Tuberculosis

Healthcare

Keywords: tuberculosis, bacilli Kok (BK), clinical signs, amnesis, etc.

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Abstract

Tuberculosis is a disease known since ancient times. It is mentioned for the first time in the Code of Hammurabi in Babylon 2,000 years before the birth of Christ. Even in the year 5000, in Egyptian mummies were found tubercular injuries in the vertebral column. Tuberculosis is also known by the name white plague. By TB were affected not only poor people but also kings, politicians, doctors, scientists, artists, philosophers. From TB died the king of England Edward VI, King of France Louis XVII, Cardinal Rishelie, Napoleon II, F. Kafka etc. On 28 March 1882 the German scientist Robert Kok discovered the cause of tuberculosis "mycobacterium in of tuberculosis. Honoring the scientist the bacteria was called Kok. The branch of medicine that is concerned with the study and treatment of tuberculosis is called Pulmonology. It comes from the Greek word phthisis (to spit) and jatros (doctor). For this reason doctors who deal with these patients were called pulmonologist. Later, the treatment of tuberculosis was included with those of other lung diseases.

History of tuberculosis in Albania

Before the liberation of the country from the Nazi invasion in WWII, tuberculosis in Albania was a widespread disease, which mainly affected lower social classes. It affected more kids and teenagers and caused many deaths. Thus according to a 1936 statistic, the five diseases that most frequently caused death in Albania were: tuberculosis,syphilis, malaria, variola,Alcohol dependence. The first Albanian doctor who was specialized in pulmonology is Dr.Petraq Leka. After 1944 the service against tuberculosis began to be organize. The first Sanatorium for tuberculosis was opened in Korca in 1946. In 1947 in Tirana it was opened the first dispensary against tuberculosis. In 1948 he opened sanatoriums in Tirana and Shkodra.In 1957 the Sanatorium of Tirana developed into the Institute to fight tuberculosis. In 1983 Service ftiziatrise joined with that of pneumology and renamed Institute Ftizio-Pneumology. In 1993 he was involved in the University Hospital Center "Mother Teresa" where tuberculosis is included in the service of pneumology.The etiology of tuberculosisThe cause of tuberculosis in humans is the mycobacterium of tuberculosis, or as it is called bacilli Kok (BK), in honor of Robert Kok. This bacterium is part of the family akinomycets in mycobacteria genre and located in three main types: Human type (The man)' Bovine type (cow') Avian type (Bird).Human type is the most common cause tuberculosis. Anaerobic bacteria Kok is mandatory, it is a rod shaped, with 1-5 micron size, resistant to alcohol. It does not form spores or ciliates. To develop the BK needs temperature 37 degrees, it does not multiply out in temperatures less than 29 degrees and greater than 40 degrees. In temperatures of 100 degrees it dies for 5 minutes, but at lower temperatures it resists more. In dry spit it lives 6- 8 months, with infected spit it survives 2-3 months; in the air it stays 8-10 days. In sunlight it lives 1-2 hours. BK needs more cold temperatures and oxygenated areas.

Pathogenesis tuberculosis

Falling in contact with the human organism with BK can cause tubercular infection or TB disease. 80% of new TB cases are caused by contact with the patients with positive BK or BK culture. For that two conditions must be met:The presence of -mycobacterium tuberculosis with high severity, large quantities and their frequent contact with the body.The human body with decreased immunological resistance.The main source of tubercular infection is the sick patient with open forms of infection. The disease is spread mainly by air ways, which is realized by means of saliva spittle by BK-positive sick patients to a healthy person and rarely through other materials which contain BK. A patient ill with TB at a TB cavern with a 2cm magnitude has 1-2 million bacilli, while spittle particles that spread during coughing, sneezing, speaking, and singing contain 1-400 bacilli. This disease often affects infants during their two first years of life, teenagers and the elderly. In rare cases as a source of infection, may serve sick animals with tuberculosis, as the use of unboiled milk from cows taken sick with TB. In special cases, the disease can be taken from birds.BK can:be destroyed by the immune system of the organism,To multiply and cause the disease of tuberculosis,To remain for a long time asleep,After a latency period it can be activated.

