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An Overview On Tuberculosis

Mutkule Jaydatta, Sagade Yogesh, Bhapkar Sachin , Suraj Bhapkar , prathmesh vanve

1 to 5 students , SAJVPM'S College Of Pharmaceutical Science And Research Centre, Kada (Beed),
Maharashtra, India

Abstract:-

Tuberculosis (TB) is an airborne infectious disease caused by bacteria which is Mycobacterium Tuberculosis. Tuberculosis Firstly affects the lungs, but it can also spread to other parts of the body. Around 90 to 95 % infections show no symptoms, in which case it is called as latent tuberculosis. Around 8% of latent infections progress to active disease.

Tuberculosis is spread from person to person through the air when people with active pulmonary tuberculosis cough, spit, talk, or sneeze.

People with Latent tuberculosis do not spread the disease. Other names of tuberculosis is Phthisis, phthisis pulmonalis, consumption, great white plague. Patients with active symptoms will require a long period of treatment involving multiple antibacterial drugs. There is no chance to survive without treatment in TB. TB skin test (TST) and TB blood tests is used for diagnosis of TB. Although the Bacillus Calmette–Guérin (BCG) vaccine is used in global level, mainly to prevent life-threatening TB in infants and young children. TB still a major global cause of disease and death. These small drop remain suspended in the air for up to several hours.

However, Mycobacterium tuberculosis is transmitted through the air, not through surface contact. This means that it is not transmitted by contact unless the infection is inhaled. However, Mycobacterium tuberculosis is transmitted through the air, not through surface contact. This means that the infection can not be spread through contact unless inhaled.

Index terms :-

Tuberculosis , TB , Mycobacterium , BDG Vaccine

Introduction:-

TB is the leading cause of death in whole world from an infectious disease among adults and has been considered a global public health emergency for the past 25 years. Globally, an estimated 10.0 million people take sick with TB in 2018. There were an estimated 1.2 million TB deaths among HIVnegative people in 2018 and an additional 251,000 deaths among HIV-positive p During the epidemic period, clinicians still need to follow up, treat, and manage patients with TB, which is a major challenge for clinicians and patients with TB.

In 1882, Robert Koch discovered the causative agent of tuberculosis (TB), bacterial infection caused by bacteria of the Mycobacterium tuberculosis complex. In 2016, TB continues to be a major cause of death, primarily in low-income and middle-income countries. Standard treatment for TB comprises four first-line antibacterials: isoniazid, rifampicin, pyrazinamide and ethambutol. Resistance to all drugs can occur. TB disease experience general symptoms, such as fever, cough more than 3 weeks, fatigue, lack of appetite, weight loss, chest pain, breathing difficulty, fluid around lungs. Normally, persons at high risk for developing TB disease fall into two types: Persons who have been recently infected with TB bacteria; Persons with medical conditions that weaken the immune system. Tuberculosis (TB) is transmitted from an infected person to a susceptible person in airborne particles, called droplet. These infectious droplets are small water droplets with the bacteria that are released when persons who have active tuberculosis cough, sneeze, laugh, shout, saliva etc. However, Mycobacterium tuberculosis is transmitted through the air, not through surface contact. This means that the infection cannot be spread through contact unless inhaled. However, Mycobacterium tuberculosis is transmitted through the air, not through surface contact. This means that the infection cannot be spread through contact unless inhaled.

History and origin:-

It has been assumed the genus Mycobacterium originated 150+ million years ago. In the same period, archaeological evidence for early tuberculosis, including pot malformations, was provided from Peruvian mummies in the Andean region, suggesting that disease was even present. Before the colonization of the first European pioneers in South America [15] Hippocrates described Phtisis as a fatal disease especially for young adults, accurately defining its symptoms and the characteristic tubercular lung lesions. Excellent discoveries of the early scientists who studied TB were made in the same period: in Greece, Isocrates was the first author supposing that TB was an infectious disease, while Aristotle suggested the contagious nature of "king's evil" in boars and oxen. He recommended fresh air, milk and sea voyages as successful treatments for the disease [20-22].

Causes and risk factors:-

Generally, persons at high risk for developing TB disease divided into two types:

1) Persons who have been lately infected with TB bacteria

- Close contacts of people with infectious TB
- Immigrants from high-TB areas of the world
- Children under the age of five who test positive for TB
- People with high rates of TB, such as the homeless, Group drug users and people living with HIV
- Work with people at increased risk of tuberculosis in settings or facilities such as hospitals, homeless shelters, correctional facilities, nursing homes, residential facilities for people living with HIV, or people living together.

2)Persons with disease condition that weaken the immune system

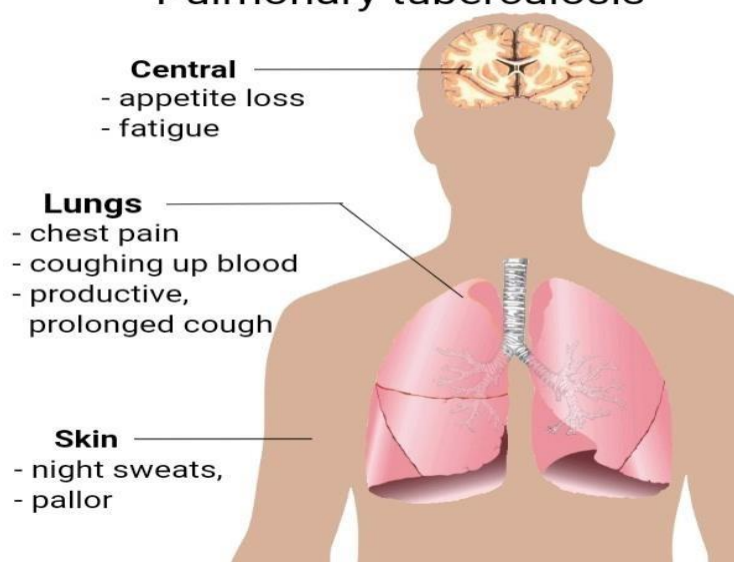
- HIV (AIDS)
- Substance abuse
- Silicosis
- Diabetes mellitus
- kidney disease
- Low body weight
- Organ transplants
- cancer
- Medical treatments such as corticosteroids
- Special treatment in rheumatoid arthritis and Crohn's disease

