
SYNOPSIS

Dissertation Topic:

“To study the impact on early diagnosis and monitoring of tuberculosis progression”

Guided By:

**Dr. Sudhinder Singh Chowhan
Associate Professor
School of Pharmaceutical Management**

IIHMR UNIVERSITY, JAIPUR

**Submitted by: Name: Rakshita karambelkar
Roll number:- 0423**



TITLE

“To study the impact of early diagnosis and monitoring of tuberculosis progression”

Abstract:

Tuberculosis is a bacterial infection caused by *Mycobacterium tuberculosis* that infects lungs. People infected with this bacteria remain in inactive or latent TB stage which gets activated over the months or years after being exposed. Correct diagnosis of tuberculosis is important for patient and public health. Imaging plays a very important role in the diagnosis and treatment of tuberculosis.

Chest X-ray remains the primary imaging modality for pulmonary tuberculosis, while computed tomography, magnetic resonance imaging, and nuclear medicine techniques, including positron emission tomography/computed tomography, are very useful in evaluating both pulmonary and extrapulmonary tuberculosis. Diagnosing extrapulmonary tuberculosis is sometimes difficult. Magnetic resonance imaging (MRI) is the preferred method for the diagnosis and evaluation of tuberculous spondylitis. MRI is considered better than CT in the detection and evaluation of central nervous system tuberculosis.

Introduction:

There are various imaging techniques which are used for diagnosing tuberculosis (TB). There are so many complexities associated with diagnosing TB, emphasizing on the significance of early and accurate diagnosis for successful treatment. Chest radiography is used as the most important method for diagnosing pulmonary TB. However, it acknowledges the growing importance of other imaging modalities. There are various imaging modalities used for diagnosing different forms of tuberculosis. Tuberculosis is a bacterial infection that can spread to many parts of the body. Early and accurate diagnosis is crucial for effective treatment of tuberculosis.

Literature Review

The study is used to review various imaging modalities employed to diagnose different forms of TB. It underscores chest radiography as the mainstay for diagnosing pulmonary TB. However, for diagnosing extra pulmonary TB and obtaining a more comprehensive characterization of pulmonary TB, CT scans are preferred. It also mentions the utility of MRI in diagnosing TB of the spine and central nervous system, while acknowledging the potential of PET/CT for assessing treatment response. The article emphasizes the significance of imaging in diagnosing TB, as diagnosing TB solely based on clinical suspicion can be challenging. It discusses several imaging modalities used for diagnosing TB, including chest X-rays, CT scans, MRIs, and PET scans. Each modality has its own advantages and limitations. Conventional chest X-rays remain the most prevalent imaging modality for diagnosing pulmonary tuberculosis. However, other imaging modalities are sometimes necessary to diagnose extra pulmonary tuberculosis.

Aim and Objective:

- To find out what advanced imaging methods are used for early diagnosis of tuberculosis.
- What is the impact of using advanced imaging method.

Research Methodology:

1. Research Design:

Exploratory study followed by descriptive study design using secondary data from different databases.

2. Data Collection:

Secondary data sources will be used to gather information on that what are the various advanced imaging methods that are used for the early diagnosis and monitoring of tuberculosis progression and also provide information about the impact of using these techniques.

3. Data Analysis:

With the observations from the review literature we will do analysis by using certain data on impact of advanced imaging methods on early diagnosis and monitoring of tuberculosis progression.

Conclusion:

This main aim of this study is to lay emphasise on the importance of imaging techniques in diagnosing TB. Chest radiography remains the primary tool for diagnosing pulmonary TB. However, other imaging modalities like CT, MRI, and PET/CT can be helpful in diagnosing extra pulmonary TB and providing additional information for pulmonary TB diagnosis.

References:

1. Burrill J, Williams CJ, Bain G, Conder G, Hin AL, Misra RR. 2007. Tuberculosis: A radiological review. *Radiographics* 27: 1255–1273.
2. Engin G, Acunas G, Tunaci M. 2000. Imaging of extrapulmonary tuberculosis. *Radiographics* 20: 471–488..