

To study the psychiatric morbidity in mdr patients during Treatment in revised tuberculosis program category iv treatment

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Abstract

Introduction: More than 50 years after the advent of effective therapy, Tuberculosis (TB) remains one of the leading causes of adult deaths in the world, disproportionately affecting people in developing countries. Drug resistant TB has existed in India virtually since anti-TB drugs were introduced into the country. India had the second highest total number of estimated MDR TB case (99000) in 2008, after china (100000 cases) (WHO, 2010).

Materials and Methods: Patients of MDR-Pulmonary Tuberculosis at PMDT centre situated at Department of Tuberculosis and respiratory diseases{district Tuberculosis centre] UNS ASMC,JAUNPUR between june 2021 to December 2021 will be included in the study. Their psychiatric evaluation will be done at 3 months and thereafter every 6 months or whenever required. All diagnosed MDR pulmonary tuberculosis patients registered in PDMT services or whenever required is included. Other co-morbidities like HIV, chronic obstructive airways disease, diabetes mellitus and hepatitis which can cause psychosis due to any obvious cause other anti tubercular drugs or disease were excluded.

Results: Most of the patients were in 20-30 years group. Number of patients were quite less from 40-70 years age group. There were more males in the groups between age groups between 12-40 years. The minimum age of patient is 10 years. The maximum age of the patient was 70 years. The mean age of patients was 28.68. 12 patients develop psychiatry symptom during treatment among them 65.4% had BMI of 14. Four patients that is 33% have BMI 18.5. It is possible that more psychiatric patients with low BMI could be due to higher concentration of drug in body. This issue has only supported but not been investigation.

Conclusion: Eight patients had pre anti-tubercular treatment psychiatric problems. Four had depression, three had anxiety and one had psychosis. Twelve patients developed psychiatric symptoms after starting anti-tuberculosis treatment for drug resistance TB. All the patients had these symptoms during first three months of starting DRTB treatment. Psychiatric illness with treatment of psychiatric disease along with drug resistant TB treatment did not become hindrance to DRTB treatment. Psychiatric illness as co-morbidity with drug resistant TB had more non-working patients as compared DRTB patients with psychiatric co-morbidity (78.1% vs 36.7%).

AIMS AND OBJECTIVES

1. To study the presence of psychiatric abnormalities and modulations if any in patients of MDR-TB and during revised national tuberculosis control programme (RNTCP) category IV treatment.
2. To study personality characteristics of patients receiving RNTCP category IV treatment.

MATERIALS AND METHODS

Patients of MDR-Pulmonary Tuberculosis registered at PMDT centre situated (District TB centre) Department of Tuberculosis and respiratory disease, UNS ASMC Jaunpur will be included in the study

Diagnosed MDR Pulmonary tuberculosis patients will be subjected to complete clinical history and physical examination. The inclusion, pre-treatment evaluation, starting treatment and follow up would be done as per PMDT guidelines.

1. General health questionnaire (GHQ-12) for screening
2. Diagnostic assessment of selected patients will be done by structured clinical interview for DSM-IV-TR (SCID-I)(research version) for axis I psychiatric disorders and structured clinical interview for personality disorders (SCID-II-PD) A for Axis-II disorders.
3. Diagnosis of the psychiatric disorders will be made by consultant psychiatrist on the basis of diagnostic and statistical manual-IV TR (DSM-IV-TR)
4. Schedule for affective disorders and schizophrenia (SADS)-Change version (CV)-for syndromal and sub symptoms.

Their psychiatric evaluation will be done at 3 months and thereafter every 6 months or whenever required.

Inclusion Criteria: All diagnosed MDR pulmonary tuberculosis patients registered in PDMT services or whenever required.

Exclusion Criteria: Other co-morbidities like HIV, chronic obstructive airways disease, diabetes mellitus and hepatitis which can cause psychosis due to any obvious cause other anti tubercular drugs or disease.

RESULTS

Age group	Males	Females	Total
10-20	18 (60%)	12 (40%)	30 (100%)
21-30	31 (59.6%)	21 (40.3%)	52 (100%)
31-40	17 (54.8%)	14 (45.2%)	31 (100%)
41-50	6 (85.7%)	1(14.3%)	7 (100%)
51-60	5 (83.3%)	1 (16.7%)	6 (100%)
61-70	2 (50%)	2 (50%)	4 (100%)
Total	79 (60.7%)	51 (39.3%)	130 (100%)

Table 1: Classification of patients accounting to age groups and sex

Most of the patients were in 20-30 years group. Number of patients were quite less from 41-70 years age group. There were more males in the groups between age groups between 11-40 years. The minimum age of patient is 11 years. The maximum age of the patient was 70 years. The mean age of patients was 28.68.

