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 (Chadhia 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., 2010, M. Goyal et al., 1997, SJ Kim 2005). 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.

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, diarrhea): 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. Bhattar 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 regimes (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).

**Keywords:** patient’s perception; adverse drug reactions; treatment; prevention; control;


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 reveals that the participants both (Male and Female) are unaware about treatment and side effect of given medicine.

<table>
<thead>
<tr>
<th>Response</th>
<th>Male (N=744)</th>
<th>Female (N=262)</th>
<th>Total (N=1006)</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>YES</td>
<td>528</td>
<td>(71%)</td>
<td>182</td>
<td>(69%)</td>
</tr>
<tr>
<td>NO</td>
<td>130</td>
<td>(17%)</td>
<td>59</td>
<td>(23%)</td>
</tr>
<tr>
<td>UNSURE</td>
<td>86</td>
<td>(12%)</td>
<td>21</td>
<td>(8%)</td>
</tr>
</tbody>
</table>

Table 1: Medication for tuberculosis

<table>
<thead>
<tr>
<th>Response</th>
<th>Male (N=744)</th>
<th>Female (N=262)</th>
<th>Total (N=1006)</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>YES</td>
<td>244</td>
<td>(33%)</td>
<td>49</td>
<td>(19%)</td>
</tr>
<tr>
<td>NO</td>
<td>422</td>
<td>(57%)</td>
<td>149</td>
<td>(57%)</td>
</tr>
<tr>
<td>UNSURE</td>
<td>78</td>
<td>(10%)</td>
<td>64</td>
<td>(24%)</td>
</tr>
</tbody>
</table>

Table 2: Knowledge about the frequency of dose.
Table 3: Missing of the drug dose

<table>
<thead>
<tr>
<th>Response</th>
<th>Male (N=744)</th>
<th>Female (N=262)</th>
<th>Total (N=1006)</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>Take it as soon as you remember</td>
<td>388</td>
<td>(52%)</td>
<td>163</td>
<td>(62%)</td>
</tr>
<tr>
<td>Skip the dose</td>
<td>267</td>
<td>(36%)</td>
<td>56</td>
<td>(21%)</td>
</tr>
<tr>
<td>Double dose</td>
<td>89</td>
<td>(12%)</td>
<td>43</td>
<td>(17%)</td>
</tr>
</tbody>
</table>

Table 4: Side effects caused by the drug

<table>
<thead>
<tr>
<th>Response</th>
<th>Male (N=744)</th>
<th>Female (N=262)</th>
<th>Total (N=1006)</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td>YES</td>
<td>88</td>
<td>(12%)</td>
<td>29</td>
<td>(11%)</td>
</tr>
<tr>
<td>NO</td>
<td>362</td>
<td>(49%)</td>
<td>159</td>
<td>(61%)</td>
</tr>
<tr>
<td>UNSURE</td>
<td>294</td>
<td>(39%)</td>
<td>74</td>
<td>(28%)</td>
</tr>
</tbody>
</table>

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

6. References:


42. V. G. Kumar, T. A. Urs, and R. R. Ranganath (2011). MPT 64Antigen detection for rapid confirmation of M.tuberculosis isolates. BMC Research Notes. 4, article 79.


How to cite this article: