



International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 5 | Issue 1 | Jan - Mar - 2017
www.ijamscr.com

Research article

Medical research

Stuedy and evaluation of adverse effect on Anti-Tuberculosis drugs

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ABSTRACT

A bacterium called Mycobacterium Tuberculosis causes TB. There are a variety of TB strains, and some are resistant to medication. Tuberculosis is usually preventable and curable under the right conditions. The study was conducted in Tiruvalla and conducts the patient counseling on tuberculosis patient. It concluded that the patient counseling was effective to controlled the adverse effect of Anti-TB drugs and improve the health.

Keywords: Adverse effect, Tuberculosis

INTRODUCTION

TB is an airborne disease caused by the bacterium Mycobacterium tuberculosis (M. tuberculosis) [1] M. tuberculosis and seven very closely related mycobacterial species (M. bovis, M. africanum, M. microti, M. caprae, M. pinnipedii, M. canetti and M. mungi) together comprise what is known as the M. tuberculosis complex. Most, but not all, of these species have been found to cause disease in humans [2, 3]. M. tuberculosis organisms are also called tubercle bacilli. Infection occurs when a person inhales droplet nuclei containing tubercle bacilli that reach the alveoli of the lungs. [4, 5] These tubercle bacilli are ingested by alveolar macrophages, the majority of these bacilli are destroyed or inhibited. A small number may multiply intracellular and are released when the macrophages die. If alive, these bacilli may spread by way of lymphatic channels or through the bloodstream to more distant tissues and organs (including areas of the body in which TB disease is most likely to develop: regional lymph nodes, apex of the lung, kidneys, brain, and bone) [6-8] This

process of dissemination primes the immune system for a systemic response. Pulmonary TB disease most commonly affects the lungs; this is referred to as pulmonary TB. Patients with pulmonary TB usually have a cough and an abnormal chest radiograph, and may be infectious. [9-12] Although the majority of TB cases are pulmonary, TB can occur in almost any anatomical site or as disseminated disease. Extrapulmonary TB disease occurs in places other than the lungs, including the larynx, the lymph nodes, the pleura, the brain, the kidneys, or the bones and joints. In HIV-infected persons, extrapulmonary TB disease is often accompanied by pulmonary TB. Persons with extrapulmonary TB disease usually are not infectious unless they have pulmonary disease in addition to Drug-resistant TB disease can develop in two different ways, called primary and secondary resistance. [8-10] Primary resistance occurs in persons who are initially infected with resistant organisms. Secondary resistance, or acquired resistance, develops during TB therapy, either because the patient was treated with an inadequate regimen, did not take the prescribed

regimen appropriately, or because of other conditions such as drug malabsorption or drug-drug interactions that led to low serum levels [12-15]

AIM&OBJECTIVE

- ✓ The aim of the study was to evaluate the adverse effects of anti-tuberculosis drugs during treatment.
- ✓ Types of Tuberculosis and its distribution.

Plan of work

The entire work was carried out for a period of 6 months. The proposed study was designed in three different phases to achieve the objective. Phase 1 for Literature survey, Phase 2 for patient selection, patient interview and data collection and phase 3 for evaluation of data and report submission.

Study Criteria

It consists of **Inclusion criteria**: Both male and female TB patients who have age above 10 years old. And **Exclusion criteria**: Age below 10 years old and Multi drug resistant tuberculosis patients.

METHODOLOGY

The patients selected from Tertiary care hospital, Tiruvalla. Data is collected from interview the patients those who identified tuberculosis in a Direct observed therapy of short course (DOTs) Centre.

- Data such as demographic details, disease classification occupation, type of patients, past history of tuberculosis, category of treatment and weight of the patients.
- Patients were interviewed and evaluate life style, family history, literacy status associated diseases, awareness about disease, and symptoms of the patients at the time of admission. (Using a Questionnaire)
- Collect the adverse effects of anti-tubercular drugs during the treatment.

Statistical analysis

Difference between categorical variables were compared and analyzed by using the Fischer's Exact test and Paired t test a two sided P value <0.05 was considered as statically significant.