Age group	Rural	Urban	Total
10-20	16 (53.4%)	14 (46.6%)	30 (100%)
21-30	31 (59.6%)	21 (10.4%)	52 (100%)
31-40	17 (54.8%)	14 (45.2%)	31 (100%)
41-50	4 (57.2%)	3 (42.8%)	7 (100%)
51-60	4 (66.6%)	2(33.4%)	6 (100%)
61-70	3 (75%)	1 (25%)	4 (100%)
Total	75 (57.8%)	55 (42.2%)	130 (100%)

Table 2: Classification of patients according to rural and urban

Most number of patients in each age group were from rural background, which is most seen in age group 20-30. Over all 75 (57.8%) were from rural background and 55 (42.2%) from urban background.

Addiction	Number	Percentage
Opium	2	0.8%
Alcohol	21	16.3%
Opium + Alcohol	1	0.01%
Tobacco Chewing	26	20.2%
Tobacco Smoking	8	6%
All mixed	16	12%
No addiction	72	55.3%
Total	130	100%

Table 3: pretreatment addiction status of patients

Most of the patients, 55.3% were not addicted to any intoxicant 20% were tobacco chewer and 16% were alcoholic.

GHQ* scores of patients	Number of patients	Detected psychiatric illness
1-4	104 (100%)	0
5-8	22 (100%)	4 (18.1%)
9-12	4 (100%)	4 (100%)
Total	130 (100%)	8 (6.1%)

Table 4: Classification of patients according to pre-treatment GHQ* score

*GHQ: General health Questionnaire

One of the 104 patients who had GHQ scores between 0-4 were detected any psychiatric illness. 18.1% of 22 patients who had GHQ scores were 5-8 were detected psychiatric illness. All four patients having GHQ scores between 9-10 were suffering from psychiatric illness prior to having anti-tuberculosis treatment.

GHQ Scores of patients	Number of patients	Mean Weight
1-4	104 (81%)	43.24 Kg
5-8	22 (16%)	39.1 kg
9-12	4 (3%)	40.4 kg
Total	130	42.6 kg

Table 5: Comparison of pretreatment GHQ scores with the mean body weight pre-treatment screening status of patient by GHQ

Mean body weight pretreatment of our patients is 42.6. Mean body weight of patients with various GHQ scores were statistically not significant.

GHQ scores of patients	Number of patients	New patients with psychiatric illness	Pretreatment psychiatric illness	Total having psychiatric illness
1-4	109 (100%)	0%	0%	0%
5-8	14 (100%)	8 (7.1%)	3 (21.4%)	11 (78.6%)
9-12	7 (100%)	4 (57.3%)	3 (42.8%)	7 (100%)
Total	130 (100%)	12 (9.2%)	6 (4.6%)	18 (13.8%)

Table 6: Post treatment 1st follow up within 3 months

Two pretreatment patients with psychiatric illness improved with medicines given for psychiatric illness during the first three months. None of the 109 patients who had GHQ scores between 0-4 developed any psychiatric illness in first three months. However, 8 new patients developed psychiatric illness in first three months with GHQ score 5-8. Four new patients developed psychiatric symptoms among seven who had GHQ scores between 9-12.

GHQ scores of patients	Number of patients	New patients with psychiatric illness	Pretreatment psychiatric illness	Total having psychiatric illness
1-4	122 (100%)	0	0	0
5-8	3 (100%)	0	3(100%)	3(100%)
9-12	1	0	1(100%)	1(100%)
Total	126 (100%)	0	4 (31.8%)	4 (31.8%)

Table 7: 2nd follow up at nine months

Twelve pretreatment patients with psychiatric illness improved with medicines given for psychiatric illness during next six months. Four patients become loss to follow up. None of the 122 patients who had GHQ scores between 0-4 developed any psychiatric illness in next nine months. There is no new patients which have psychiatric illness.

BMI	Total number of patients	Mean BMI Score	Mean GHQ Scores
More than 17	58 (44%)	19.5	2.7
Less than or equal to 17	72 (56%)	15.1	3.6
Total	130	17.3	3.1

Table 8: Comparison of Mean BMI with mean GHQ Score

Patients with have more BMI (mean BMI score 19.5) have less GHQ score (mean GHQ score 2.7)

Table 9: BMI scores of patients who developed psychiatric illness during treatment

BMI	Total number of patients	Mean BMI Score	Percent
More than 17	4/12	19.25	33.3%
Less than or equal to 17	8/12	15.0	66.7%
Total	12	16.4	100%

12 patients develop psychiatry symptom during treatment among them 66.7% had BMI of 15. Four patients that is 33% have BMI 19.5. It is possible that more psychiatric patients with low BMI could be due to higher concentration of drug in body. This issue has only supported but not been investigation.

