PREVALENCE OF HIV AMONG TUBERCULOSIS PATIENTS AT TERTIARY CARE REFERRAL HOSPITAL IN BANGALORE RURAL, SOUTH INDIA

Parimala T. V¹

HOW TO CITE THIS ARTICLE:

Parimala T. V. "Prevalence of HIV among Tuberculosis Patients at Tertiary Care Referral Hospital in Bangalore Rural, South India". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 18, May 05; Page: 5023-5028, DOI: 10.14260/jemds/2014/2548

ABSTRACT: BACKGROUND: Tuberculosis and HIV infection together form a very grave public health hazard. Detection of HIV infection among TB patients offers the opportunity to deliver prompt HIV care, such as cotrimoxazole prophylaxis and antiretroviral treatment, which can reduce suffering and death. **AIM:** To know the sociodemographic profile and prevalence of HIV among in newly diagnosed, untreated TB patients at tertiary care hospital in a rural area. **MATERIALS AND METHODS:** This prospective study was carried at the RNTCP center and ICTC center at tertiary care hospital, of Bangalore rural area, South India from March 2009 to February 2012. A total of 605 TB patients were studied. Diagnosis of TB was made as per RNTCP guidelines. HIV was screened as per NACO guidelines. Data were analyzed using Microsoft excel software. **RESULTS:** This study showed 28/605(4.62%) prevalence of HIV among TB patients. Higher prevalence was seen in males and in 21-40 age group. Pulmonary TB is the most common type of TB in HIV/TB patients. Treatment success rate in HIV positive patients was 18(64.28%) and 285(84.05%) in HIV negative patients. Higher mortality rate 4(14.28%) was observed in HIV positives TB patients compared to 34(5.89%) HIV negative TB patients. Failure rate was also high 1(3.57%) in HIV positive TB patients. **CONCLUSION:** There is a need for the RNTCP and NACO to collaborate on feasibility of making HIV counseling and testing routinely available to all DOTS and other TB patients throughout India. **KEYWORDS:** TB, HIV, coinfection of HIV/TB, prevalence, treatment outcome.

INTRODUCTION: Tuberculosis (TB) is the leading cause of mortality among infectious diseases worldwide, 95% of TB cases and 98% of deaths due to tuberculosis occur in developing countries¹. TB is the most common opportunistic infection in people living with HIV worldwide. It is also the most common cause of death in HIV-positive adults living in developing countries, despite being a preventable and treatable disease.²

At least one third of 35.3 million people living with HIV worldwide are infected with latent TB. Persons co-infected with TB and HIV are 29.6 times more likely to develop active TB disease than persons without HIV. There were an estimated 1.1 million HIV positive new TB cases globally in 2012.³

The interaction between HIV and TB in co infected persons is bidirectional and synergistic; on one hand, HIV-1 infection predisposes to the development of active TB, and, on the other, the course of HIV related immunodeficiency is worsened by active TB infection.⁴

The risk of development of TB in HIV infected patients in India is 6.9/100 person years as compared to 10% lifetime risk of developing TB in HIV negative persons. This is especially important in India where 40% of adult population is latently infected with M.tuberculosis.⁵

Most of the studies on seroprevalence of HIV among TB in India were carried out in urban area. There is scarce information on HIV/TB in rural area. The objective of the study was to

ORIGINAL ARTICLE

determine the prevalence of HIV infection among newly diagnosed, untreated TB patients at tertiary care center, Bangalore rural.

MATERIAL AND METHODS: This prospective observational study was conducted at the RNTCP center and ICTC center of tertiary care teaching hospital, in southern India from March 2009 to February 2012. A total of 605 a newly diagnosed and untreated TB patients registered under RNTCP were studied. Patients who were earlier treated or were continuing treatment for TB was excluded from the study.

Diagnosis of TB was made according to RNTCP guidelines⁶ by positive sputum AFB smear, chest x-ray for pulmonary tuberculosis and by FNAC or biopsy showing caseating granuloma, pleural or ascitic fluid examination etc., for extra pulmonary tuberculosis. Screening and confirmation for HIV status were done in ICTC center as per NACO guidelines.⁷

A predesigned and pretested questionnaire was used to collect data on socio -demographic profile. Socioeconomic status was assessed by the modified BG Prasad classification.⁸ The study was approved by the ethical committee of the institute. Data were then analyzed using Microsoft excel software.

