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TUBERCULOSIS: Early Diagnosis And Treatment

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Introduction

Although there are measures in place to control TB cases in the UK, TB is prevalent and has high morbidity and mortality rate. This issue is due to failure to identify and treat the disease as early as possible, especially in the latent stage. The late diagnosis of the disease causes delay in treatment which may result in complications or even death. Also, TB cases have been recorded among foreign-born and immigrants who are vaccinated, but some of these immigrants are not screened as required. Therefore, nurses should be knowledgeable and be equipped to assist TB patients during treatment (Furlan, Marcon, & Silva, 2014).

Underlying Pathophysiology

Tuberculosis (TB) is a contagious disease which usually affects the lungs and can spread to affect the kidney, spine, and other organs, and it is caused by a bacterium known as the mycobacterium tuberculosis (CDC, 2016). The mycobacterium tuberculosis is spread by airborne inhalation when an infected person coughs, sneezes, or talks (Amerena, 2017). The bacterium is估imated and may settle in the alveoli of the lungs, and the immunological reaction may vary from 2 to 10 weeks (Amerena, 2017). Majority of the tubercle bacilli are destroyed by the alveolar macrophages through ingestion. The remaining bacilli which may live will then multiply and spread to other organs through the lymphatic system and the blood stream (CDC, 2016). There are two stages of the disease, the latent TB stage where an individual is affected by the bacteria for a longer period but is not infectious and do not show any signs and symptoms of the disease, and the active TB stage where the individual shows signs and symptoms of the disease. According to Amerena (2017), about 10% of individuals in the latent phase can develop quickly to active TB if they become immune compromised.

In the latent tuberculosis infection (LTBI), the bacilli is ingested by the macrophages and the immune system or the white blood cells kills or encapsulate majority of the bacteria which forms the granuloma (CDC, 2016). Therefore individuals in the LTBI stage
- Do not have the TB disease
- Cannot spread the TB disease
- May not enter for symptom or culture
- Will react positive to the Mantoux tuberculin skin test
- Will have normal chest X-ray
- Can receive treatment to prevent active TB (CDC, 2016).

To screen for TB, the Mantoux tuberculin skin test is used. It is a basic diagnostic test in the evaluation of TB infection. It is based on the delayed-type hypersensitivity response of the immune system of an individual to mycobacterial antigens. According to the American Thoracic Society (ATS) guidelines, IFUPE, 12(11), 2994-3000, 2014, the skin test will help in the control of the disease.

Symptoms

Tuberculosis may spread and affect other parts of the body like the bone or spine, the lymph nodes, the kidney, and the brain. The development of the disease in other organs may cause some specific symptoms such as back pain in patients with TB of the spine, and hematuria in patients whose kidneys are infected.

Signs And Symptoms

Indicators in the latest stage do not show any signs and symptoms. Signs and symptoms observed in the active phase include:
- Persistent cough
- Fever
- Loss of appetite
- Weight loss
- Night sweats
- Haemoptysis
- Chills
- Chest pain

Nursing Implications

It is necessary for the advanced practice nurse to understand the pathophysiology of the disease so that they can:
- Make early diagnosis
- Initiate treatment as early as possible
- Monitor TB patients to detect changes and complications
- Address patient’s concerns related to treatment
- Follow guidelines in creating their TB screening policy
- Provide adequate education for the patient and the community
- Ensure presence and policy in screening patients especially foreign-born patients

TB test

Cases of TB may be identified by testing infected individuals. According to Amerena et al., 2014, which include using the appropriate personal protective equipment (PPE), TB test and screening policy and guidelines, and postexposure screening and testing (Sema et al., 2019). One factor which facilitates the late diagnosis and treatment of TB is the issue of self medication and drug adherence (de Gouveia de Oliveira et al., 2019). The issue of medication adherence may be due to the duration of treatment and adverse reactions associated with the medications. It is therefore necessary for nurses to establish good rapport with the patient and their families to enhance treatment adherence.

Tuberculosis

Tuberculosis control and eradication in the U.S. have been successful but in a slow pace. Diagnosing TB disease as early as possible will help in the control of the disease. Screening plays a major role in the early detection of TB. According to (Singer, Nuepper, & Jenkins, 2017), both federal and state should incorporate the CDC guidelines in creating their TB screening policy especially TB screening policy for foreign-born and immigrants. Also, every TB case will help in controlling the disease in the communities. Early diagnosis and treatment, monitoring TB patients, educating the community, and appropriate TB screening policy will contribute in eradicating TB. Additional Sources

Conclusion


