfection in pockets of tuberculosis infection?
1) a district therapist with a nurse
2) a district phthisiatrician with a nurse
3) disinfection department of the Centre of Hygiene and Epidemiology
4) members of the family and the consumptive himself

55. The most reliable method of pulmonary tuberculosis diagnostics is
1) X-ray of respiratory organs
2) microscopy of sputum when MBT detection
3) tuberculin test
4) general analysis of peripheral blood

56. What is the minimum of microscopic investigations of sputum for MBT while diagnosing pulmonary tuberculosis in case of causative agent's undetection?
1) one investigation
2) two investigations
3) three investigations

4) four investigations and more

57. What the main way of pulmonary tuberculosis detection among adults in the Republic of Belarus at present?
1) 2 TE PPD-L Mantoux test tuberculin diagnostics
2) fluorography (stationary and mobile)
3) roentgenography of chest organs in different views
4) investigation of sputum for MBT

58. The most effective variants of people's roentgenfluoragraphic tuberculosis investigation organization is
1) group (selective) fluorographic examinations
2) solid (mass) fluorographic examinations
3) maximal coverage of people with roentgenfluoragraphic examination while reference to medioprophilactic institution
4) rational use of all above-mentioned variants

59. The frequency of prophylactic fluorographic examination of majority of people in epidemiologically favorable tuberculosis atmosphere is
1) not less than twice a year
2) not less than once a year
3) not less than once in 2 years
4) not less than once in 3 years

60. The frequency of prophylactic fluorographic examination of people in epidemiologically unfavorable tuberculosis atmosphere is
1) not less than twice a year
2) not less than once a year
3) not less than once in 2 years
4) not less than once in 3 years

61. The frequency of prophylactic fluorographic examination of people in epidemiological atmosphere of tension is
1) not less than twice a year
2) not less than once a year
3) not less than once in 2 years
4) not less than once in 3 years

62. What is the frequency of prophylactic roentgenofluorographic examination of the main part of adult people in the Republic of Belarus (except compulsory contingents and tuberculosis high-risk people) at present?
1) not less than once in 6 months
2) annually

3) not less than once in 2 years
4) not less than once in 3 years

63. The frequency of fluorographic examination of tuberculosis high-risk people is
1) not less than twice a year
2) not less than once a year
3) not less than once in 2 years
4) not less than once in 3 years

64. The frequency of fluorographic examination of “mandatory” contingents is
1) not less than twice a year
2) not less than once a year
3) not less than once in 2 years
4) not less than once in 3 years

65. Patients are not include into tuberculosis high-risk group with
1) hypertonic disease
2) gastric ulcer
3) lungs silicosis
4) chronic bronchitis

66. What contingents of the people of he Republic of Belarus are not subject of compulsory annual roentgenologic examination at present?
1) preschool workers
2) medioprophilactic institutions workers
3) senior schoolchildren
4) workers of commercial dairy and cattle farms

67. How many years should data of roentgenfluoragraphic investigations be saved in medioprophilactic institutions domiciliary?
1) not less than a year
2) not less than 2 years
3) not less than 3 years
4) not less than 5 years

68. What doctors must detect patient with assumption of tuberculosis more actively?
1) therapists
2) pediatricians
3) phthisiatricians
4) doctors of any speciality

69. What is maximal term of medical certificate of unfitness for work of an in-patient by agreement with Medical Counselling Commission (MCC) but with no decision of Medical Regional Expert Commission (MREC)?
1) up to 2 months
2) up to 4 months
3) up to 6 months
4) up to 10 months

70. The indication for appointment of a consumptive to MREC for finding of disability group is
1) the necessity of treatment for more than 6 month's period with a positive dynamics of tuberculosis process
2) preservation of cavern in a lung after 4 months of treatment
3) effective surgical treatment without respiratory impairment
4) advanced form of tuberculosis and ineffective treatment during 3-4 months

71. The most frequent reason of the 2nd disability group finding to a consumptive provided short effectiveness of the main course of chemotherapy is
1) short-term abacillarity of sputum
2) preservation of cavern without respiratory failure
3) cavern and fibrous with respiratory and heart failure of the 2nd degree
4) periodical short-term bloody expectoration without symptoms of respiratory failure

72. The most correct action of a doctor while detecting the resistance of MBT to izoniazid is
1) to substitute for ftivazide
2) to prescribe izoniazid intravenously
3) to cancel izoniazid
4) to increase daily dose of izoniazid

73. What situation shows MBT resistance to two drugs as multiple drug resistance?
1) izoniazid + rifampicine
2) izoniazid + streptomycin
3) rifampicine + ethambutol
4) rifampicine + ethionamide

74. What antituberculous medicine is ototoxic?
1) izoniazid
2) rifampicine

3) streptomycin
4) paraaminosalicylic acid

75. What antituberculous drugs can’t be used simultaneously?
1) izoniazid + ftivazide
2) rifampicine + izoniazid
3) ethambutol + pyrazinamide
4) streptomycin + rifampicine

