



FACTORS ASSOCIATED WITH THE OUTCOME OF ATT AMONG HIV-TB CO-INFECTED PATIENTS ATTENDING THE ART CENTRE OF A TERTIARY CARE HOSPITAL OF JHARKHAND: A PROSPECTIVE HOSPITAL BASED STUDY

Community Medicine

Dr. Abhishek Kumar Assistant Professor, Dept. of Community Medicine, Narayan Medical College & Hospital, Sasaram, Bihar.

Dr. Mithilesh Kumar* Associate Professor, Department of PSM/Community Medicine, RIMS, Ranchi, Jharkhand. *Corresponding Author

Dr. Vivek Kashyap Professor & Head, Department of PSM/Community Medicine, RIMS, Ranchi, Jharkhand.

ABSTRACT

Background: Despite being preventable and curable, TB is the leading cause of HIV associated mortality. It is the most common opportunistic infection among HIV positive individuals with CD4 cell count $< 500/\text{mm}^3$. Worldwide the number of people infected with both HIV & TB is rising. **Objectives:** To assess the treatment outcome of HIV-TB Co-infected patients on Anti Tubercular treatment (ATT) attending ART Centre, RIMS, Ranchi. **Methods:** It was a hospital based prospective study done at the ART centre of Rajendra Institute of Medical Sciences (RIMS), Ranchi. Duration of study was 14 months. A total of 117 patients were registered during the study period and were followed up for outcome of ATT. **Results:** Out of 117 patients 4 were excluded and from remaining 113 patients, treatment success was found to be 88.5%. No significant association was found among any of the socio-demographic variables and outcome of TB treatment. **Conclusion:** In this study it was concluded that socio-demographic profile had no significant association ($p > 0.05$) with the outcome of TB treatment and treatment success (Cured & Treatment completed) was found in 88.5% of the HIV-TB co-infected patients.

KEYWORDS

Outcome, HIV-TB, ART Centre, ATT

INTRODUCTION

Worldwide the number of people infected with both HIV & TB is rising. The HIV virus damages body's natural defences (Immune system) and accelerates the speed at which tuberculosis progresses from a harmless infection to life threatening condition. The risk of activation of dormant TB is about 10% per year in HIV positive patients in contrast to 10% life time risk in HIV negative patients. The joint HIV-TB activities in India started in 2001 with six states which are Maharashtra, Manipur, Nagaland, Karnataka, Tamil Nadu and Andhra Pradesh. These early activities included joint training of staff and cross referral that includes intensified TB case-finding at Integrated Counselling and Testing Centres (ICTC) with referral of presumptive TB cases to Designated Microscopy Centres (DMCs), and referral of TB patients having HIV risk factors to ICTC for HIV counselling and testing. These collaborative activities were extended to 8 additional states in 2004 (Delhi, Gujarat, Himachal Pradesh, Kerala, Orissa, Punjab, Rajasthan and West Bengal) and to cover entire country by 2008.[1]

Under newer initiatives of RNTCP there is provision of daily regimen for all HIV-TB co-infected patients across the country. To reduce the burden of TB among People living with HIV/AIDS (PLHA) comprehensive strategies are implemented with single window service delivery for TB and HIV, rapid diagnosis with CBNAAT, Airborne Infection Control (AIC) measures at ART centre and Fixed Dose Combination (FDC) daily therapy at selected 30 high burden ART centres in five states of India, from April 2015. The same strategy is being scaled up nationwide in year 2016.[2]

A total of 1.4 million people died from TB in 2019 (including 208000 people with HIV). Worldwide, TB is one of the top 10 causes of death and the leading cause from a single infectious agent (above HIV/AIDS).[3] According to WHO globally about 80% of TB patients know their HIV status and about 95% HIV-TB co-infected patients are on ART. In India, incidence of HIV-TB co-infected patients is 6.6 per 100000 population in 2019 where as mortality due to HIV-TB is 0.72 per 100000 population for the year 2019.[4] Globally, an estimated 9.0 million people developed TB and 1.5 million died from the disease, 360000 of whom were HIV positive in 2013.[5] Globally in 2015, an estimated 10.4 million people developed TB and 1.4 million died from the disease. Estimated HIV-TB burden in India shows an incidence of 8.3 cases per 100000 populations per year. Incidence of TB in India is 167 cases per 100000 with a total of 2.2 million cases and prevalence of 195 cases per 100000, with a total of 2.5 million cases. An estimated 5% of all TB cases in India are HIV positive.[6] Intensified HIV-TB package has been introduced in Jharkhand in year 2011 and in the active collaboration with Jharkhand AIDS Control Society in which

12466 TB cases were ascertained for their HIV status accounting for 34% of all TB cases diagnosed in the year 2012 out of which 733 (2%) were diagnosed HIV-TB cases.[7]

This study aims to find the outcome of ATT in HIV-TB Co-infected patients attending ART Centre, RIMS, Ranchi.

