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Research Article

TO EVALUATE THE MAGNITUDE OF DEPRESSION IN MULTIDRUG-RESISTANT TUBERCULOSIS PATIENTS IN A TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

Objective: The objective of the study was to evaluate the magnitude of depression in multidrug-resistant tuberculosis patients in a tertiary care teaching hospital.

Methods: An observational study was carried out in department of Psychiatry and department of Tuberculosis and Respiratory disease G.S.V.M. Medical College, Kanpur for a period of 9 months. The diagnosed multidrug-resistance tuberculosis (MDR-TB) patients coming to in-patient and out-patient department of tuberculosis and respiratory disease taking RNTCP regimen (Category IV) for MDR-TB will be screened for depression applying Hamilton Depression Rating Scale (HDRs) score and those patients who showed depression in screening will further send to psychiatry department for the final diagnosis of depression. We also categorized the patients into mild, moderate, and severe depression according to HDRs score. Data were tabulated in Microsoft Excel sheet. All categorical variables were analyzed using percentage.

Results: We screened 148 MDR TB patients who were taking drug for MDRTB. The average duration of treatment were 5.19 Month. Out of 148 patients, 56 (37.84%) patients were found to be suffering from depression. Out of 56 Depressed MDR TB Patients, 35 (62.5%) were male and 21 (37.5%) were female patients and 26 (46.43%) were mild (HDRS Score-8–13), 28 (50%) were moderate (HDRS Score-14–18) and 2 (3.57%) were severely depressed (HDRS Score-19–20).

Conclusion: The magnitude of depression in MDR TB Patients taking RNTCP regimen (Category IV) for MDR TB was 37.84% and out of these patients, 46.43% were mild, 50% were moderate, and 3.57% were severely depressed.

Keywords: Tuberculosis, Multi drug resistant tuberculosis, Depression, Hamilton depression rating scale, Psychiatric disorder.

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INTRODUCTION

Mycobacterium tuberculosis commonly known as tubercular bacilli can infect any system of the body. The most common is respiratory system (lungs) and the disease is called as pulmonary tuberculosis. When these bacilli are resistance to at least both Isoniazid (H) and Rifampicin (R) then these bacilli are called as multidrug-resistant and the disease known as multidrug-resistance tuberculosis (MDR-TB) [1]. If not treated properly, TB disease can be fatal. Global TB Report 2016 states that India accounts for one fourth of the global TB burden. An estimated 28 lakh cases occurred and 4.8 lakh people died due to TB in 2015. India has highest burden of both TB and MDR TB based on reported estimates. An estimated 1.3 lakh incident MDR-TB patients emerge annually in India which included 79000 MDR-TB Patients estimated among notified pulmonary cases [2]. There is a high prevalence of psychiatric illness in TB patients, but primary care physicians and specialists do not screen this association although anxiety and depression occur frequently in persons with these cases [3]. It has also been shown in most of the National and International studies that most of these patients have a history of mental illness. The most common diagnosis is depression which is usually followed by personality disorder alone or co morbid with other psychiatric illnesses [4]. Psychiatric co morbidity before and after tuberculosis onset; psychological issues such as stigma, isolation, sense of social support, helplessness and other psychological reactions to the disclosure of the diagnosis as well as medication side-effects, all adversely affect the treatment adherence [5]. Drugs such as Cycloserine (Cs), fluoroquinolones, Isoniazid (H), and Ethionamide (Eto)/Prothionamide (Pto) can cause depression in these patients as an adverse effect and if depression is more significant, then antidepressant therapy is initiated [6]. The co-prevalence of depression with MDR tuberculosis further leads to increased medical cost, poor medical adherence, morbidity, and mortality [7].

Despite research advances in the microbiological and clinical aspects of MDR-TB, research on the psychosocial context of MDR-TB is limited and less understood. Major depressive disorder is among the most prevalent disabling diseases affecting millions of people around the world. Depression, among the other psychiatric morbidities, has a lifetime prevalence of 10% [8]. A disease condition increases the possibility of depression in a patient. It is estimated that 20% of patients with somatic disease suffer from major depression [9]. Failure to manage such mental health problems increases the patients' probability of suffering from complications, even being lethal. The lifetime prevalence of mood disorder in patients with chronic disease is 8.9–12.9% with a 6-month prevalence of 5.8–9.4% [5]. Reported rate of depression in MDR-TB varies from 6.2% to 22% [6].

A number of studies have been conducted to know the prevalence of psychiatric disorders in patients of tuberculosis but a very few studies in MDR tuberculosis patients. These studies provided information that depression is common findings in tuberculosis patients. Therefore present study has been planned to estimate the magnitude of depression among MDR tuberculosis patients.

METHODS

An observational study was carried out in the department of pharmacology in association with department of psychiatry and

department of tuberculosis and respiratory disease, G.S.V.M. Medical College, Kanpur for a period of 9 month from October 2016 to July 2017. The diagnosed MDR-TB patients coming to in-patient and out-patient department of tuberculosis and respiratory disease taking RNTCP regimen (Category IV) for MDR-TB [10] will be screened for depression applying Hamilton Depression Rating Scale (HDRs) score and those patients who showed depression in screening will further send to psychiatry department for the final diagnosis of depression. We also categorized the patients into mild, moderate and severe depression according to HDRs score. Before enrollment into this study informed consent was taken to each patients and Institutional Ethics Committee approval was taken before conducting this study.