RESULTS: In this study, a total of 3203 suspected TB cases were screened. Of this, 605(18.88%) patients were diagnosed with TB. Pulmonary TB was observed in 388(64.13%) cases and extrapulmonary TB in 217(35.86%) cases.

Figure1: Distribution of TB cases

Table 2 shows Pleural effusion 63(29.03%) was the most common type of extra pulmonary TB. Lymph node presentation was observed in 52(29.03%) cases, bones and joints in 35(16.19%) cases, and abdominal TB in 25(11.52%) cases. One case of pericardial effusion and ganglion was observed.

ORIGINAL ARTICLE

Figure 2: Distribution of extrapulmonary TB

A total of 6960 cases were screened for the presence of HIV at ICTC center. HIV was reactive in 215(3.18%) cases. There were 137(63.72%) males and 78(36.27%) females. Table 3 shows HIV was highest 135(62.76%) in the age group of 30-50years. Majority of them 84 (39.06%) were illiterate and 72(33.78%) had primary level of education. Occupation of the study population showed that 76(36.74%) had no work, followed by 45(20.93%) were laborers and 43(20%) were farmers. Most 213(99.06%) of them were belongs to Hindu religion. Maximum 205(95.34%) cases were observed in married people. All the cases were transmitted through heterosexual route.

Characteristics	n=215	%
Age group		
Up to 10	4	8.65
11 to 19	1	0.46
20 to 29	33	15.34
30 to 39	83	38.6
40 to 49	52	24.18
50 to 59	27	12.55
>60Above	15	6.97
Sex Ratio		
Male	137	63.72
Female	78	36.27
Education		
Illiterates	84	39.06
Primary	72	33.48
Middle	9	4.18
High school	18	8.37
PUC	25	11.62
Graduation	7	3.25

ORIGINAL ARTICLE

Occupation		
No work	79	36.74
Coolie	45	20.93
Agriculture	43	20
Skilled Work	12	5.81
Business	34	15.81
Teacher	2	0.93
Religion		
Hindu	213	99.06
Muslim	2	0.93
Marital Status		
Married	205	95.34
Unmarried	10	4.65
Table 3: Socio-demographic profile in HIV patients		

Among 605 TB patients, 28(4.62%) were HIV positive and 577(95.37%) were HIV negative. Of the 28 co-infected HIV/TB cases, 25(89.28%) were males and 03(10.71%) were females. Maximum cases 19(67.85%) of HIV/TB were observed in the age group 21-40 years.

Characteristics	Total (n=605)	%	HIV+ve (n=28)	%	HIV-ve (n=577)	%
Gender						
Male	398	65.78	25	89.28	373	64.44
Female	207	34.21	3	10.71	204	35.35
Age group						
0-10	30	4.95	0	0	30	4.95
11-20	41	6.77	6	21.42	35	6.06
21-30	111	18.34	8	28.57	103	17.85
31-40	88	14.54	11	39.28	77	13.34
41-50	113	18.67	1	3.57	111	19.23
51-60	76	12.56	2	7.14	75	12.99
61-70	89	14.71	0	0	89	14.71
>70	57	9.42	0	0	57	9.42
Table 4: Age and sex distribution of TB cases by HIV status						

Pulmonary TB 25(89.28%) is the most common type of TB in HIV/TB patients. Treatment success rate in HIV positive patients was 18(64.28%) and 285(84.05%) in HIV TB negative patients.

Higher mortality rate 4(14.28%) was observed in HIV positives TB patients compared to 34(5.89%) HIV negative TB patients. Failure rate was also high 1(3.57%) in HIV positive TB patients.

ORIGINAL ARTICLE

	Total (n=605)	%	HIV +ve (n=28)	%	HIV -ve (n=577)	%
Type of TB						
New sputum smear positive	288	47.6	19	67.85	269	46.62
New sputum smear negative	100	16.52	6	21.42	94	16.29
Extra pulmonary TB	217	35.86	3	10.71	214	37.08
Treatment Outcome						
Cured	214	35.37	10	35.71	204	35.35
Completed	289	47.76	8	28.57	281	48.70
Defaulter	31	5.12	3	10.71	28	9.96
Death	38	6.28	4	14.28	34	5.89
Absconding	22	3.63	2	7.14	20	3.46
Failure	11	1.81	1	3.57	10	1.73