MATERIAL & METHODS

Study Design - Hospital based prospective study

Study setting - ART Centre of Rajendra Institute of Medical Sciences, Ranchi.

Study duration - 14 months

Study subjects - All HIV-TB Co-infected patients attending ART Centre of RIMS, Ranchi taking both ART and ATT and willing to participate in our study during April 2016 - September 2016 were included in the study.

EXCLUSION CRITERIA:-

- Multi Drug Resistant (MDR)-TB Patients
- Not taking ART
- Patients unable to communicate

Sampling technique - Total consecutive sampling.

Data collection tool - A semi structured questionnaire was developed for data collection. Relevant socio-demographic profile as well as other information from the study population were included in the questionnaire. Informed consent was taken from the study subjects in Hindi language.

Data entry and analysis - Template was generated for data entry in MS-Excel sheet and analysis was done using SPSS software (version 20.0). Frequency tables were generated to see the distribution of variable. Chi-square test was applied to see the statistical significant association/difference of categorical variable. For all statistical analysis p -value < 0.05 was considered to be significant. Outcome of TB treatment was clubbed as treatment success (cured and treatment completed) and un-favourable outcome (loss to follow up, not evaluated, transferred out and death) for testing the association of significance with different variables.

Ethical clearance - Ethical approval was obtained from Institutional Ethics Committee of RIMS, Ranchi.

RESULTS

Outcome of TB treatment in clubbed form has been shown in figure 01. Association between socio-demographic variables and outcome of TB treatment of HIV-TB Co-infected patients has been shown in table no 01.

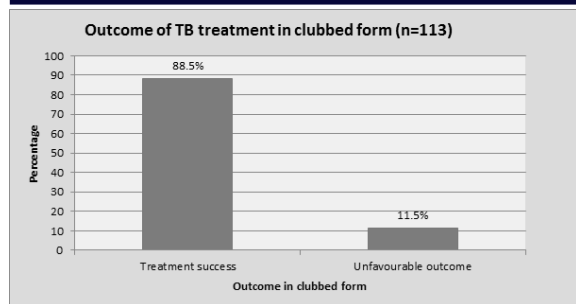


Fig 01: Bar diagram showing outcome of TB treatment in clubbed form

Table No 01: Association between socio-demographic variables and outcome of TB treatment of HIV-TB Co-infected patients (n=113)

Variables	Outcome of TB treatment		p-value
Gender	Treatment Success	Unfavourable outcome	
Male	73 (73%)	11 (84.6%)	0.367
Female	27 (27%)	02 (15.4%)	
Total	100 (100%)	13 (100%)	
Residence	Treatment Success	Unfavourable outcome	0.955
Urban	30 (30%)	04 (30.8%)	
Rural	70 (70%)	09 (69.2%)	
Total	100 (100%)	13 (100%)	
Ethnicity	Treatment Success	Unfavourable outcome	
Tribal	18 (18%)	02 (15.4%)	0.816
Non-tribal	82 (82%)	11 (84.6%)	
Total	100 (100%)	13 (100%)	
Education	Treatment Success	Unfavourable outcome	0.052
Illiterate	29 (29%)	05 (38.5%)	
Primary	38 (38%)	02 (15.4%)	
Secondary	29 (29%)	03 (23.1%)	
Higher Secondary	02 (2%)	02 (15.4%)	
Graduate & above	02 (2%)	01 (7.7%)	
Total	100 (100%)	13 (100%)	
Occupation	Treatment Success	Unfavourable outcome	0.562
Govt. Job	02 (2%)	01 (7.7%)	
Pvt. Job	07 (7%)	01 (7.7%)	
Farming	21 (21%)	03 (23.1%)	
Daily wages	10 (10%)	0	
Industrial/factory workers	18 (18%)	01 (7.7%)	
Student	08 (8%)	0	
Unemployed	18 (18%)	04 (30.8%)	
House wife	16 (16%)	03 (23.1%)	
Total	100 (100%)	13 (100%)	
Socio-economic status	Treatment Success	Unfavourable outcome	0.154
Upper class	03 (3%)	01 (7.7%)	
Middle class	03 (3%)	02 (15.4%)	
Lower middle	22 (22%)	03 (23.1%)	
Lower class	72 (72%)	07 (53.8%)	
Total	100 (100%)	13 (100%)	