Table 10: Patients who have psychiatric illness before ATT treatment

BMI	Total=8	Mean BMI Score	Percent
More than 17	4/8	20.5	50%
Less than or equal to 17	4/8	15.5	50%
	8	18	

Out of 8 patients who had psychiatric illness, four each from the group which had BMI more than 17 and four from the group which had psychiatric illness has equal distributions in low mean BMI group or high mean BMI group.

Table 11: The association of occupation with psychiatric disorder

		House wife	5	25%
		Separate	2	10%
Not working	15 (75%)	Student	8	40%
Working	5 (25%)			
Total	20 (100%)			

There is no difference in psychiatric illness in patient according to sex. Over all 80 males (61.5%) and 50 females (38.5%) MDR patients and among 20 patients who had psychiatric illness, 9 females (45%) and 11 males (55%).

Table 12: Outcomes of patients with psychiatric disorder

Failure	Dead	2	10%
	LTF	3	15%
	XDR	1	5%
Good	Good	14	70%
	Total	20	100%

70% of patients who have psychiatric illness have good outcome in terms of MDR treatment. Five patients (30%) does not have good outcome in which three patients were lost to follow up and one dead. So in our study it seems that psychiatric illness did not effect the MDR treatment in negative manner.

Table 13: Mean BMI of patients with psychiatric disorders

		Number of patients	Mean BMI
Psychiatric disorder	Present	20 (15.3%)	17.1
	Absent	110 (84.7%)	19.6
	Total	130	18.4

Twenty patients who have psychiatric illness have mean BMI (17.1) which was lower than patients who does not psychiatric illness mean (BMI=19.6).

Table 14: Mean GHQ scores of patients who had psychiatric symptoms at various level of follow up (After ATT treatment)

Period	No of patients		Mean GHQ Score
Baseline	With psychiatric problem	0	
	Without psychiatric problem	12	3.1
During first follow up after 3 rd month (after psychiatric treatment)	With psychiatric problem	12	7.9
	Without psychiatric problem	0	
During second follow up after 9 months	With psychiatric problem	3	7.1
	Without psychiatric problem	9	2.7
During Third follow up after 15th months	With psychiatric problem	1	5
	Without psychiatric problem	11	0.5

In every follow up, patients with psychiatric illness have more GHQ score than patients without psychiatric illness. After treatment seven patients who had psychiatric illness, their GHQ score become lower than they had earlier. GHQ can be used as a marker of treatment response.

Table 15: Details of psychiatric treatment

Total duration of psychiatric treatment	Number of patients	Mean GHQ
Less than 3 months	13 (65%)	5.2
Between 3 to 9 months	5(25%)	7.4
More than 9 months	2(10%)	8.3
Total number of patients offer treatment	20	6.1

65% of the patients with psychiatric illness improves within three month after starting of anti-psychotic treatment. Only two (10%) of patient have psychiatric symptoms which persists even after nine month after starting of anti-psychiatric treatment.

Table 16: Psychiatric illness profile of the patients

Types of psychiatric illness	Pre-treatment patient number	Post-treatment patient number	Mean GHQ Score
Depression	4 (50%)	5 (41.6%)	8.5
Anxiety	3 (37.5%)	2 (16.6%)	7.3
Psychotic	1 (12.5%)	3 (25%)	9.8
Other	0(0%)	2 (15.6%)	7.5
Total	8	12	

Pretreatment psychiatric illness was found in eight patients, out of which depression, anxiety and psychosis in four three and one patient respectively. Psychotic patients which were 15% of psychiatric illness highest number of mean GHQ score 9.8. Post-treatment psychiatric illness was found in twelve patients, out of which depression, anxiety, psychosis and somato-schizophrenia developed in four, two, three and two patient's respectively.

DISCUSSION

In this prospective study, we studied psychiatric abnormalities and modulations in patients of MDR TB and during treatment of patients under programmatic management of drug resistant TB between period between June 2021 to December 2021.

This was a hospital based prospective, observational epidemiological study which included detailed clinical history, physical examination, and regular follow up. This study was conducted on patients registered with Drug resistant TB (DRTB) centre at department of tuberculosis and respiratory disease" UNS ASMC Jaunpur

130 registered patients were included at random. There were 79 males (60.7%) and 51 females (39.3%). The minimum age of patient was 10 years and maximum age was 70 years. The mean age of patients was 29.70. Maximum 52 patients were in 20-30 year group. There were more males in the age groups between 11-40 ye

ars. Most number of patients in each age group were from rural background. Overall 75 (57.8%) were from rural background and 55 (42.2%) from urban background. Most of the patients, 55.3% were not addicted to any intoxicant. 20% were tobacco chewer and 16% were alcoholic.⁶