76. What combination of antituberculous drugs is inadmissible?
1) streptomycin + kanamycin
2) rifampicine + izoniazid
3) izoniazid + ethambutol
4) ethambutol + pyrazinamide

77. What antituberculous medicine can provoke peripheral neuropathy?
1) ethambutol
2) izoniazid
3) pyrazinamide
4) ethionamide

78. What antituberculous medicine can provoke dysfunction of vision organs?
1) streptomycin
2) rifampicine
3) izoniazid
4) ethambutol

79. What antituberculous medicine adds red colour to urine, sweat, tear?
1) ethionamide
2) pyrazinamide
3) rifampicine
4) paraaminosalicylic acid

80. What antituberculous medicine can provoke allergic side reaction mainly?
1) streptomycin
2) paraaminosalicylic acid
3) ethionamide
4) cycloserine

81. What will you do if while taking antituberculous drugs a patient complains of weak inching of cutaneous coverings only?
1) cancel all drugs
2) prescribe hormonal medicines
3) prescribe antihistamine
4) prescribe vitamins

82. What is the most hepatotoxic antituberculous medicine?
1) streptomycin
2) ethambutol
3) pyrazinamide
4) cycloserine

83. What concomitant diseases are supposed rifampicine to be prescribed carefully?
1) in case of hypertension
2) in case of hepatitis
3) in case of colitis
4) in case of stenocardia

84. What irreversible toxic side reaction can a consumptive have who takes streptomycin?
1) hearing impairment
2) pain in joints
3) frequent stool
4) pain in heart

85. What methods of pathogenetic treatment are indicated for consumptives with fresh disseminated infiltrative changes in lungs?
1) desensitizing
2) anti-inflammatory
3) stimulating
4) general health-improving

86. What pathogenetic means are recommended to patients with exudative pleurisy in the first place?
1) vitamins of B group
2) corticosteroids
3) phisiothepeutic methods of treatment
4) immunostimulants

87. What clinical form and phase of tuberculous process assumes using artificial pneumothorax applied in medical purpose?
1) focal tuberculosis in infiltration phase
2) cavernous tuberculosis
3) tuberculoma in lysis phase
4) fibrous-cavernous tuberculosis in infiltration and seeding phase

88. In what clinical form and phase of tuberculous process is pneumoperitoneum possible applied in medical purpose?
1) in one-side focal tuberculosis in infiltration phase
2) in subacute disseminated pulmonary tuberculosis in infiltration and lysis phase, complicated by hemoptysis
3) in cloud-shape infiltrate without lysis in the upper lobe to the right
4) in fibrous- cavernous tuberculosis of the upper lobe of the right lung

89. Indications for resection of a lung because of tuberculosis are:
1) infiltrative tuberculosis C_2 of the right lung in lysis and seeding phase
2) subacute disseminated tuberculosis of upper lobes of the both lungs in infiltration and lysis phase
3) cirrhotic tuberculosis of the upper lobe of the right lung
4) big-sized tuberculoma C_1 of the right lung in lysis phase

90. The most applying way of surgical treatment of pulmonary tuberculosis nowadays is:
1) resection of a part of a lung
2) caverntomy
3) thoracoplasty
4) cavern drainage

91. Optimal term for operative intervention to lungs because of conserved cavern after intensive course of chemical therapy is:
1) after 2 months
2) after 3 months
3) after 4 months
4) after 4-5 months

92. The most typical complains of TB are:
1) dry hacking cough during a week
2) long-lasting progressively increasing cough with a little sputum
3) cough with heavy sputum in mornings
4) comparatively infrequent cough during many years with easy detaching mucoid-purulent sputum

93. More “suspicious” symptom of tuberculosis is:
1) hyperhidrosis
2) chest pain
3) dyspnea
4) weak fever in the afternoon during more than three weeks

94. More “suspicious” symptom of tuberculosis is:
1) chill
2) general weakness
3) a little continued cough during more than three weeks
4) discharge of ample quantity of sputum on coughing within 24 hours

95. What is the method of tuberculosis detection present into compulsory diagnostical minimum (CDM)?
1) bacteriological investigation of material for MBT
2) histological investigation of biopsy material
3) bacterioscopic investigation of pathological material for MBT
4) information about external respiration function

96. What is the method of tuberculosis detection exept from compulsory diagnostical minimum (CDM)?
1) bacteriological investigation of material for MBT
2) information about character and duration of a consumptive cooperation
3) data of histological investigation of a lung biopsy material
4) bronchoscopic investigation

97. What method of tuberculosis detection does compulsory diagnostical minimum (CDM) include?
1) bronchoscopic investigation
2) X-ray investigation of lungs (plan radiograph of thorax organs)
3) tomorhaphic investigation of lungs
4) histological investigation of a lung biopsy material

98. What method of tuberculosis detection is included into additional diagnostical minimum (ADM)?
1) information about the previous X-ray examinations of lungs
2) data of the present X-ray investigation of lungs
3) tomorhaphic investigation of lungs
4) information about external respiration function