RESULTS

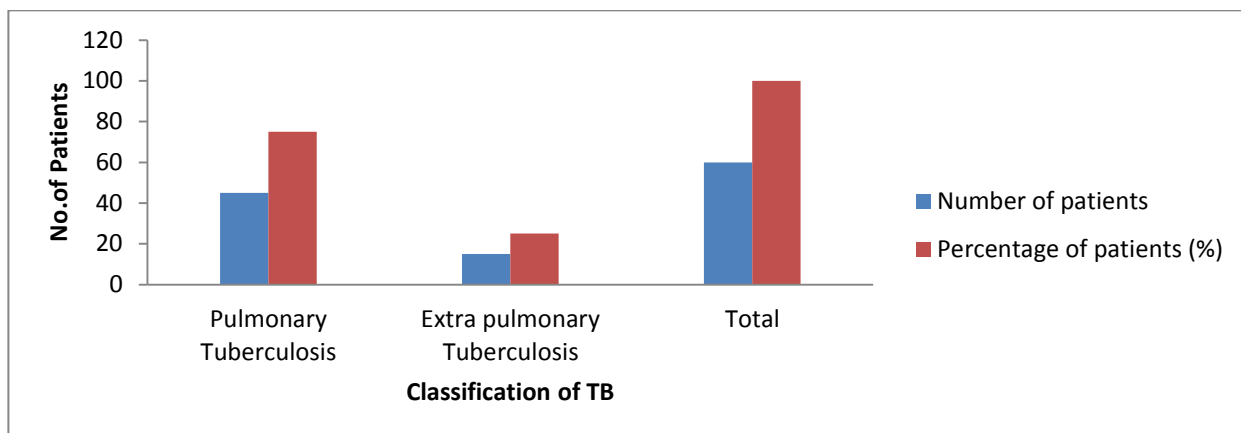


Figure 1: Based on classification of tuberculosis (n=60)

It shows that out of 60 tuberculosis cases 75 % had pulmonary tuberculosis And 25 % had extra pulmonary tuberculosis.

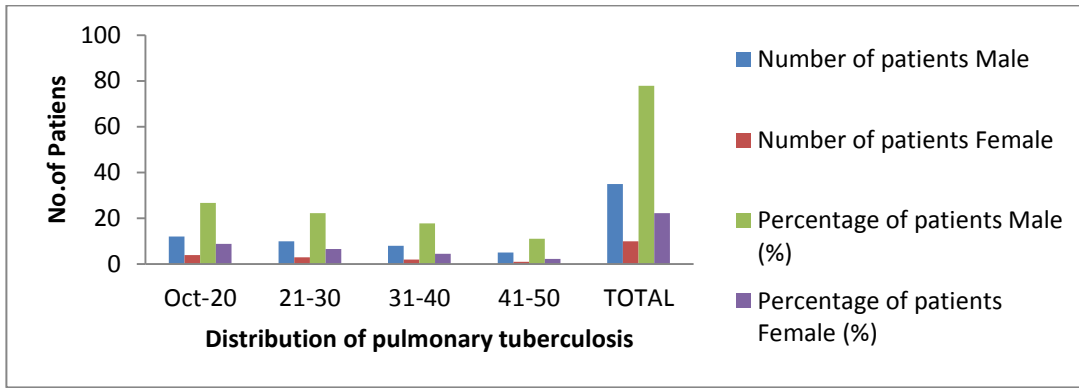


Figure 2: Age wise distribution of pulmonary tuberculosis By Gender.(n=45)

Figure 2 shows that highest percentage of both male and female Pulmonary Tuberculosis patients were found between the age group of (10-20 years).