D.p.goldberg et al 1970. The GHQ-12 scale which we used asks whether the respondent has experienced a particular symptom or behaviour recently.⁷

Young Ju Kim et al (2013) found that optimal threshold of the GHQ-12 was either 1/2 or 2/3 point depending on the disorder, but was mainly 2/3. In our study it also seems that very high GHQ-12 score certainly points towards

psychiatric abnormality but even moderate high value of GHQ-12 score also have high degree of suspicion for patient in future to develop into full psychiatric illness.⁹

At first follow up after 3 months, 8 patients who were diagnosed pre-treatment psychiatric abnormalities were started treatment of psychiatric abnormality along with treatment of DRTB. 2 pretreatment patients with psychiatric illness markedly improved with medicines given for psychiatric illness during first three months and their psychiatric treatment was stopped. Remaining 6 patients also improved but their psychiatric medicines were decided to continue beyond three months.

First follow up at the end of 3 months of starting DRTB Treatment variation in GHQ-12 scores were detected. There were now 109 (earlier it was 104) patients who had GHQ-12 scores between 0-4 and none of them had psychiatric illness; 14 patients had GHQ-12 scores 5-9 of which 9-12 and all 7 of them developed psychiatric illness. All the patients who had detected psychiatric illness were given anti-psychiatric treatment along with DRTB treatment.

On second follow up at the end of 9 months of starting DRTB treatment more variation in GHQ-12 scores were detected. By this time 3 patients had defaulted from treatment and 1 had died. There remained 126 patients. Out of these 122 patients who had GHQ-12 scores between 0-4 and none of them had psychiatric illness; 4 patients had GHQ-12 scores 5-9 and none of them developed new psychiatric illness. None of the patients has GHQ-12 scores 9-12.

Third follow up at the end of 15 months of starting DRTB treatment, more variation in GHQ-12 scores were detected. By this time 2 more death had occurred and 2 more patients had GHQ-12 scores between 0-4 and none of them had developed new psychiatric illness.

We compared mean BMI of patients with mean GHQ-12 scores. Patients were grouped in to two groups with BMI more than 17 and BMI 17 or less. It was found that mean GHQ-12 scores were 2.7 in patients with BMI 17 or less the mean score was 3.5. 12 patients who developed psychiatric symptoms during treatment 8 had mean BMI of 15 kg/m² and 4 patients had mean BMI of 19.5 kg/m². It is possible that more psychiatric symptoms in patients with low BMI post anti tubercular treatment and higher GHQ-12 could be due to higher concentration of drug in body but this is only an uninvestigated suspicion.¹⁰

Vega P et al (2004) found that the baseline prevalence rates of depression and anxiety were 52% and 9%. During treatment, 13%, 12%, and 12% newly developed depression, anxiety, and psychosis respectively. They also found that continuation of TB drugs and administration of anti-depressants drugs together was thought to be an effective strategy for addressing MDR-TB medication related psychiatric issues.

CONCLUSION

Eight patients had pre anti-tubercular treatment psychiatric problems. Four had depression, three had depression, three had anxiety and one had psychosis.

Twelve patients developed psychiatric symptoms after starting anti-tuberculosis treatment for drug resistance TB. All the patients had these symptoms during first three months of starting DRTB treatment.

General Health Questionnaire (GHQ-12) was found to be very useful for evaluation of suspicion for psychiatric abnormality. Among patient pre-DRTB treatment none of patients with scores 0-4 had psychiatric abnormality in this study. 4(18.1%) out of 22 with GHQ-12 scores of 5-8 were associated with psychiatric co-morbidity, while all 4 with GHQ-12 scores 9-12 had psychiatric co-morbidity.

Patients taking treatment of Drug resistant TB none of patients with scores 0-4 had psychiatric abnormality. 8(57.1%) out of 14 with GHQ-12 scores of 5-8 were associated with psychiatric co-morbidity, while 4 (57.1%) out of 7 with GHQ-12 scores 9-12 had psychiatric co-morbidity.

90% of the patients with psychiatric illness improves within three to six month after starting of anti-psychiatric treatment after nine month.

GHQ-12 scores were less (2.7) in patients with BMI more than 17 kg/m² while in patients with BMI 17 or less the mean score was more (3.5). 12 patients who developed psychiatric symptoms during treatment 8 had mean BMI of 15 kg/m² and 4 patients had mean BMI of 19.5 kg/m².

Psychiatric illness with treatment of psychiatric disease along with drug resistant TB treatment did not become hindrance to DRTB treatment.

Psychiatric illness as co-morbidity with drug resistant TB had more non-working patients as compared DRTB patients with psychiatric co-morbidity (78.1% vs 36.7%).

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