Latent tuberculosis infection

Latent tuberculosis infection is an equilibrium between the body and a calm tuberculosis infection, which can remain stable or break from the arrival of BK from outside causing tubercular infection or go toward tuberculosis as a disease.The steps of tuberculosis development are:Initial infection,Latent infection'Re-burst.Latent tuberculosis infection develops in cases where a healthy person comes into contact with BK and immunological changes occur in the organism that are evidenced through the positive tuberculin positivity. Latent tubercular infection can be of different types:First tubercular infection is called if BK falls for the first time in contact with a healthy body. In this case it takes about 6 weeks for immunologic changes to happen and tuberculin test to be positive.Repeated tubercular infection is called if BK has come into contact with the body other times. Here are included: over- tubercular infection; when BK falls in contact with an organism which has been previously infected and still contains live BK,Re- tubercular infection; when BK enters a body which has been previously infected, but is fully recovered.To cause infection Bk must enter the body in different ways: Exogenous; when BK enters the body from outside by establishing tubercular foci. Street exogenous infection first occurs in tubercular and in re- tubercular infection. A positive BK SICK patient through spittle's can

infect 10-15 other people.Endogenous; when BK is activated by tubercular homes which are in the body, as a result of a last condition of tuberculosis.Changes that occur in the body during latent tubercular infection or TB disease are associated with the presence of BK and other factors affecting the body's immunological status. In some people the disease may develop within the first year of tubercular infection, whereas in others after many years. Immuno-biologic changes that occur during the development of tuberculosis are expressed by means of allergy and immunity, which have been noted for the first time by Robert Kok. During the first tuberculous infection in the body is created a condition called sensitivity. This sensitivity develops when the body has BK and antibacterial genes related to the BK's. The degree of tuberculin sensitivity changes and it can be noted through tuberculin evidence. Allergies are created as a hyper-sensitiveness of a long overdue within 3-12 weeks (average 6 weeks), depending on the amount of BK, his virulence and frequency of contacts with BK.Sensitivity is linked to the presence in the body of the BK alive or dead. Tuberculin weakened sensitivity goes to extinction if we repeatedly inject into the body by increasing tuberculin dose or doses of BCG progressive, but with their termination tuberculin sensitivity is back and over time can be noticed it's weakening.In the elderly tuberculin sensitivity does not always coincide with the level of activity of tubercular process, because there are times that active processes do not coincide with a higher response of sensitivity or vice versa.According to the intensity allergy may be:Norm gene; when the body responds normally to tubercular infection.Hyperergy; when we are dealing with increased reaction of the organism to the infection.Anergy; when the body does not respond to the infection.If the organism acquires resistance to the tubercular infection we can say that it has acquired immunity. This immunity is cell type. Over- infection immunity is created after passing the first tubercular infection. It is linked to the presence in the organism of alive bacillus. It is cellular immunity and it is not transmitted from mother to child or from an individual to another. This immunity is never complete and depends on a number of factors:Time of the first tubercular infection, which begins 5-6 weeks before, grows little by little and continues for as long as there are alive BK.Virulence of the first BK tubercular infection, the more virulent bacilli are the more expressed immunity is.Doses of bacillus of the over- tubercular infection, a large amount of bacilli can lead to weakening of the immunity. Frequency of contacts with BK, frequent contacts with them can weaken the creation of immunity.Immunity to tuberculosis formed after passing a tubercular disease or after vaccination with BCG. The phenomenon of immunity creation in tuberculosis by preventing the multiplication of bacilli, their diffusion and destroying them by means of macrophages, which act prohibiting their multiplication. Immunity against tuberculosis is cellular immunity, and is expressed by macrophages and cannot be transferred passively through antibodies. Humoral antibodies do not play a role in immunity against tuberculosis.