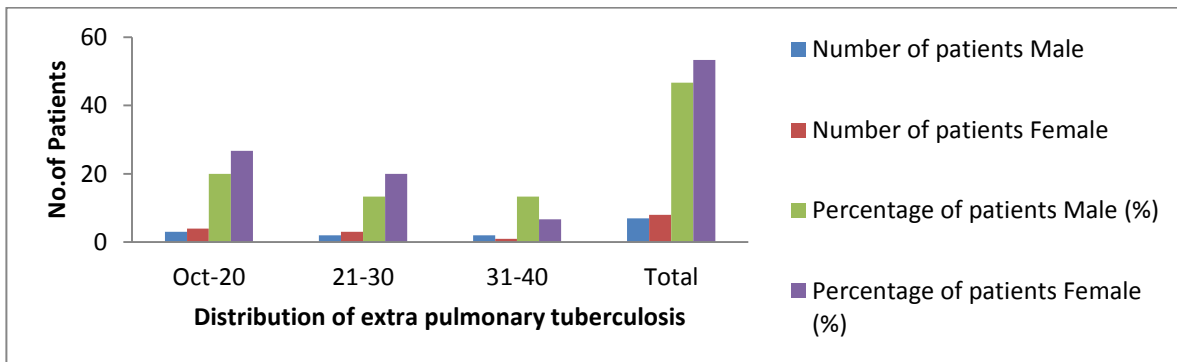


Figure 3: Age wise distribution of extra pulmonary tuberculosis by Gender. (n=15)

It shows that highest percentage of both male and female Extra Pulmonary Tuberculosis patients were found between the age group of 10-20 years.

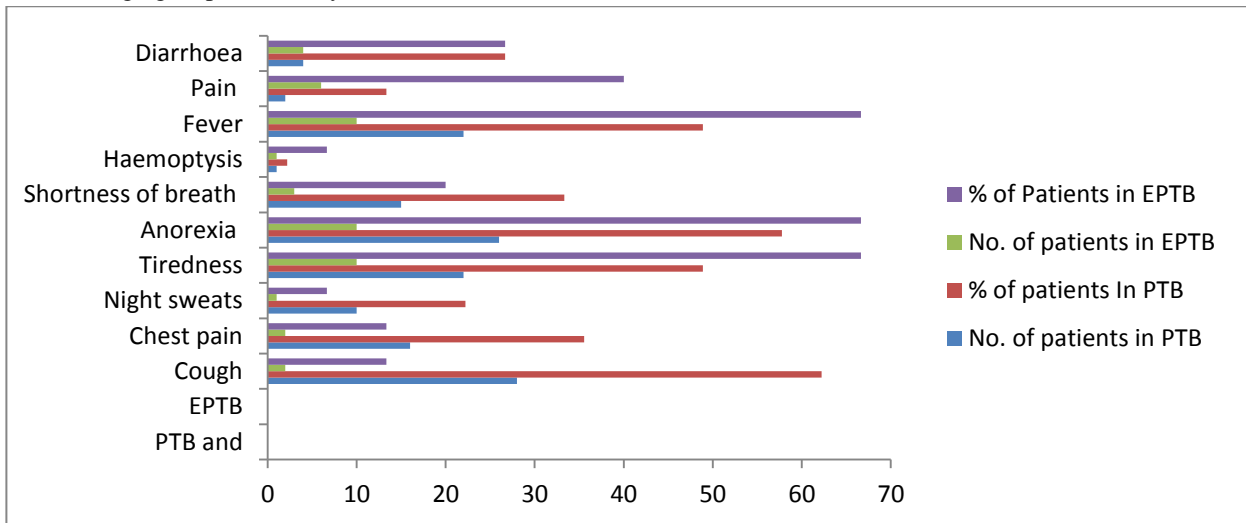


Figure 4: Symptoms of pulmonary and extra pulmonary tuberculosis

PTB : Pulmonary Tuberculosis

ETB :Extrapulmonary Tuberculosis

It shows that Cough ,Chest pain ,Night sweats, Tiredness, Anorexia, Shortness of breath, Haemoptysis, Fever were the majour symptoms of TB.

