Study of Depression among MDR TB Patients - A Crosssectional Observational Study

Sourabh Jain1, Vishwas Gupta2, Akanksha Jain3, Lokendra Dave4, Nishant Shrivastava5

ABSTRACT

Introduction: Anti tuberculosis drug resistance is a major public health problem that threatens progress made in TB care and control. Globally prevalence of MDR TB (Multidrug resistance tuberculosis i.e. resistance to Isoniazid and Rifampicin) is estimated around 4.1% in new cases and 19% in previously treated cases according to WHO report. Clinical depression is common but often neglected problem among TB patients. This study was conducted to know problem of depression among MDR Tb patients. Aims and objectives of this study were to determine the prevalence of depression in people with TB at the time of anti-TB treatment initiation and to assess factors associated with baseline depression.

Material and methods: It is a observational study conducted in tertiary care centre. After obtaining proper consent and ethical consent data was collected using PHQ 9 score. Data was analysed using appropriate statistical methods.

Results: Out of total 100 patients 80% were Pulmonary Tuberculosis(PTB) while 20% were Extrapulmonary Tuberculosis (EPTB). Around 56% patients were male while 44% were female. Prevalence of depression was 51%.

Conclusion: Depression is common problem among MDR TB which is preventable and can be managed if identified at early stage.

Keywords: MDR TB, Depression, PHQ9 Score

INTRODUCTION

Tuberculosis is an endemic disease worldwide, specially prevalent in developing countries which mainly affects lung but can also present as a multisystem disorder.1 Several comorbidities are associated with tuberculosis2 like cardio-metabolic disorders; respiratory disorders, arthritis and cancer; and substance-use disorders. Clinical depression is a common, under-recognized but a treatable condition that, if occurs with TB, is associated with increased morbidity, mortality.

A syndemic is defined as the convergence of two or more conditions that act synergistically to magnify the burden of disease.3 TB patients comorbid with depressed are more likely to substance abuse such as alcohol or drugs4 and their chances of adherence and compliance to the ATT (anti tubercular treatment) are less.5 therefore These individuals not only carry a larger risk for negative TB outcomes, such as lost to follow up, post TB squeal, drug resistance and death they may also spread infection for longer periods of time in the community. HIV is also a major important comorbid condition that influence outcome in TB, depression with TB-HIV patient may impact the outcome of both the diseases.

To achieve the targets set by The end TB strategy by WHO, multidisciplinary approaches will require to treat syndemics such as TB and depression together, rather than as separate problems and diseases.

Our aim was to carry out a study of depression in the context of TB. It was done with objectives to determine the prevalence of depression in people with TB at the time of anti-TB treatment initiation, and to assess factors associated with baseline depression.

MATERIAL AND METHODS

It was a cross sectional observational study conducted at Department of Respiratory Medicine, GMC Bhopal at TB hospital Idgah hills which is largest TB hospital of central India and Designated Drug resistance TB nodal centre. Patients with drug sensitive and drug resistance Pulmonary and extrapulmonary Tuberculosis attending OPD and IPD at TB hospital who were fulfilling inclusion criteria were included in the study. Study was conducted in 100 patients between time period May 2019 to October 2019.

Inclusion criteria: 1) Patients who were diagnosed as MDR TB (CBNAAT {Cartridge based nucleic acid amplification test} –Rifampicin Resistance) both pulmonary and extrapulmonary. 2) Patients who are >15-60 years of age.

Exclusion criteria: 1) Patients who are not MDR TB i.e. Rifampicin sensitive TB are not included. 2) Patients of age<15 and >60 years. 3) Patients with previous history of any psychiatric illness are excluded, 4) Patients with history of any substance abuse. 5)Patients having history of acute stress reaction in last 6 months (to rule out Post Traumatic Stress Disorder). 6) Patient whose general condition is poor to interview. 7) Non cooperative patient.