99. What method of tuberculosis detection is included into additional diagnostical minimum (ADM)?
1) common blood analysis

2) biochemical investigation of blood
3) bacteriological investigation of material for MBT
4) Mantoux test with 2TE PPD-L

100. What method of tuberculosis detection is included into additional diagnostical minimum (ADM)?
1) data of physical examination of a patient
2) information about the previous X-ray examinations of lungs
3) data of the present X-ray investigation of lungs
4) bronchoscopy and other endoscopic methods

101. What method of tuberculosis detection is included into additional diagnostical minimum (ADM)?
1) common blood analysis
2) bacteriological investigation of sputum for MBT
3) bacterioscopic investigation of sputum for MBT
4) Mantoux test with 2TE PPD-L

102. What method of tuberculosis detection is included into optional diagnostical minimum (ODM)?
1) information about the previous X-ray examinations of lungs
2) data of the present X-ray investigation of lungs
3) tomorhaphic investigation of lungs
4) information about external respiration function

103. What method of tuberculosis detection is included into optional diagnostical minimum (ODM)?
1) data of physical examination of a patient
2) data of the present X-ray investigation of lungs
3) information about the previous X-ray examinations of lungs
4) data of electrocardiogram

104. Main method of tuberculosis detection in untransportable patients is:
1) fluorographic investigation of thorax organs
2) plan radiograph of thorax organs
3) tomography of lungs
4) investigations of sputum for MBT

105. Reliable and available method of tuberculosis diagnostics is excluded from compulsory diagnostical minimum?
1) roentgenological
2) general clinical
3) bronchological

4) investigation of sputum for MBT

106. What clinical form refers to primary tuberculosis?
1) focal pulmonary tuberculosis
2) tuberculosis of intrathoracic lymph nodes
3) tuberculoma
4) infiltrative pulmonary tuberculosis

107. What tuberculin Mantoux test is typical for tuberculosis of intrathoracic lymph nodes in children?
1) questionable
2) slightly positive during 3 years
3) normergic during 5 years
4) conversion of tubercular tests

108. Paraspecific reaction in primary tuberculosis is not:
1) erythema nodosum
2) keratoconjunctivitis
3) Poncet's polyarthritis
4) polyadenitis

109. What is the most informational roentgenologic method of examination for thoracic lymphadenopathies?
1) plan roentgenogram of thorax organs in frontal view
2) bronchography
3) median tomogram through root of lung
4) target roentgenogram

110. What complication is the most frequent in tuberculosis of intrathoracic lymph nodes in children?
1) pulmonary hemorrhage
2) cavern formation
3) atelectasis
4) pulmonary cardiac decompensation

111. What groups of peripheral lymph nodes are affected in children and teenagers in tuberculosis more frequently?
1) subclavian
2) inguinal
3) cervical
4) cubital

112. What signs are not typical for local forms of primary tuberculosis?

1) lymph system involvement
2) high level of specific sensitization of organism
3) beneficial course with gradual calcification of damage areas
4) steady progress with cavern formation and bacterioexcretion

113. What is the most informative method of investigation that can help to detail etiology of peripheral lymphadenitis?
1) X-ray
2) bacteriological
3) immunological
4) histological (biopsy)

114. What following and entering into the composition of tuberculous granuloma pathomorphological sign is the most reliable for making a conclusion about tuberculous nature of pathomorphological changes in bioptic material?
1) lymphocytes
2) huge cells of Pirogov-Langhans
3) caseous necrosis
4) epithelioid cells

115. Possible complication of peripheral lymph nodes tuberculosis is:
1) fistula
2) phlegmon
3) bleeding
4) sepsis

116. The most frequent variant of healing of primary tuberculous complex lung component is:
1) induration
2) resorption
3) calcification
4) cirrhosis

117. The terms of definitive forming of calcifications in lung and mediastinum after earlier primary tuberculosis in children and teenagers are:
1) in 6 months of chemical therapy
2) in a year of chemical therapy
3) in a year and a half after treating and supervising
4) in 2-3 and more years after treating and supervising

118. Differential diagnostics of infiltrative variant of intrathoracic lymph nodes tuberculosis in children and teenagers should be carried out with:

1) central cancer
2) central pneumonia
3) teratoma
4) lymphogranulomatosis

119. Differential diagnostics of primary tuberculous complex in children and teenagers should be carried out with:
1) sarcoidosis of intrathoracic lymph nodes and lungs
2) new formation
3) nonspecific pneumonia
4) lymphogranulomatosis

120. The term of microfocal dissemination with miliary tuberculosis appearing on plan roentgenogram of lungs is:
1) on the first day of acute clinical manifestations
2) in 3-4 days
3) in 10-15 days
4) to the end of the month

121. What method of roentgenological investigation is the main in diagnostics of miliary pulmonary tuberculosis?
1) polypositional roentgenoscopy of lungs
2) roentgenography in 3 views (frontal and lateral)
3) tomography
4) computer tomography

122. What method of a consumptive investigation is generally determinative in in-time diagnostics of miliary tuberculosis?
1) general blood analysis
2) Mantoux test
3) bronchoscopy
4) plan roentgenograms of lungs in 3 views repeated in 2 weeks after onset

123. Roentgenologic picture in miliary tuberculosis of lungs is:
1) multiple weak focuses of different sizes in both lungs which run into focuses with clearing in some areas
2) multiple weak small focuses of mullet-shaped view in all lung fields of both lungs, lung pattern is not defined
3) multiple large focal shadows of considerable intensity with sharp contour in the middle and low parts of both lungs
4) focal shadows of different intensity in upper part of both lungs against the background of medium pneumofibrosis

124. Typical clinical picture in miliary pulmonary tuberculosis is:
1) graduate start; body temperature is stabilized from low-grade fever to 39-40ºC in the morning and evening; there is no cough and dyspnea
2) acute start; body temperature is up to 40ºC; there is chill; cough with much sputum appears in some days
3) acute start; body temperature is low-grade in the morning and 39-40ºC in the evening; there is hyperhidrosis at nights, marked dyspnea, light cough
4) acute start; body temperature is low-grade; hard attack-like dry cough with pain behind breast-bone

125. Roentgenologic outcome of pathomorphological changes in miliary pulmonary tuberculosis in case of in-time diagnostics and long-lasting intensive chemical therapy is:
1) partial resolution and induration of focuses
2) full resolution of focuses without visual residual changes
3) multiple small calcifications formation
4) diffuse pulmonary fibrosis with hard focal shadows formation

126. Roentgenologic picture in subacute variant of disseminated pulmonary tuberculosis is:
1) multiple polymorphous focuses of different intensity with parts of lucency with underlying of pneumofibrosis in the upper segments of both lungs
2) multiple small focuses of considerable intensity in both lungs without destructions in middle-low parts; roots are indurated
3) multiple focuses of different sizes and not high intensity in the upper parts of both lungs sometimes conflowing into focuses with parts of thin-wall ring-shaped lucency
4) multiple focuses of different sizes and not high intensity in subcortical zones of medium parts of both lungs without destructions; roots of both sides are dilated deeply because of enlarged bronchopulmonary lymph nodes

127. Roentgenologic signs of chronic variant of disseminated pulmonary tuberculosis are:
1) multiple small of low-intensity focuses in both lungs without destructions
2) multiple focuses of different sizes and intensity with cavities of degradation with fibrous-sclerotic changes in the upper segments of both lungs
3) multiple focuses of multilobular infiltration with fuzzy contour in both lungs
4) multiple small intensive focuses in middle-low parts of both lungs with underlying of reticular pneumosclerosis

128. What form of pulmonary tuberculosis has less favorable prognosis in spite of carrying chemical therapy out?
1) infiltrative (cloud-shaped variant) pulmonary tuberculosis with degradation BK+
2) miliary pulmonary tuberculosis, BK-
3) subacute disseminated pulmonary tuberculosis with degradation, BK+
4) chronic disseminated pulmonary tuberculosis with degradation, BK+

129. What term from the onset of disease does meningeal syndrome in tuberculous meningitis patients declare itself?
1) in 1-3 days
2) in 7-10 days
3) in 14-21 days
4) in 30-45 days

130. What is the most important test of tuberculous meningitis?
1) meningeal syndrome
2) X-ray evidence of pulmonary tuberculosis
3) high pressure of cerebrospinal fluid
4) mental confusion

131. What is the main and decisive method of researching while diagnosing of tuberculous meningitis?
1) lumbar puncture with laboratory researching of liquor including MBT
2) clinical with disease course peculiarities studying
3) repeated researching of sputum for MBT
4) data of neurologic status

132. The most typical quantity of cells in 1mm³ of liquor for tuberculous meningitis is:
1) 10-30
2) 200-400
3) 1000-1200
4) 2000-2500

133. What performance of sugar content in cerebrospinal fluid is more characteristic for a patient with high-grade clinical tuberculous meningitis onset?
1) 1,5 mole per liter
2) 3,5 mole per liter
3) 4,5 mole per liter
4) 5,5 mole per liter

134. What way of antituberculous medicines introduction is more preferable for treatment of patients with tuberculous meningitis?
1) endolumbal
2) peroral
3) inhalation
4) intravenous and intramuscular

135. The phase pointed in clinical diagnosis in active tuberculosis process is:
1) induration
2) scarring
3) infiltration
4) calcification

136. The phase pointed in clinical diagnosis in tuberculosis process treatment is:
1) infiltration
2) degradation
3) seeding
4) calcification

137. The main method of focal pulmonary tuberculosis diagnostics is:
1) roentgenonogic
2) investigatin of sptum for MBT
3) bronchoscopy with biopsy
4) computer tomography

138. The most typical clinical picture in focal pulmonary tuberculosis is:
1) high-grade weakness, tiredness, long-lasting underproductive couch
2) clinical symptoms of the disease are absent or low-grade
3) cough with purulent sputum, dyspnea
4) dry cough, blood-coughing, pain in chest