Tuberculosis as a disease

Tuberculosis as a disease that develops when the body infected with BK, immunological changes occur and histopathological changes, bacteriological for BK, X-ray, clinical and laboratory. BK causing tuberculosis disease can enter the body by endogenous or exogenous paths. When tuberculosis develops for the first time in an organism infected by BK, primary tuberculosis is developed. When it takes place in an organism, which has passed earlier this illness we can say that we are dealing with secondary tuberculosis. To develop TB disease the human body must fulfill the following conditions:Germs of tuberculosis (BK) in sufficient quantitiesHigh virulence and frequent contact with the bodyThe existence of an organism with reduced immunological resistance.In the development of TB affect: Economic, social and cultural conditionsIllnesses that lower the body defenses as AIDS / HIV, influenza, diabetes mellitus, malignant diseases, alcoholism, tobacco use.Not making the BCG vaccineTuberculosis disease is not inherited. It affects more people of the African race and is not related to heritage, but to economic and social conditions.Above we mentioned that primary tuberculosis develops in a body that haven't passed before any form of tuberculosis. In this case BK enters the body through exogenous paths (usually through the respiratory tract). But we are deal with secondary tuberculosis when the organism which is affected by the infection has passed before a primary form of TB. In this case the bacterium can enter the organism in exogenous paths (from over- tubercular infection) or endogenous path (as reactivation of a previous TB).In secondary tuberculosis Bk can spread in the organism in different ways: For continuitatem when dealing with contact with the part of the area affected by TB:Kanalikilare where the path enters through bronchiole;Lymph gene, path through the blood lymph; Hematogenous, through the blood.

Complaints of patients with pulmonary tuberculosis

Patients with pulmonary TB complain for: Cough→ cough is present in most of the patients. It is dry and the afflicted gets upsets since the beginning of the disease, or the start of treatment it calms down. Sometimes it can be accompanied by phlegm. When damaged, pulmonary parenchyma cough is accompanied with blood (hemoptysis) General weakness → patients complain that although they perform only everyday activities, theexperience general weaknesses they are unable to explain. Temperature → It may be sub febrile, or to achieve high values only in the afternoon. Temperature does not lower by the use of AIJS but by the use of antituberculosis. Sweating →Patients complain about numerous sweating at night, especially during sleep.Anorexia → This is observed in most patients. There are occasions when the patient complains for anorexia since the first stages of the disease.Weight loss → Anorexia weight loss leads to loss of body weight.Pain in the chest → this concern arises where tubercular process has affected pleura and pain lies in deep breath.Difficulty in breathing → this complaint appears when you are affected by both pulmonary disease and respiratory surface is significantly reduced. From TB can be affected except pulmonic, even tissues and other organs, so patients can complain for headaches associated with vomiting (as in meningitis tuberculosis), pain finishing (when the infection also affects them, etc.).For the first signs of the disease to appear are needed 3-6 weeks after the first contact of the body with bacilli Kok.

Diagnosis

Diagnosis of tuberculosis is decided through:Clinical signs presented by the patient.Anamnesis → It should be sought source of infection, if there was sick in the family, at work, at school. If the patient has had contact with sick patients, or whether previously suffered from tuberculosis. Here should be paid important attention to the treatment he has received. The question of whether he suffered from frequent diseases of the respiratory apparatus because they create appropriate conditions for the emergence of TB. Also have received and histories of past illnesses or other medications that may have been used.Examination objective (inspection, palpation, percussion, auscultation) Examination Imaging (X-ray, TC, RM, ultrasonography) bacteriological examinationTest the tuberculin.

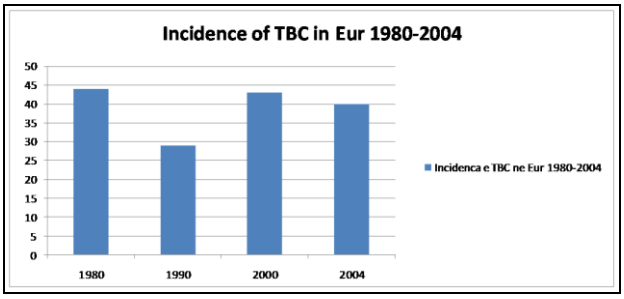
Treatment

Treatment of TB is realized through these medicines:Isoniazid,Rifampicin's,Pirizinamidit,Etambutolit,Streptomycin.

Epidemiology of tuberculosis: In the development and spread of tuberculosis play a role:The body's immune Forces;Infectious agent with its features;Social-economic state; Organization of the health system.From the epidemiological point of view, tuberculosis is developed in three phases:The first phase or epidemic phase;The second phase or transition phase;The third phase or endemic phase.TB epidemic phase has a massive nature and causes multiple deaths. At this stage prevail severe forms of tuberculosis. In the second phase new tuberculosis cases are reduced if improved conditions affect its development. TB endemic phase, meet in designated areas and groups of people with the risk of being ill from tuberculosis.

