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Patient's Perception on Adverse Drug Reaction of Tuberculosis Treatment in a Teaching Hospital

Fazlu Rehman[1*] N. Ravindra[2],A Srinivasa Rao[2], Ashfaq Hasan[3], M.A Raoof.

1. Department of Pharmacy Practice, Global College Of Pharmacy, Hyderabad, India.
2. Department of Pharmacology, Sun Rise University, Alwar, Rajasthan, India.
3. Department of Pulmonary Medicine, Owaisi Hospital and Research Center, Hyderabad, India.

Corresponding author: FazluRehman
Email address: fazal8020@gmail.com

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Abstract:

Tuberculosis is a life- threatening infectious disease which still account to a mortality rate in India. The situation in the country is worsening every year, although there has been a significant advancement in the treatment approaches for tuberculosis. The occurrence of Adverse Drug Reaction (ADR) of tuberculosis is one of the challenges in our effort to control the disease complications. The aim of the study was to assess the Patient's Perception on emergence of Adverse Drug Reactions of tuberculosis in Pulmonology Department of teaching Hospital.

1. Introduction

Active or pulmonary tuberculosis (TB) can cause permanent lung damage when it is not diagnosed and treated early. Untreated active disease can also spread to other parts of the body where it can lead to serious or life-threatening complications (Chadha et al., 2001, Krishna Murthy MS 2001, SK Kabra et al., 2002). Late detection and improper treatment of this condition may lead to severe complications. These can range from mild to severe health complications that might also lead to death.Few complications of the disease are meningitis, permanent lung damage, bone and joint complications, venous thrombosis, liver or kidney inflammation and cardiac problems (S. Swaminathan et al., 2010, M. Klopper et al., 2013, NR Gandhi et al., 2013, Ortega S et al., 1993, Ambrosetti M et al., 2006, Gogna A et al., 1999).

There is an increased risk of drug induced hepatitis in patient. Hepatotoxic anti-tubercular drug can be safely used in this patient, if the number of drugs used is adjusted appropriately (WHO, 2014, JG Pasipanodya et al., 2012, T. Kompala et al., 2013, J. Reynolds et al., 2014). The main principal is to closely monitor the patient for signs of worsening liver disease and to reduce the number of hepatotoxic drugs in the anti-tubercular regimen according to the severity of underlying liver disease (CN Paramasivan et al., 2000, B. Tessema et al., 2013, AH Kebede et al., 2014, R. Singla et al., 2010, F. Marra et al., 2007).

Most Common Adverse Drug Reactions (ADR) reported are:

- Skin Reactions: Skin reaction ranging from pruritus to rashes and most severely to toxic epidermal necrolysis (MR Javadi et al., 2007, NR Gandhi et al., 2010, M. Goyal et al., 1997, SJ Kim 2005)
- Gastrointestinal symptoms (nausea, vomiting, diarrhoea): Nausea and vomiting is common in the early weeks of treatment and usually abates with time on treatment or supportive therapy (A Jain et al., 2012, P. Bhatter et al., 2012, B. Muller et al., 2011, VG Kumar et al., 2011). Electrolytes should be monitored and replenished if vomiting is severe. Reversible upon discontinuation of suspected agent (S. Sethi et al., 2013, J. Veen et al., 1998, AK Salami et al., 2002, R. Malhotra et al., 2002).
- Hepatities: History of prior hepatitis should be carefully analyzed to determine the most likely causative drugs, these should be avoided in future regimens (SS Ali et al., 2003, T. Weniger et al., 2012, B. Tessema et al., 2009, D. Abate et al., 2012, Mishra P et al., 2006, Hirsh AE et al., 2004).
- Renal failure and nephrotoxicity: History of diabetes or renal disease is not a contraindication to the use of the offending TB drugs, although patients with co-morbidities may be at increased risk for developing renal failure (Lienhardt et al., 2011, BJ Marais et al., 2010, Sharma RR et al 2007).

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2. Method

A hospital based cross-sectional survey study was conducted to assess TB related Adverse Drug Reaction (ADR), its complications, and control. There were ***46 months*** studies which include ***1006*** patients from the in-patients & out-patients of Pulmonology department who have been previously diagnosed for tuberculosis were selected for the study. The response of the subjects in the survey study was analyzed in order to assess their perception on emergence of Adverse Drug Reaction of tuberculosis.

The study was carried out on patients of Department of Pulmonary Medicine, Owaisi Hospital and Research Center, Hyderabad, India.

2.1 Participants

For data collection, a structured questionnaire was developed through revision of the literature which contains two different parts i.e., patient‘s perception on TB disease, Adverse Drug Reaction and its complication. Data collection tool for the study also includes questions to assess patients general understanding about the TB disease, cause and transmission, consequence of stopping treatment and its duration, complication, prevention, socio-demographic factors like sex, age, educational level, housing area, health conditions and monthly earning among the participants.

