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A Pharmacovigilance Study on Antitubercular Therapy in the Department of Pulmonary Medicine at a Tertiary Care Hospital

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Abstract: *The pharmacovigilance study was conducted in100 patients with pulmonary tuberculosis admitted pulmonology ward of Government general hospital, Anantapur, Andhra Pradesh. The purpose of this study is to assess the rate of adverse drug reactions induced by antitubercular drugs and also to detect serious and preventable ADRs.*
Keywords: *Pharmacovigilance, tuberculosis, antitubercular drugs.*

I. Introduction

The morbidity and mortality caused by tuberculosis is partly due to serious adverse reactions induced by anti TB drugs. Most of the medicines used to treat tuberculosis today have been on the market for several decades. Clinicians treating tuberculosis (TB) patients around the world know these medicines well, and are usually well aware of their associated adverse drug reactions (ADRs). The occurrence of these reactions is known to be frequent. The TB patient on treatment is taking more than one anti TB medication simultaneously and regimens last from many months to 2 years or more. This increases the likelihood of ADRs, some of which are severe. Most patients on treatment for drug resistant TB experience at least one side effect, and a recent study has shown that two thirds of such patients have had at least one medicine stopped temporarily or permanently as a result of ADRs.

These events may damage public confidence in any national treatment programme and affect patient adherence. Patients who stop taking anti TB medicines pose a risk to themselves and to others. The generation of drug resistance is a very real risk [1].

The national TB programmes do not collect information on ADRs directly. It is therefore difficult to assess precisely the net benefit of a treatment programme if adversities related to the medicines used are not factored in. The contribution of ADRs to death, treatment default and failure can therefore only be conjectured. With the increasing use worldwide of more extensive regimens for drug resistant TB, the added use of antiretro viral drugs in patients with HIV associated TB and the imminent advent of new classes of drugs to treat TB, the case for improved pharmacovigilance becomes even stronger. Pharmacovigilance needs to be an integral accompaniment to treatment programmes as they expand their geographical coverage, given that the frequency and expression of ADRs may be influenced by factors linked to the demographic, genetic and nutritional patterns, and to the background comorbidity in a population [1].

II. Aims & Objectives

- To assess the rate of adverse drug reactions (ADRs) induced by antitubercular drugs in the department of Chest & Tuberculosis.
- To detect serious and preventable recognized ADRs.

III. Methodology

This is a pharmacovigilance study of patients admitted into pulmonary ward of the medical college attached hospital in Anantapur, Andhra Pradesh from November 2015 to April 2015 (6 months).

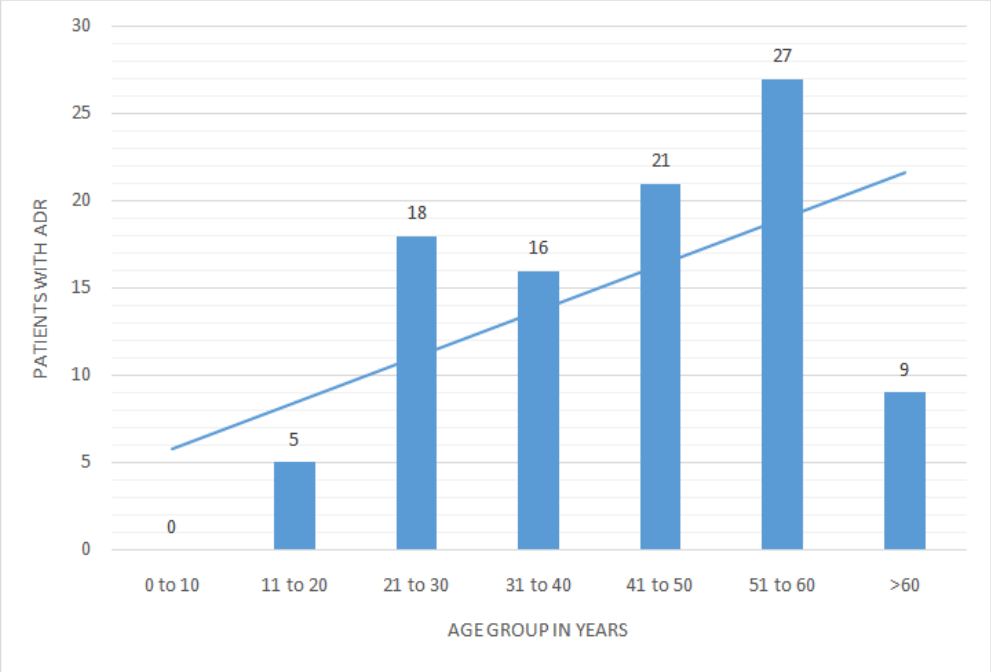
All patients of either sex who are getting admitted to the study site during study period with pulmonary TB were included. Patients with chronic hepatitis illness such as cirrhosis, chronic hepatitis and acute viral hepatitis, the patients who were unwilling to participate in the study and terminally ill patients were excluded from the study. Causality and severity of reactions determined using Naranjo Algorithm [2] and Hartwig questionnaire as standard [3].

IV. Results

During 6 months study period 100 patients were diagnosed with pulmonary TB and were put on routine treatment protocol. Of these patients, 53 (53%) patients (40 males and 13 females) developed at least one adverse drug reaction. Total number of 97 ADRs detected in this study.

Occurrence of ADRs led to prolongation in hospital stay for 31 (59%) patients. It does appear that with anti TB drugs used in this study the rate of ADRs increases with increased age (Figure 1).

Figure 1 showing Anti TB drug induced ADRs in different age groups



The most frequent system affected by ADRs were liver & biliary system (36.08%) and gastrointestinal system (20.62%) (Table 1).

Table 1 showing frequency of organ systems involved in ADRs induced by Anti TB drugs.

S.No.	Site of reactions	Frequency	Percentage (%)
1	Liver and biliary system	35	36.08
2	Gastrointestinal system	20	20.62
3	Central and peripheral nervous system	14	14.43
4	Metabolic & nutritional disorders	8	8.24
5	Skin & appendages	5	5.15
6	Urinary system	5	5.15
7	Musculoskeletal system	4	4.12
8	Platelet, bleeding & clotting disorders	3	3.09
9	Vision disorders	3	3.09

Most serious adverse reaction was hepatitis (25.77%), leading to death in 2 patients (Table 2).

Table 2 showing type of detected ADRs induced by anti TB drugs.

S.No.	Reaction	Frequency	Percentage (%)
1	Hepatitis	25	25.77
2	Constipation	17	17.53
3	Increased liver transaminases	11	11.34
4	Hyperglycemia	8	8.25
5	Headache	8	8.25
6	Peripheral neuropathy	6	6.20
7	Dysuria	5	5.15
8	Rash	5	5.15
9	Diarrhea	4	4.12
10	Increased uric acid	4	4.12
11	Vision abnormality	2	2.06
12	Prolonged PT	2	2.06