Inclusion criteria

The following criteria were included in the study:

1. All patients between ages of 15 and 65 years attending IPD/OPD.
2. Patients of MDR-TB (Mycobacterium culture isolate resistant to H&R).

Exclusion criteria

The following criteria were excluded from the study:

1. Patients already taking antidepressant drug therapy
2. Cases positive for HIV and Hepatitis B
3. Patients not willing to get enrolled
4. Patients with diabetes, hypertension, renal impairment and abnormal liver function test (As chronic diseases can leads to depression in these patients).

Data management

Data were tabulated in Microsoft excel sheet. All categorical variables were analyzed using percentage.

RESULTS

We screened 148 MDR TB patients who were taking drug for MDRTB. The average duration of RNTCP regimen (Category IV) treatment were 5.19 Month. Out of 148 patients, 56 (37.84%) patients were found to be suffering from depression (Fig. 1). Out of 56 Depressed MDR TB Patients 35 (62.5%) were male and 21 (37.5%) were female patients.

Out of 56 patients, 26 (46.43%) were mild (HDRS Score-8–13), 28 (50%) were moderate (HDRS Score-14–18), and 2 (3.57%) were severely depressed (HDRS Score-19–20) according to HDRS score (Fig. 2).

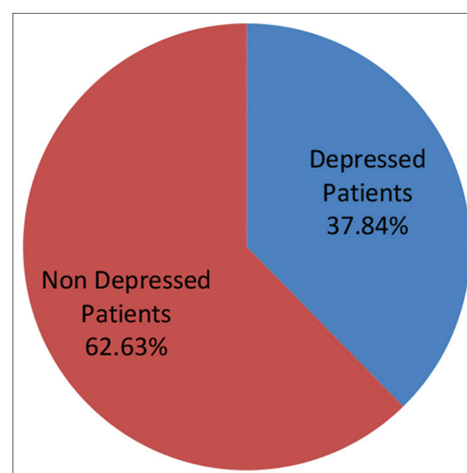

Fig. 1: Magnitude of depression

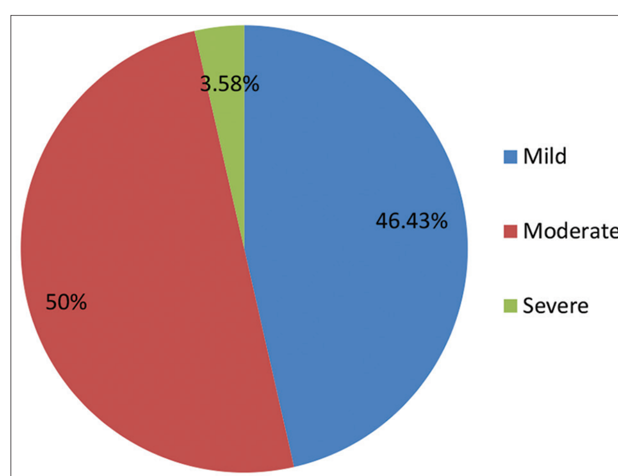

Fig. 2: Category of depression

DISCUSSION

The present study measured the magnitude of depression in MDR-TB patients and categorized the patients into mild, moderate, and severe depression by applying HDRs score. In our study 56 (37.84 %) patients were found to be depressed out of 148 patients screened. Out of 56 patients, 35 (62.5%) were male and 21 (37.5%) were female patients. When we categorized these patients then we find 26 (46.43%) were mild, 28 (50%) were moderate, and 2 (3.57%) patients were severely depressed according to HDRS score and average duration of taking RNTCP regimen (Category IV) for treatment were 5.19 Month.

A descriptive study done by Dahiya *et al*. [11] 2017, India, on106 TB patient's attending DOTS center and concluded that the prevalence of depression is 50%. Majority (85.9%) of patients had pulmonary TB. Our study also showed a high percentage of depression.

In another cross-sectional study done by Dawar *et al*. [12] 2016, Baroda, India found 32 patients of depression in 100 MDR TB patients undergone treatment for at least 1 month category IV of RNTCP. Out of 32 patients 7 had mild, 20 had moderate and 5 were severely depressed. Our study differ from this study may be due to the fact that our study screened patients who were taking RNTCP regimen (Category IV) for MDR-TB for an average of 5.19 month duration and also we have more no. of patients.

Another longitudinal study done by Mehreen *et al*. [13] 2012 Pakistan included 213 MDR TB patients; the emergence of depression was 36% at the end of both 1 and 2nd quarter of treatment. Our study also gets similar results but the difference was as we screened the patients at an average duration of taking RNTCP regimen (Category IV) were 5.19 Month and also our sample size was less as compared to this study.