3. Results

3.1 Knowledge about medication for tuberculosis

Tuberculosis medication knowledge of the patient in which about 71% of male respondents positively where as 69% of female believed that medication was important in treating TB. On other hand 19% of total populations were of the opinion that medication is not important in treatment of the disease.

3.2 Knowledge about the frequency of dose

The comparative Analysis shows that, maximum number of participant i.e. 57% have no idea about the frequency of given dose. Whereas 29% of population indicate that the frequency of medicinal dose is most important for the treatment of TB.14% of the total participant was unsure about frequency of dose.

3.3 Knowledge about missing of the drug dose

Patient’s medication knowledge were poor, 55% of total participants taking the dose as soon as once remember. 45% of total participant believed that to skip the dose or double the dose both were equal.

3.4 Knowledge about side effects caused by the drug

According to above statistical data, it was clear that more than 80% of participants, they don’t know the side effect caused by drug used in treatment of TB. The above table revels that the participants both (Male and Female) are unaware about treatment and side effect of given medicine.

Table 1: Medication for tuberculosis

Response	Male (N= 744)		Female (N= 262)		Total (N=1006)	Participants
	Freq.	%	Freq.	%	Freq.	%
YES	528	(71%)	182	(69%)	710	(71%)
NO	130	(17%)	59	(23%)	189	(19%)
UNSURE	86	(12%)	21	(8%)	107	(11%)

Table 2: Knowledge about the frequency of dose.

Response	Male (N= 744)		Female (N= 262)		Total (N=1006)	Participants
	Freq.	%	Freq.	%	Freq.	%
YES	244	(33%)	49	(19%)	293	(29%)
NO	422	(57%)	149	(57%)	571	(57%)
UNSURE	78	(10%)	64	(24%)	142	(14%)

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Table 3: Missing of the drug dose

Response	Male (N= 744)		Female (N= 262)		Total (N=1006)	Participants
	Freq.	%	Freq.	%	Freq.	%
Take it as soon as you remember	388	(52%)	163	(62%)	551	(55%)
Skip the dose	267	(36%)	56	(21%)	353	(35%)
Double dose	89	(12%)	43	(17%)	102	(10%)

Table 4: Side effects caused by the drug

Response	Male (N= 744)		Female (N= 262)		Total (N=1006)	Participants
	Freq.	%	Freq.	%	Freq.	%
YES	88	(12%)	29	(11%)	109	(10%)
NO	362	(49%)	159	(61%)	529	(53%)
UNSURE	294	(39%)	74	(28%)	368	(37%)

4. Discussion

Almost all patients will report adverse effects to the first and second-line drugs. Close mentoring of patients is necessary to ensure that adverse drug reaction (ADRs) is recognized and addressed quickly. However, it is important to have a systematic approach to patient interviewing since some patients may be timid about reporting even severe ADRs. Other patients may be distracted by one side effect and forget to inform the health care provider about others. The timely and aggressive management of adverse effects of the first and second-line drugs greatly facilitates patient adherence.

It was clear that more than 64%of participants were thought once they incomplete or inappropriate treatment there could be severe consequences of disease may lead to death.22% of total participants both (Male & Female) said disease may relapse due to incomplete or inappropriate treatments (KF Laserson et al., 2005, R. Ramachandran et al., 2009)**.**

The aim of treatment should be to provide the safest and most effective therapy in the shortest period of time. There are three basic principles upon which recommendations for treatment are based: Regimens for treatment of disease must contain multiple drugs to which the organisms are susceptible, the drugs must be taken regularly, the drug therapy must continue for a sufficient period of time (K. Joggarajamma et al., 2009).

Non-adherence to tuberculosis treatment can lead to prolonged period of infectiousness, relapse, emergence of drug-resistance and increase morbidity and mortality. In this study, we assess patient education or counseling or both promotes adherence to tuberculosis treatments.

All patients should be asked routinely about their adherence with medication taking. The ultimate elimination of tuberculosis requires an organized and smoothly functioning network of primary and referral services based on cooperation between clinicians and public health officials.

5. Conclusion

Almost all patients will report adverse effects to the first and second-line drugs. Close mentoring of patients is necessary to ensure that adverse drug reaction (ADRs) is recognized and addressed quickly. More than 80% of patients occasionally miss a dose their medication. Patient believe that plan should be required a part of the information received when a medication was prescribed and dispensed. Patient medication information sheet (PMIS) which contain on what to do in a dose is missed. The routine use of these sheet or similar advice may help patients to know what to do when they miss a dose.

However, it is important to have a systematic approach to patient interviewing since some patients may be timid about reporting even severe ADRs. The timely and aggressive management of adverse effects of the first and second-line drugs greatly facilitates patient adherence.

Conflict of interest

None declared

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