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Methodology
After obtaining all necessary ethical clearance, patients who were fulfilling the inclusion criteria were selected. The purpose of study was explained to patients. Written and informed consent were obtained from patients. Data was collected using pretested proforma meeting the objectives of the study. Patient Health questionnaire 9 (PHQ9) was used to assess the status of depression in the patients. Patients socioeconomic status are evaluated by modified Kappuswami scale for urban population and modified Prasad scale for rural population. Co morbidity status of patients are also evaluated. Data was analyzed using appropriate statistical methods.

**STATISTICAL ANALYSIS**
Statistical analysis of data is done by help of SPSS 20.0 Software (trial Version). Statistical analysis was done for mean and frequency. Chi square test had been applied to find the relationship between the factors.

**RESULTS**
In our study out of total 100 patients 80% were Pulmonary Tuberculosis (PTB) while 20% were Extrapulmonary Tuberculosis (EPTB). 56% patients were male while 44% were female. 62% patients had previous history of Tuberculosis while 38% cases were new cases. 75% patients had no co-morbidites, 11% had Diabetes Mellitus, 6% are People Living with HIV-AIDS and 8% had hypertension.

**Table-1: Age group distribution**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-30</td>
<td>41</td>
<td>41.0</td>
</tr>
<tr>
<td>31-40</td>
<td>34</td>
<td>34.0</td>
</tr>
<tr>
<td>41-50</td>
<td>13</td>
<td>13.0</td>
</tr>
<tr>
<td>51-60</td>
<td>12</td>
<td>12.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table-2: Distribution of patients according to PHQ9 score**

<table>
<thead>
<tr>
<th>Depression</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>49</td>
<td>49.0</td>
</tr>
<tr>
<td>Mild</td>
<td>32</td>
<td>32.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>10</td>
<td>10.0</td>
</tr>
<tr>
<td>Moderate severe</td>
<td>6</td>
<td>6.0</td>
</tr>
<tr>
<td>Severe</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table-3: Association of age with depression**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Minimal</th>
<th>Mild</th>
<th>Moderate</th>
<th>Moderately severe</th>
<th>Severe</th>
<th>CHI square</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-30</td>
<td>35</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>62.57</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>31-40</td>
<td>10</td>
<td>20</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-50</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51-60</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>32</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table-4: Association of socioeconomic status with depression among TB patients**

<table>
<thead>
<tr>
<th>Socioeconomic status</th>
<th>Minimal</th>
<th>Mild</th>
<th>Moderate</th>
<th>Moderately severe</th>
<th>Severe</th>
<th>Total</th>
<th>CHI square</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Upper</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>24.942</td>
<td>0.071</td>
</tr>
<tr>
<td>2) Upper middle</td>
<td>14</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Lower middle</td>
<td>20</td>
<td>15</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Upper lower</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Lower</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>32</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>100</td>
<td></td>
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</tr>
</tbody>
</table>

**Table-5: Association of depression with sex**

<table>
<thead>
<tr>
<th>Socioeconomic status</th>
<th>Minimal</th>
<th>Mild</th>
<th>Moderate</th>
<th>Moderately severe</th>
<th>Severe</th>
<th>Total</th>
<th>CHI square</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Upper</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>24.942</td>
<td>0.071</td>
</tr>
<tr>
<td>2) Upper middle</td>
<td>14</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Lower middle</td>
<td>20</td>
<td>15</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Upper lower</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Lower</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>32</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>100</td>
<td></td>
<td></td>
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</tbody>
</table>
Although our finding was higher than who found around 61% in Ibadan Nigeria 45.5%, and 82%. This variation might be due to the difference in inclusion criteria, study design, data collection methods, sample size and difference in study participants. Some limitations associated with this study include missing of some important variables not included in PHQ-9 tools such as substance use and smoking which are found to be associated with depression. Sample size was less. It is single centre study so results cannot be generalized.

**REFERENCES**

4. Davis L, Uezato A, Newell JM, Frazier E. Major