139. Chest examination data in focal tuberculosis are:
1) barrel chest; apexes of supraclavicular are swelled, outpocketed
2) chest is without peculiarities; pathological changes are not defined
3) chest is not-central; one of the sides is behind in respiratory act
4) one of the sides is behind in respiratory act; intercostal spaces of this side are smoothed

140. In what segments of lungs is focal tuberculosis localized more frequently?
1) in the first

2) in the third
3) in the fourth
4) in the fifth

141. In progressing course the focal pulmonary tuberculosis transfers into:
1) disseminated
2) tuberculoma
3) cirrhotic tuberculosis
4) Infiltrative

142. In what phase of pulmonary tuberculosis is bacterioexcretion defined more often?
1) degradation
2) resolution
3) induration
4) infiltration

143. Roentgenologic signs of focal pulmonary tuberculosis activeness are:
1) low-grade intensity, fuzzy contours of focuses
2) high-grade intensity, irregular sharp contours of focuses
3) petrificated focuses
4) immutable intensity of focuses in 2 months of chemical therapy

144. The most frequent outcome in focal pulmonary tuberculosis is:
1) partial resolution and induration of focuses
2) full resolution of focuses
3) tuberculoma forming
4) limited cirrhosis forming

145. More frequently focal pulmonary tuberculosis is differenced:
1) with peripheral cancer
2) with eosinophilic pneumonia
3) with bacterial focal pneumonia
4) with benign tumor

146. What clinic-roentgenologic variant of infiltrative pulmonary tuberculosis is the most frequent nowadays?
1) lobular, rounded
2) cloud-shaped
3) peristsissurit
4) lobitis

147. The most reliable test for diagnostics of infiltrative pulmonary tuberculosis in degradation phase is:
1) hyperergic character of Mantoux test with 2TE PPD-L
2) periodical hemoptusis
3) MBT in sputum
4) no positive effect while anti-inflammatory therapy

148. The most typical clinical symptomatology in cloud-shaped tuberculous infiltrate:
1) there is high-grade intoxicational syndrome, cough with purulent sputum; body temperature is up to 39-40ºC
2) there is long-lasting weakness, hyperhidrosis, hemoptusis, semi cough with poor sputum; body temperature is up to 37,5ºC in evenings
3) there is no clinic symptomatology
4) there is dry attack-like cough, dyspnea, pain in chest; body temperature is 37,1-37,3ºC sometimes

149. General condition of a patient with caseous pneumonia is as a rule:
1) satisfactory
2) moderately
3) grave with high-grade intoxication
4) rather satisfactory with a little weakness, hyperhidrosis

150. Data of auscultation in caseous pneumonia are:
1) isolated dry rales above the affected area of lung
2) isolated dry and fine moist rales
3) profuse catarrhal changes in a view of affected lungs
4) vesicular respiration without catarrhal signs

151. Character of X-ray data in lobar caseous pneumonia are:
1) confluent conglomerate formation with fibrous degeneration of pulmonary tissue
2) solitary cavity of degradation with broad and irregular pericavitar zone inflammation connected to changed root of lung
3) multiple cavities of degradation with underlying of broad and irregular intensive shading due to infiltration of the upper lode to the right as well as multiple focuses of seeding in both lungs
4) intensification of lung picture in affected zone, its deformation, netting, lung root enlargement due to reactive adenitis

152. What factor is the most informative in differential diagnostics of caseous pneumonia with croupous pneumonia?
1) history of the disease and physical examination data

2) bronchoscopy data
3) investigation of sputum for MBT
4) roentgenologic data

153. In majority cases pulmonary tuberculoma is formed from:
1) disseminated tuberculosis
2) focal tuberculosis
3) infiltrative tuberculosis
4) cavernous tuberculosis

154. What are roentgenologic signs and localization typical for pulmonary tuberculoma?
1) regular spherical shadow with smooth arcuate contours in the third segment (C_3)
2) intensive homogeneous rounded formation sharply separated from healthy tissue with tuberous outline in a low lung lobe (C_8)
3) rounded intensive inhomogeneous formation with eccentric degradation in the second segment of lung (C_2) and focal changes in surrounding lung tissue
4) rounded homogeneous shadow in root zone

155. What laboratory test is the most informative for pulmonary tuberculoma without degradation diagnostics?
1) investigation of epithelial lining fluid for BK
2) tuberculin diagnostics with hyperergic Mantoux test getting
3) hematological investigation data
4) immunological investigations (blast-transformation reaction, EIA, etc)

156. What is the most typical outcome of tuberculoma after chemical therapy according to X-ray data?
1) full resolution
2) few fibrous focuses forming
3) star-shaped scar forming
4) preservation of shading focus without dynamics

157. What kind of treatment gives the best results in pulmonary tuberculoma with degradation?
1) intensive polychemical therapy
2) polychemical therapy and pathogenetic treatment
3) resection of affected area of lung with posterior chemical therapy
4) collapse therapy with simultaneous polychemical therapy