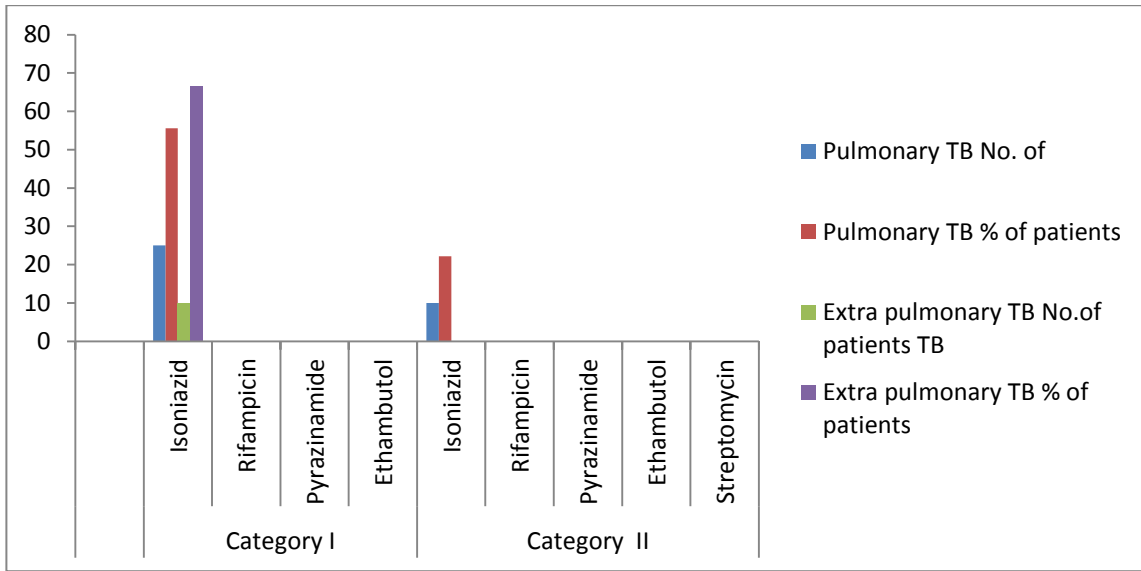


Figure5: (n=60) Treatment category of pulmonary and extra pulmonary tuberculosis.

It shows that most of the patients were treated with category I drugs in PTB (55.93%) and EPTB (57.14%).