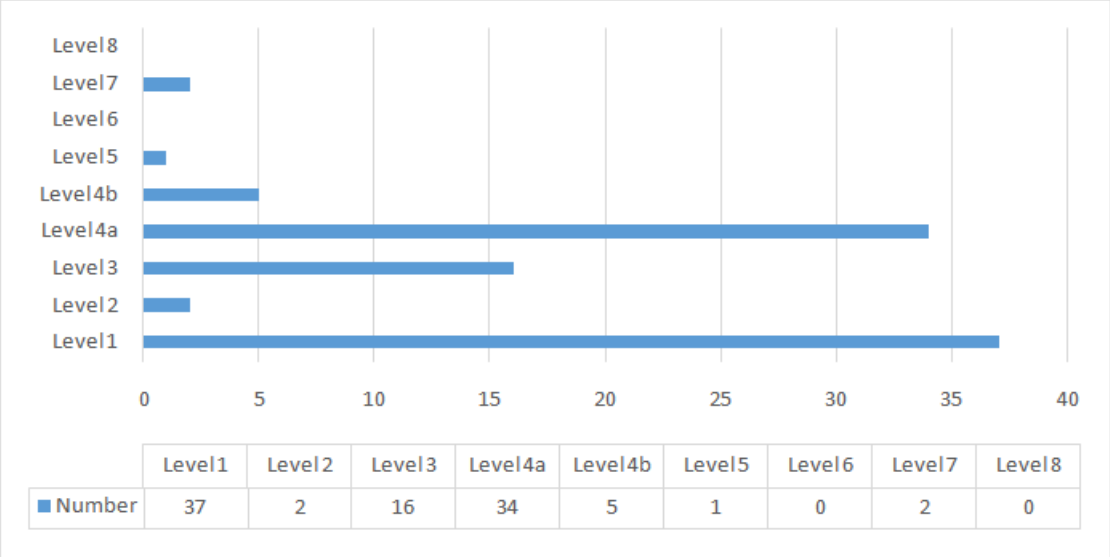
The main action taken in patients with detected ADR was discontinuation of drug regimen (35.05%). The action mainly was taken when hepatotoxicity was detected. The causality assessment of ADRs revealed that 8 (8.2%) cases were detected as certain, 43 (44.33%) as possible and 46 (47.42%)as probable reactions (Table 3).

Table 3 showing causality of ADRs induced by anti TB drugs according to Naranjo algorithm.

S.No.	Scale	Percentage (%)	Frequency
1	Probable	47.42	46
2	Possible	44.33	43
3	Certain	8.2	08
Total		100	97

Evaluation of severity of ADRs indicated that most of the ADRs detected had severity in level 1 (38.14%) and 4a (35.05%). (Figure 2)

Figure 2 showing severity of ADRs induced by anti TB drugs.



V. Discussion

Among 100 patients entered the study, 53 patients showed at leastone adverse reaction. This relatively high percentage of occurring adverse reactions indicates that there is a need for more evaluation of susceptibility of patients for developing anti TB induced ADRs. According to study conducted by Daphne et al, the incidence of all major adverse effects was 1.48per 100 person's month of exposure. The occurrence of any major side effect in the study was associated with female sex. It does appear that with anti TB drugs used in this study the rate of ADRs increases with increased age [4].

In our study the major cause of admission was adverse drug reactions in 15.9% of patients. In similar study conducted in Iranian population hospitalized in general medicine ward, ADR has been reported as the cause of admission for 8% patients.

In our study hepatitis was observed in 25 (25.77%) patients, leading to the death of 2 patients. It has been estimated that 10 – 20% of patients receiving INH developed elevated liver enzymes [5]. Liver toxicities can be the major side effect of all three main anti TB drugs isoniazid, rifampicin, and pyrazinamide.

VI. Conclusion

In conclusion, anti TB drugs could cause significant adverse effects both in quantity and quality. These reactions may lead to hospitalization, prolonged hospital stay and even death. Asian people may develop more frequently severe adverse reactions such as hepatitis. These results suggest that the protocol may need some revision to prevent fatal hepatotoxicity. To confirm this, many more studies with large population is needed.

References

[1]. World Health Organization – Enhancing the safety of the TB patient – A practical hand book on the pharmacovigilance of medicines used in the treatment of tuberculosis.
[2]. Naranjo CA, Busto U, Sellers EM. A method for estimating the probability of adverse reactions. Clin Pharmacother 1981;30:239-45.
[3]. Hartwig SC, Siegel J, Schneider PJ. Preventability and severity assessment in reporting adverse drug reactions. Am J Hosp Pharm, 1992; 4 9: 2229- 32.
[4]. Yee D, Valiquette C, Pelletier M, Parisien I, Rocher I, Menzies D. Incidence of serious side effects from first line anti tuberculosis drug among patients treated for active tuberculosis. Am J RespCrit Care Med, 2003; 167: 1472- 7.
[5]. [Kays MB, Koda-Kimble MA, Young LY, Kradijan WA, Guglielmo JB, Alfredge BK, Corelli RL. Tuberculosis in applied therapeutics, clinical use of drugs, eighth edition, 2005. Lippincott Williams and Wilkins. P71-83.