158. Clinical form from which cavernous tuberculosis is formed is:

1) focal tuberculosis
2) infiltrative tuberculosis
3) fibrous-cavernous tuberculosis
4) disseminated pulmonary tuberculosis

159. What clinical form can transfer into cavernous pulmonary tuberculosis if process progressing?
1) primary tuberculous complex
2) miliary tuberculosis
3) disseminated tuberculosis
4) tuberculoma

160. What is the main way of contagion from cavern in tuberculoma progress?
1) lymphogenous
2) bronchogenous
3) hematogenous
4) contact

161. Roentgenologic differential diagnostical sign typical for tuberculous cavity is:
1) significant amount of fluid in cavity
2) reaction of the surrounding tissue in the form of polymorphic focal shadows
3) enlargement of lung root due to reactive adenitis
4) broad and irregular pericavitar zone of inflammation

162. Untypical clinical sign for tuberculous cavern is:
1) cough
2) mucopurulent sputum in quantity of 30-60ml per day
3) purulent sputum up to 200-300ml
4) hemotysis

163. Reliable method of laboratory diagnostics for making conclusion about tuberculous cavity in lung presence is:
1) investigation of hematological signs
2) investigation of tuberculin sensibility under Mantoux test
3) investigation of sputum for MBT be bacterioscopy with positive result
4) immunological investigations (blast-transformation reaction, EIA, etc)

164. The main reason leading to quick enlargement of cavern and simultaneous becoming thin of its walls in cavernous pulmonary tuberculosis is:
1) Progressing of tuberculosis process

2) bronchopleural syrinx formation
3) bronchus drainage function disorder
4) clearance of cavern from cavernous-necrotic layer

165. The most frequent morphological variant of healing of cavernous pulmonary tuberculosis is:
1) star-like or linear scar
2) pseudocyst
3) tuberculoma
4) cirrhosis

166. Clinical form of pulmonary tuberculosis which if progressing transfers into fibrous-cavernous tuberculosis at once is:
1) disseminated tuberculosis
2) cavernous tuberculosis
3) tuberculoma
4) infiltrative tuberculosis

167. Roentgenologic signs typical for fibrous-cavernous pulmonary tuberculosis are:
1) cavity of irregular form with jagged shapes and perifocal reaction
2) thin-wall cavity without fluid level
3) cavity with irregular wall thickness, jagged internal wall, high-grade reaction from lung root
4) cavity with thick fibrous walls, lung reduced in volume, with focuses of seeding in the surrounding pulmonary tissue

168. The reason of death of patients with fibrous-cavernous pulmonary tuberculosis is:
1) amyloidosis of internal organs
2) spontaneous pneumotorax
3) pulmonary bleeding
4) regular high-grade outbreak of tuberculosis process with progressing course

169. What clinical form of pulmonary tuberculosis transfers into cirrhotic tuberculosis more frequently?
1) infiltrative
2) cavernous
3) fibrous-cavernous
4) tuberculoma

170. What can be the most reliable evidence of tuberculous etiology of lungs cirrhosis?
1) localization of affect in the upper segments of lungs
2) character of tuberculin sensibility to Mantoux test with 2 TE PPD-L
3) anamnesis
4) pathomorphological inclusions in cirrhosis as calcifications and compact fibrous focuses on roengenogram

171. The most frequent residual change in lungs after treated tuberculosis is:
1) emphysema
2) cirrhosis
3) fibrous-focal changes
4) fibrosis

172. Reliable method of diagnostics of effusion in pleural cavity presence is:
1) detection of dullness in percussion of chest
2) absence of respiratory noise in the view of vast shading in lungs auscultation
3) vast homogenic shading on roentgenogram
4) getting of free fluid while puncture of pleural cavity

173. What kind of roentgenologic investigation allows making a conclusion about free fluid in the pleural cavity?
1) plan radiography of lungs
2) tomography
3) radiography of chest organs with laterography
4) fluorography

174. What radiography is the most informative in diagnostics of interlobular pleurisy?
1) spot
2) lateral
3) in frontal view
4) in oblique view

175. Reliable sign of laboratory investigation of pleural fluid which shows tuberculous etiology of pleurisy is:
1) high specific gravity
2) positive Rivalt test
3) limfatsentarny type of cellular content of leukocytes
4) MBT in exudate

176. What clinical form of pulmonary tuberculosis is hidden and oligo-symptomatic course typical for?
1) exudative pleurisy
2) miliary tuberculosis
3) tuberculoma
4) infiltrative tuberculosis

177. What clinical form of pulmonary tuberculosis the acute sudden beginning is typical for?
1) infiltrative (cloud-shaped) tuberculosis
2) miliary tuberculosis
3) subacute disseminated tuberculosis
4) cavernous tuberculosis

178. What clinical form of pulmonary tuberculosis the state of tuberculin anergy in Mantoux test with 2TE PPD-L version is typical for?
1) infiltrative tuberculosis
2) focal tuberculosis
3) caseous pneumonia
4) fibrous-cavernous tuberculosis in disease-free survival