Another cross-sectional observational study done by Basu *et al*. [8] 2012, India, in a DOTS clinic of 110 tuberculosis patients and the result showed that 62% patients were depressed with PHQ-9 score of 5 and above. Out of 62% of the depressed patients two third were suffering from mild to moderate depression whereas 5.5% patients were severely depressed. Elderly were most affected. In our study, we screen patients by HDRs score and confirmed the diagnosis of depression by a psychiatrist due to which result showed 37.84% depression.

Another prospective case series performed by Vega *et al*. [4] 2004, Lima on 75 patients showed depression was 13.3% during MDR TB treatment, as our study differed from this study due to geographical distribution of disease.

Another retrospective record review observed by Furin *et al*. [14] 2001, on 60 patients who had received individualized therapy for MDR-TB and found that depression was the most frequent baseline finding, occurring in 38.3% of the patient. Side effects of medication include: depression newly diagnosed in 18.3% patients after a median of 8.5 months, anxiety in 11.7%, and other psychotic symptoms in 10% patients. In our study, median duration of treatment was 5.19 month.

As above studies and present study shows the burden of depression in MDR TB patients. Present study adds to our knowledge and understanding of problem of depression in MDR TB patients. The depressed patients shows poor adherence to take proper medication for MDR TB treatment. Due to which its MDR TB gets worsen and the bacteria become resistant to second line tuberculosis medication like fluoroquinolones. They also spread the MDR TB in community which is more complicated to treat. So the screenings of depression in these patients are essential and also need of antidepressant treatment to get better compliance toward MDR TB treatment.

CONCLUSION

The magnitude of depression in multidrug-resistant tuberculosis patients taking RNTCP regimen (Category IV) for MDR TB on an average duration of 5.19 month was 37.84% and out of these patients, 46.43% were mild, 50% were moderate, and 3.57% were severely depressed.

AUTHORS' CONTRIBUTIONS

Dr. Vijay Kumar Singh, Dr. Virendra Kushwaha, Dr. Pooja Agrawal and Dr. Dhananjay Choudhary contributed substantially to the conception, design of the study, analysis, and interpretation of data. Dr. Veerendra Singh Yadav substantially prepared manuscript. All authors discussed the results and commented on the manuscript.

CONFLICT OF INTEREST

None.

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REFERENCES

1. Singh H, Kaur K, Girish P. Multidrug Resistant tuberculosis: A pharmacological view based on revised national tuberculosis control programme dots-plus guidelines. IOSR J Pharm 2012;2:62-8.
2. India TB; 2017. p. 9. Available from: https://www.tbcindia.gov.in/writereaddata/tb%20india%202017.pdf [Last accessed on 2017 Mar 24].
3. Islam AT, Hoque A, Tarannum R. Pattern of psychiatric illness among tuberculosis patients an analysis in a tertiary care hospital of Bangladesh. Int J Appl Res 2015;1:763-6.
4. Vega P, Sweetland A, Acha J, Castillo H, Guerra D, Fawzi MC, *et al*. Psychiatric issues in the management of patients with multidrug resistant tuberculosis. Int J Tuberc Lung Dis 2004;8:749-59. PMID 15182146
5. Pachi A, Bratis D, Moussas G, Tselebis A. Psychiatric morbidity and other factors affecting treatment adherence in pulmonary tuberculosis patients. Tuberc Res Treat 2013;2013:489865. doi: 10.1155/2013/489865, PMID 23691305
6. World Health Organization. Companion Handbook to the WHO Guidelines for the Programmatic Management of Drug-Resistant Tuberculosis; 2014. p. 106. Available from: https://www.apps.who.int/iris/handle/10665/130918 [Last accessed on 2017 Jul 27].
7. Katon WJ. Epidemiology and treatment of depression in patients with chronic medical illness. Dialogues Clin Neurosci 2011;13:7-23. doi: 10.31887/DCNS.2011.13.1/wkaton, PMID 21485743
8. Basu G, Chatterjee C, Singh R, Biswas S. Prevalence of depression in tuberculosis patients: An experience from a DOTS clinic. IJRRMS 2012;2:14-7.
9. Lykouras E, Ioannidis H, Voulgaris D. Depression in general hospital patients: Preliminary results. Arch Hell Med 1987;4:287-9.
10. Tripathi KD. Essential of Medical Pharmacology.7th ed. India: The Health Sciences Publisher; 2013. p. 775, 776.
11. Dahiya S, Khichi SK, Goel PK, Singh A, Singh NK. Prevalence of depression among tuberculosis patients. Sch J App Med Sci 2017;5:2212-15.
12. Dawar U, Garg A, Oswal R, Patel KR. A study of prevalence of depression in patients with multi drug resistant tuberculosis. Eur Respir J 2016;48:2690. doi:10.1183/13993003.
13. Mehreen S, Khan MA, Basit A, Khan A, Ashiq N, Javaid A. Frequency of depression in multidrug-resistant tuberculosis patients: An experience from a tertiary care hospital. Pak J Chest Med 2015;21:149-4.
14. Furin JJ, Mitnick CD, Shin SS, Bayona J, Becerra MC, Singler JM, *et al*. occurrence of serious adverse effects in patients receiving community-based therapy for multidrug-resistant tuberculosis. Int J Tuberc Lung Dis 2001;5:648-55. PMID 11467371