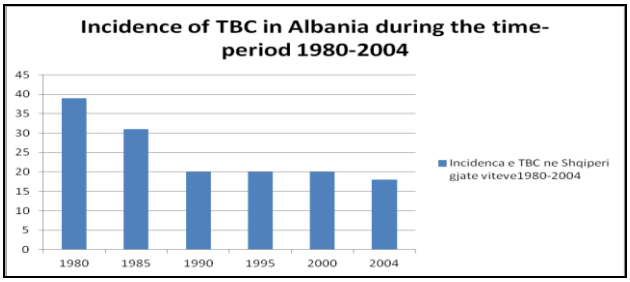
New cases with tuberculosis in Europe for the time-period 1980-2004

Year	1980	1990	2000	2004
Europe	44	29	43	40



Incidence of tuberculosis is some countries of the Balkans during the time-period 1980-2004

Country	1980	1985	1990	1995	2000	2004
Albania	39	31	20	20	20	18
Bulgaria	37	29	26	39	42	39
Greece	56	16	9	9	6	6
FYROM	-	-	-	40	32	32
Serbia and Monte Negro	65	63	41	27	27	34
Croatia	91	81	57	45	36	26
Rumania	61	56	70	103	124	131



Cases with Bk positive according to the age and gender for the year 2004

Group-age	Males	Females
0-14	2	5
15-24	12	12
25-34	12	19
35-44	8	21
45-54	11	24
55-64	10	23
65 +	22	20

Prophylaxis of tuberculosis

Since tuberculosis is an infectious disease that spreads mainly by air ways, its prophylaxis has an important role. Preventive measures are related to: The economic and social level; Tuberculosis epidemiological state.

Organizing the fight against it

The best prophylaxis of tuberculosis is early detection and treatment. Prophylactic measures are:Controlling in tubercular foci;Vaccination with BCG;Chemo-prophylaxis;ncreasing knowledge and health culture on tuberculosis.

Depisting in tubercular foci: When in a family is discovered a case of tuberculosis than all family members who have had close contact with the patient should undergo necessary examinations by a specialist. This helps in early screening of new cases of tuberculosis in the family and avoiding the source of infection from family members to treat the sick person.

Vaccination with BCG: This vaccine was used for the first time in 1920. In 1921 it became the PO, but later subcutaneous, injecting 0.1ml vaccine in the subcutaneous wing (in the area of musculti Deltoid). After 6-10 weeks in the skin remains a scar of 7mm, which serves us to evidence many years later if BCG vaccine was made. It is a live vaccine, attenuated, that is prepared by BK-type strain Bovine. The vaccine is made at age 12 months (vaccination basalt) and 6 years (revaccination). If the basic vaccination is done before the tuberculin intradermoreactionin, revaccination is done when tuberculin intradermoreaction results negative.

Chemo-Prophylaxis: Means the provision of drugs against tuberculosis for prophylactic purposes. Prophylaxis- recommended:in persons whom tuberculin test turns from negative to within 2 yearsin persons to 20 years old with tuberculin hypergy,for infants who have contact with sick family active pulmonary tuberculosis,to elderly tuberculin IDR greater than 15mm, but previously had negative tuberculin evidence,in HIV positive when tuberculin IDR is greater than 10mm,in when the patients suffered from pulmonary tuberculosis, but he actually has other diseases (diabetes mellitus, renal insufficiency, etc.),For this purpose usually is used isoniazid and rifadina.

Increasing knowledge of health cultures for tuberculosis: This is done through print and electronic media, brochures, conversations with groups of people, with school students, leaflets etc.

Continuity and prognosis of tuberculosis: The performance of tuberculosis depends onCharacteristics of BK, Features of the receptive organism, The diagnosis, Economic-social state, The necessary treatment, The level of health culture, Take prophylactic measures.

Organization of the fight against tuberculosis: Prognosis is good if TB diagnosis and treatment is timely and done in an appropriate manner.Ability to work in tuberculosisTo determine the working ability of the patient affected by tuberculosis rely on:Former clinical tuberculosis' BK Positivity'Profession'Age'Years of work'Results of treatment'Functional state of pulmons or other affected organs.Pulmonary tuberculosis rarely leads to disability, and it often becomes osteoaartikular disability.

TB disease leads to disability when:When treatment with antituberculosis fails When pulmonary function is severely impaired or when damaged joints and bones more.Although 10-14 days after the initiation of antituberculosis treatment tuberculosis patients turn into non-infective, the treatment should continue till the end. The main criterion that determines the patient's ability to work is negativism of the tubercular process.

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