179. In what phase of pulmonary tuberculosis process is the hemoptysis frequently observed?
1) degradation
2) infiltration
3) resolution
4) induration

180. In what clinical form of pulmonary tuberculosis is the hemoptysis and bronchial hemorrhage frequently observed?
1) subacute disseminated tuberculosis in degradation phase
2) focal tuberculosis in degradation phase
3) tuberculoma in degradation phase
4) miliary tuberculosis in infiltration phase

181. The position of a patient with bronchial hemorrhage should be
1) lying on his back
2) half-upright with feet down
3) with raised lower limbs
4) lying on his side

182. What medicines are forbiddent in bronchial hemorrhage?
1) aminocapronic acid

2) heparin
3) vikasolum
4) fibrinogen

183. What are the preparations preventing aspiration pneumonia appearing in consumptives after bronchial hemorrhage?
1) anti-tuberculous anti-bacterial preparations
2) expectorant and antitussive
3) bronchial spasmolytics
4) corticosteroids

184. What is the most frequent reason of death in bronchial hemorrhage?
1) loss of blood
2) aspiration pneumonia
3) asphyxia
4) collapse

185. What clinical form of pulmonary tuberculosis can be complicated with spontaneous pneumothorax more frequently?
1) caseous pneumonia
2) focal tuberculosis in degradation phase
3) miliary tuberculosis in infiltration phase
4) tuberculoma in degradation phase

186. The main method of diagnostics of spontaneous pneumothorax is:
1) clinical
2) roentgenologic
3) percussion
4) auscultation

187. The main way of treatment of spontaneous pneumothorax is:
1) analgesics
2) cardiac remedies
3) aspiration of air in the pleural cavity
4) antitussive means

STANDARD ANSWERS TO THE QUESTIONS OF ACHIEVEMNT CONTROL ON PHTHISIOPULMONOLOGY

1 –2	39 – 3	77 – 2	115 – 1	153 – 2
2 – 4	40 – 3	78 – 4	116 – 3	154 – 3
3 – 2	41 –3	79 – 3	117 – 3	155 – 2
4 – 3	42 – 3	80 – 1	118 – 4	156 – 4
5 – 1	43 – 3	81 – 3	119 – 3	157 – 3
6 – 2	44 – 2	82 – 3	120 – 3	158 – 2
7 – 2	45 – 3	83 – 2	121 – 2	159 – 4
8 – 3	46 – 3	84 – 1	122 – 4	160 – 2
9 – 3	47 – 3	85 – 2	123 – 2	161 – 2
10 – 2	48 – 3	86 – 2	124 – 3	162 – 3
11 – 2	49 – 4	87 – 2	125 – 2	163 – 3
12 – 2	50 – 1	88 – 2	126 – 3	164 – 3
13 – 2	51 – 2	89 – 4	127 – 2	165 – 1
14 – 2	52 – 1	90 – 1	128 – 4	166 – 2
15 – 3	53 – 4	91 – 3	129 – 2	167 – 4
16 – 1	54 – 3	92 – 2	130 – 2	168 – 1
17 – 4	55 –2	93 – 4	131 – 1	169 – 1
18 – 1	56 – 2	94 – 3	132 – 2	170 – 3
19 – 2	57 – 2	95 – 3	133 – 2	171 – 3
20 – 2	58 – 4	96 – 4	134 – 4	172 – 4
21 – 2	59 – 2	97 – 2	135 – 3	173 – 3
22 – 3	60 – 3	98 – 3	136 – 4	174 – 2
23 – 1	61 – 2	99 – 3	137 – 1	175 – 4
24 – 4	62 – 4	100 – 4	138 – 2	176 – 3
25 – 1	63 – 2	101 – 2	139 – 2	177 – 2
26 – 1	64 – 2	102 – 4	140 – 1	178 – 3
27 – 1	65 – 1	103 – 4	141 –4	179 – 1
28 – 2	66 – 3	104 – 4	142 – 1	180 – 1
29 – 3	67 – 4	105 – 3	143 – 4	181 – 2
30 – 2	68 – 4	106 – 2	144 – 1	182 – 1
31 – 2	69 – 3	107 – 4	145 – 3	183 – 1
32 – 3	70 – 4	108 – 4	146 – 2	184 – 3
33 – 1	71 – 3	109 – 3	147 – 3	185 – 1
34 – 4	72 – 3	110 – 3	148 – 2	186 – 2
35 – 3	73 – 1	111 – 3	149 – 3	187 – 3
36 – 3	74 – 3	112 – 4	150 –3	
37 – 1	75 – 1	113 – 4	151 – 3	
38 – 2	76 – 1	114 – 3	152 – 3	

IX. Requirements to competences.

The study of educational discipline «Phtisiopulmonology» must ensure the formation of academic, social, personal and professional competences in students.

Requirements to academic competences

The student has:

AC-1. To be able to apply the basic scientific and theoretical knowledge to solve theoretical and practical problems.

AC-2. To master system and comparative analysis.

AC-3. To master research skills.

AC-4. To be able to work independently.