Symptoms:-

- Cough- more than 3 weeks
- Fever
- Unexplained weight loss
- Loss of appetite
- Fatigue
- Pain in chest
- Breathing difficulty
- Fluid around lungs



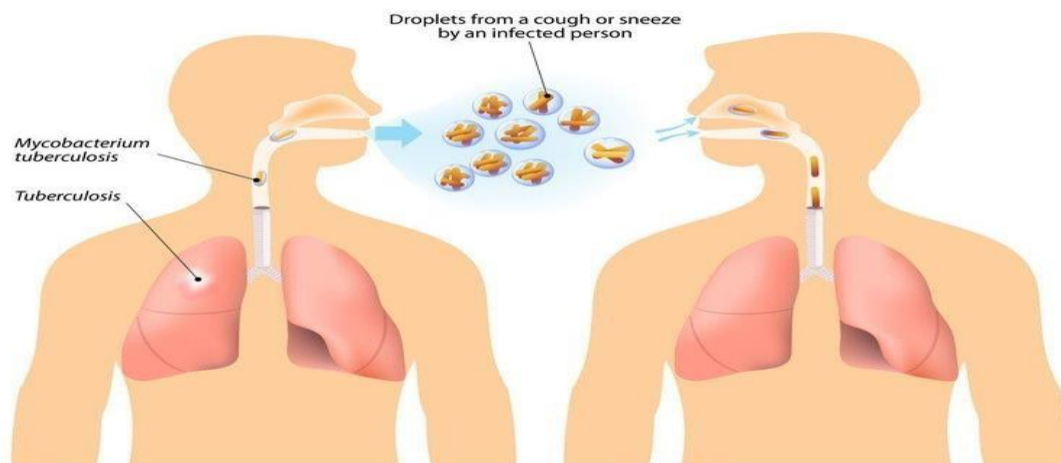
Main symptoms of Pulmonary tuberculosis



Transmission of TB:-

- Droplet of injection through saliva or mucus
- Droplet may contain upto 400 bacteria
- Can suspend in air for many hours
- Inhalation of bacteria or trapping in distal airway • Infection can spread to other organs

TUBERCULOSIS



Stages of infection:-

The three stages of TB are:

- Primary infection.
- Latent TB infection.
- Active TB disease.

1) Primary:- Exhibit symptoms 1 to 2 weeks after entry of microorganisms.

2) Latent:- Bacteria elongated by macrophages lives in dormant phase, there is no symptoms of disease and also no spread of disease

3) Active:- where as your immune system weak germs will multiply and make you sick also spreading of disease is possible.

Prevention:-

As with all health conditions TB prevention is always better than cure. At present, there is no fool proof way to completely prevent the spread of tuberculosis, but there are many measures that can help limit the spread of the disease. BCG Vaccine BCG (Bacille Calmette-Guérin) is a live vaccine against tuberculosis. The vaccine is made from a strain of *Mycobacterium bovis*, which is attenuated. BCG is only currently licensed tuberculosis vaccine and has been in use since 1921. Although it is one of the most widely used vaccines in the world, it causes about 9 million new cases of tuberculosis each year. This is a testament to the limited efficacy of BCG.

.BCG is:

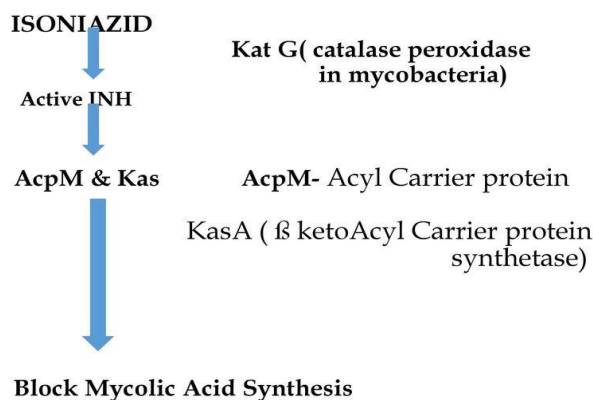
- 80% TB prevention over 15 years
- More effective in complex forms of childhood TB
- Limited efficacy in people over 35 years of age
- Less effective when administered in equatorial areas (Naturally occurring environment up to high concentrations of mycobacteria)

Treatment:-

Tuberculosis infections and illnesses are treated with the following medicines:

Isoniazid
Rifampin
Ethambutol
Pyrazinamide
Rifapentine

You must take these medicines as long as you are told - sometimes for up to 9 months. The species tuberculosis has become drug-resistant. It is very important and likely that doctors use multiple drugs to treat tuberculosis. It is very important to complete the entire recipe.

MOA of Isoniazid:-**Reference:-**

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