DISCUSSIONS

Among patients with treatment success of TB, more than two third (73%) were males where as females contributed 27% among treatment success of TB. Among unfavourable outcome of TB also majority (84.6%) were males and 15.4% were females. There was no significant association ($p=0.367$) between treatment outcome of TB and gender of the patients on applying chi square test. As far as residence of the patients is concerned, more than 2/3rd (70%) were from rural area for treatment success group while urban contributed 30%. Among patients with unfavourable outcome 69.2% were from rural area. There was no

significant association ($p=0.955$) between residence and outcome of TB treatment. As far as ethnicity is concerned, non-tribal patients contributed 82% in treatment success group while tribal were 18%. In unfavourable outcome group majority of the patients (84.6%) belonged to non-tribal community where as rest belonged to tribal community. There was no significant association ($p=0.816$) between ethnicity and outcome of TB treatment. Among patients having treatment success, 38% were having primary education followed by secondary and illiterates, 29% each. Higher secondary and graduates were 2% each. In unfavourable outcome patients 38.5% were illiterates followed by secondary education (23.1%). Farmers were maximum (21%) among treatment success group. Industrial workers and unemployed contributed 18% each followed by housewives (16%). Among unfavourable treatment outcome most of the patients (30.8%) were unemployed. There was no significant association ($p=0.562$) between occupation & treatment outcome of TB. Majority (72%) of the patients among treatment success group were from lower class and 22% were from lower middle class according to BG Prasad classification 2016. Among unfavourable outcome group more than half (53.8%) of the patients were from lower class followed by lower middle class (23.1%). There was no significant association ($p=0.154$) between socioeconomic status scale and treatment outcome of TB. In this study treatment success (Cured & Treatment completed) was found in 88.5% patients, whereas unfavourable outcome (Loss to follow up, death, not evaluated) was found in 8.8% patients. In a similar study conducted by Ragini Ghiya et. al. in Vadodara, Gujarat treatment success was found in 92% of HIV-TB Co-infected patients. Failure was reported in 8% cases.[8] In another study conducted by Arun Mohan M. V et. al. at south Indian city, treatment success was found in 90.5% of the patients and socio-demographic profile did not show any significant association with outcome of TB treatment.[9] In a study by Sophia Vijay in Bangalore city, they found unfavourable outcome to be significantly associated ($p=0.001$) with gender (more common in males), marital status ($p=0.012$) and age ($p=0.001$) among the variable of socio – demographic profile. The habit of alcohol intake showed significant association ($p=0.001$) with unfavourable outcome of TB treatment.[10]

CONCLUSIONS

It was concluded from the present study that treatment success (Cured & Treatment completed) was found in 88.5% of the HIV-TB co-infected patients. Socio-demographic profile had no significant association ($p>0.05$) with the outcome of TB treatment in the present study.

Conflict of Interest – None

Source of funding – None

Acknowledgements – I express my sincere gratitude to my guide Dr. Vivek Kashyap, Professor and HOD, Department of PSM, RIMS, Ranchi, Jharkhand and extend my sincere thanks to the Medical Officer and staffs of ART Centre, RIMS, Ranchi.

REFERENCES:

- 1) Government of India Ministry of Health and Family Welfare Department of AIDS Control, National Framework for Joint HIV/TB Collaborative Activities
- 2) WHO. Global Tuberculosis Report 2016. WHO. [Last accessed on 25th October 2016]
- 3) [https://www.who.int/newsroom/factsheets/detail/tuberculosis#:~:text=Key%20facts,\(above%20HIV%2FAIDS](https://www.who.int/newsroom/factsheets/detail/tuberculosis#:~:text=Key%20facts,(above%20HIV%2FAIDS) [Last Accessed on 05th November 5, 2020]
- 4) <https://tbfacts.org/tb-statistics-india/> [Last Accessed on 05th November 5, 2020]
- 5) WHO (1996) TB Groups At Risk, WHO Report on the Tuberculosis Epidemic, Geneva
- 6) jrhm.jharkhand.gov.in > RNTCP Jharkhand
- 7) World Health Organization, Geneva, Global TB report 2014
- 8) Ghiya R, Naik E, Casanas B, Izurieta R, Marfatia Y. Clinico-epidemiological profile of HIV/TB coinfected patients in Vadodara, Gujarat. Indian J Sex Transm Dis 2009;30:10-5.
- 9) Mohan AMV, Tejaswi HJ, Ranganath TS. Socio-demographic profile of TB-HIV co-infected adults and its association with tuberculosis treatment outcome, in a South Indian city. Int J Community Med Public Health, 2016;3:3498-503.
- 10) Sophia Vijay et. al. Defaults among Tuberculosis Patients Treated Under DOTS in Bangalore City.