AC-5. To master interdisciplinary approach in solving problems.

AC-6. Skills associated with the use of technical devices, information management, and work with your computer.

AC-7. To possess the skills of oral and written communication, own professional and scientific vocabulary.

AC-8. To be able to learn, improve their skills throughout their lives.

Requirements for social and personal competences

The student must:

SPC-1. Possess the qualities of citizenship.

SPC-2. Be able to social interaction.

SPC-3. Have the ability to interpersonal communication.

SPC-4. Possess the skills of health preservation.

SPC-5. Be able to criticism and self-criticism.

SPC-6. Be able to work in a team.

Requirements for professional competence

The student should be able:

PC-1. To apply knowledge of the structure and function of the body in health and disease, population-level features of the organization of life.

PC-2. To use knowledge of basic physical, chemical, biological and physiological laws of life of a human body in health and disease.

PC-3. To use knowledge of general and special disciplines to preserve their own health and promote a healthy lifestyle.

PC-4. To carry out preventive measures among the population, including the use of modern information technologies.

PC-5. To provide medical care for the most common diseases, injuries, disorders, including urgent and life-threatening condition of a patient.

PC-6. To use a medical-diagnostic equipment.

PC-7. To use modern methods of diagnosis and treatment of diseases at various stages of care.

PC-8. To apply techniques and methods of rehabilitation treatment.

PC-9. To independently acquire and use into practice new skills, including new areas of knowledge.
PC-10. To use the basic laws of natural sciences in professional work, to apply the knowledge and skills obtained in general subjects for the preservation, restoration and promotion of public health personnel.
PC-11. To apply the skills of professional conduct (ethics), to know and respect the rules of medical ethics.
PC-12. To document the results of preventive, curative and rehabilitative care.
PC-13. To interact with experts of related disciplines.

As a result of studying the discipline «Phtisiopulmonology» the student must

know:

– the history of the doctrine of tuberculosis and control; etiology and pathogenesis, especially allergies, immunity, classification, clinical picture, diagnosis and differential diagnosis of tuberculosis, particularly examination of patients with tuberculosis;
– main clinical manifestations of tuberculosis emergency conditions and their treatment;
– the organization and conduct of early and timely detection of tuberculosis, principles of treatment of patients with tuberculosis at different stages of health care; basics of clinical examination and rehabilitation, principles of prevention and medical and social assessment;
– the organization of vaccination tuberculosis;
– the organization of TB control activities, depending on epidemiological situation;
– the structure, tasks and organization of the TB dispensary, an office; the role of the general practitioner in the system of TB control in the conduct of TB control activities; principles of preventive check-ups;
– principles of treatment of tuberculosis; modern TB control strategy, the State Programme «Tuberculosis»;
– principles of deontology and medical ethics when examining and treating patients with tuberculosis;
– clinical picture, diagnosis and treatment of pulmonary mycobacteriosis;
– classification, clinical picture, diagnosis, treatment of sarcoidosis of the respiratory system;

to be able to:

– collect anamnesis, carry out an objective examination of a patient with pulmonary tuberculosis and some extrapulmonary forms, make the plan of inspection, identification on plain film of the chest symptoms of tuberculosis and execute protocol radiographic examination;
– appoint a primary and secondary survey methods to assess the results of laboratory and instrumental methods of research;

– formulate and validate a clinical diagnosis of tuberculosis;
– prescribe the main course of chemotherapy;
– identify adverse reactions to anti-TB drugs, prescribe treatment and to prevent adverse reactions;
– define indications for chemoprophylaxis of tuberculosis;
– conduct intradermal tuberculin Mantoux test and take account of its results;
– determine the indications for lumbar puncture, evaluate the results of the study of cerebrospinal fluid;
– determine the type and degree of the danger of an epidemic outbreak of tuberculosis infection and prepare a plan of measures for its improvement;

to master:

– the method of clinical and laboratory examination, principles of treatment of patients with tuberculosis;
– methods of emergency treatment of pulmonary hemorrhage, spontaneous pneumothorax;
– methods of prevention of tuberculosis;
– the method of setting and taking into account the results of tuberculin tests;
– the method of differential diagnosis of tuberculosis with non-tuberculous disease;
– the modern methods of infection control;
– skills to organize health education of the population.

CONTENT

Educational Edition
Budritsky Alexander Michailovich
Vasilenko Natallia Vladimirovna
Pravada Nataliya Sergeevna

METHODICS INSTRUCTIONS FOR PRACTICAL TRAINING

Study-guide in Phthisiopulmonology

Editor N.Yu. Konevalova
Computer makeup M.A. Kornilova
Corrector A.M. Budritsky

Passed for printing _____ Paper format 64x84 1/16.
Typographic paper №2.
Typeface TIMES . Condition of printed sheet _____
Ed.-pub. l. ___. Number of printed copies _____Order № _____

Publishing and polygraphic process:
EI “Vitebsk State Medical University”
ЛИ № 02330/453 dated 30.12.2013.
Frunze Av. 27, Vitebsk, 210023