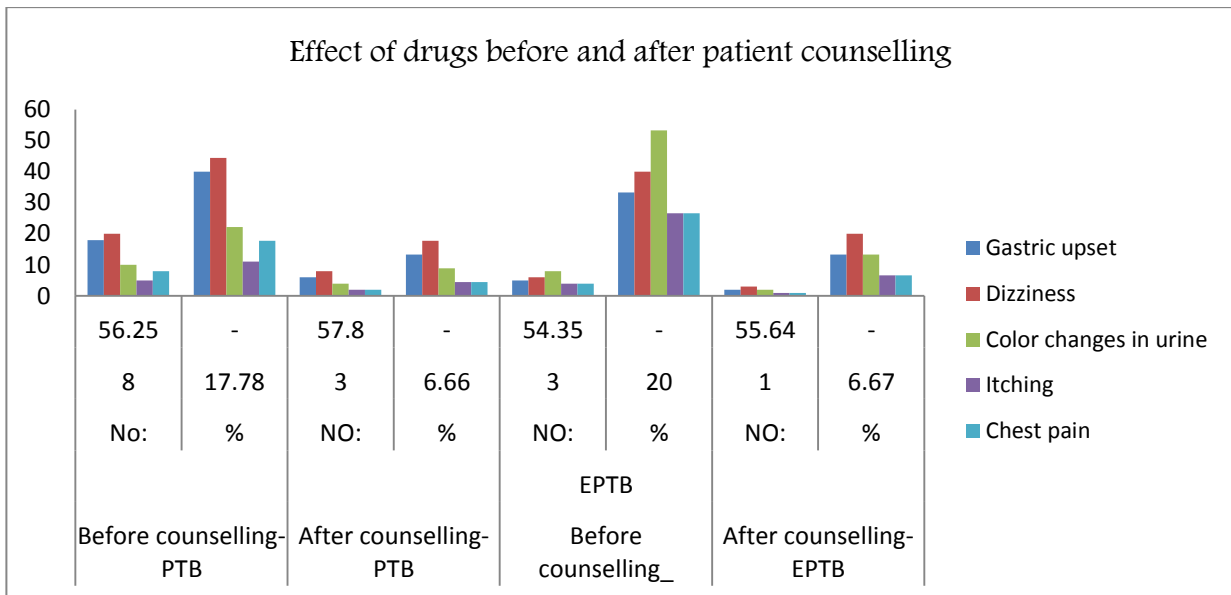


Figure 6: Adverse Effect of Anti Tuberculosis Drugs before and after patient counseling.

It shows that the patient counselling was effective to controlled the adverse effect of drugs and improve the health by measuring the body weight.

DISCUSSION

In the total of 60 tuberculosis cases 75 % had pulmonary tuberculosis and 25 % had extra

pulmonary tuberculosis. It indicates that significantly higher proportion of pulmonary tuberculosis. The clinical manifestations of TB are

of two types: Pulmonary and Extra pulmonary forms of TB (EPTB), the former being the commonest. The problem of EPTB is still high, both in developing and developed countries. In India, EPTB forms 10 to 15 percent of all types of TB. [16, 17]

This study shows that highest percentage of both male and female Pulmonary Tuberculosis patients were found between the age group of (10-20 years). The WHO estimated that over half a million children (0-14 years) fell ill with TB, and 80 000 HIV-negative children died from the disease in 2013 [18, 19].

It shows that smokers and alcoholic were the higher risk of developing PTB and EPTB. There is a strong association between heavy alcohol use/alcohol use disorders (AUD) and TB. A meta-analysis on the risk of TB for these factors yielded a pooled relative risk of 2.94 (95% CI: 1.89-4.59). Numerous studies show pathogenic impact of alcohol on the immune system causing susceptibility to TB among heavy drinkers. In addition, there are potential social pathways linking AUD and TB. Heavy alcohol use strongly influences both the incidence and the outcome of the disease and was found to be linked to altered pharmacokinetics of medicines used in treatment of TB, social marginalization and drift, higher rate of re-infection, higher rate of treatment defaults and development of drug-resistant forms of TB. Based on the available data, about 10% of the TB cases globally were estimated to be attributable to alcohol. [19, 20]

It shows that Cough, Chest pain, Night sweats, Tiredness, Anorexia, Shortness of breath, Haemoptysis, Fever were the major symptoms of TB. People infected with TB bacteria have a

lifetime risk of falling ill with TB of 10%. However persons with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, have a much higher risk of falling ill. [21]

When a person develops active TB (disease), the symptoms (cough, fever, night sweats, weight loss etc.) may be mild for many months. This can lead to delays in seeking care, and results in transmission of the bacteria to others. People ill with TB can infect up to 10-15 other people through close contact over the course of a year. Without proper treatment up to two thirds of people ill with TB will die [21, 22] It shows that the patient counseling was effective to control the adverse effect of drugs.

CONCLUSION

The clinical manifestations of TB are of two types: Pulmonary and extra pulmonary forms of TB. Tuberculosis patients were more found between the age group of (10-20 years). It concluded that smokers and alcoholic were the higher risk of developing PTB and EPTB. The Cough, Chest pain, Night sweats, Tiredness, Anorexia, Shortness of breath, Hemoptysis, and Fever were the major symptoms of TB. It concluded that the patient counseling was effective to control the adverse effect of Anti-TB drugs. For those who do not have proper knowledge on medication therapy there will be a possibility of reoccurrence of the disease. By conducting programs at various public places about Tuberculosis will create awareness about disease and can be helpful to prevent the onset of TB.

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How to cite this article: Sattanathan K, Venu.V, Mathew George. Stuedy and evaluation of adverse effect on Anti-Tuberculosis drugs. Int J of Allied Med Sci and Clin Res 2017; 5(1): 121-126.

Source of Support: Nil. **Conflict of Interest:** None declared.