Table 5: Type of TB and treatment outcome of TB cases by HIV status

DISCUSSION: The published reports about seroprevalence of HIV among tuberculosis patients give highly variable rates worldwide. Enki et al found that 66% newly diagnosed tuberculosis patients in Kampala were HIV seropositive. Eilhot et al reported 60% seroprevalence among tuberculosis patients in Zambia. But, Onorato and McCray had reported that 3.4% of the 3, 077 tuberculosis patients had HIV co-infection in USA.⁹

The rates of HIV/TB co-infection have been reported to vary in different regions of India. It was found to be between 0.4% and 20.1% in north India.¹⁰ However, the incidence was 3.2% in 1991, which increased to 20.1% in south India¹¹. In the present study the prevalence of HIV is 4.62% among TB patients. TB can occur at any time during the course of HIV infection. In HIV positive TB patients pulmonary TB is the commonest form of TB.¹² Similar finding was observed in our study. There is a lack of gold standard diagnostic tool for smear negative pulmonary TB. It is often difficult to distinguish other HIV related pulmonary disease from pulmonary TB.

Higher prevalence of HIV was observed among males in the sexually active age group with little or no education, being married, and working as laborers. The results of this study showed that heterosexual route of transmission was the most common indicating the need for intervention targeted at behavior modification. The treatment for TB is same for HIV infected as for non-HIV infected TB patients. The study revealed lower treatment success rate among HIV positive compared to HIV negative TB patients (64% vs. 84%).

Lower success rate may be attributable to high mortality (14.28% vs 5.89%) and failure (3.57% vs. 1.73%) rate among HIV positive patients. The reason for this could also be due to other opportunistic infections among HIV patients. Since the study was carried out only in one tertiary care hospital, it might not represent the whole country with regard to prevalence of HIV/TB co-infection.

CONCLUSION: All TB patients should be tested routinely for HIV infection and all HIV patients should be tested for TB especially in countries like India where TB is endemic. The DOTS strategy is useful to ensure cure of TB patients with HIV/AIDS. A strong coordination between the RNTCP programme and NACO is required for effective management of HIV/TB patients. Also these programmes should be targeted at the sexually active groups in the society as well as the illiterate and semi illiterate group.

REFERENCES:

1. Shahina M, Zarfishan T, Aftab A. Prevalence of HIV and Tuberculosis among Jail Inmates in Lahore – Pakistan. Biomedica. Jan-June 2009; 25(7): 36 – 41.
2. Liza K, Shama A. TB and HIV Co-infection: Current Trends, Diagnosis and Treatment Update. Physician Research Network. October 2006.
3. Available from <http://www.who.org.int/en/>. WHO 2012. World Health Organisation: TB-HIV2013 Factsheet source.
4. Suresh S, Balaji N, Anita S, Bharat R. TB Treatment outcome among TB-HIV co-infections in Karnataka, India: how do these compare with non-HIV tuberculosis outcomes in the province? BMC Public Health. 2013;13:838.
5. Bhagyabati Devi S, Santa N, Jeetenkumar S, Ksh BS et al. HIV and TB Co-infection. JIACM.2005; 6(3):220-3.
6. Managing the Revised National Tuberculosis Control Programme in your area, Central TB Division, Directorate Gen. Health Services, Ministry of Health and Family Welfare, New Delhi, 1999.
7. National guidelines of clinical management of HIV/AIDS, Govt. of India, Ministry of Health and Family Welfare, National AIDS Control Organization, 2003. www.nacoinia.org
8. Gupta MC, Mahajan BK. 3rd ed. New Delhi: Jaypee Brothers (Publishers); 2003. The text book of preventive and social medicine; pp. 117-8.
9. Jain S, Aggarwal J, Rajpal S, Baveja U. Prevalence of HIV Infection among Tuberculosis Patients in Delhi – A Sentinel surveillance Study. Ind J Tub. 2000, 47, 21.
10. Sharma S, Agarwal G, Seth P, Saba P. Increasing seropositivity among adult tuberculosis patients in Delhi. Indian J Med Res. 2003. 117: 239-42.
11. Paranjape R, Tripathy S, Menon P, Mehandale S. Increasing trend of HIV seroprevalence among pulmonary tuberculosis patients in Pune, India. Indian J Med Res. 1997; 106:207-11.
12. Preetish S, Vaidyanathan, Sanjay S. TB-HIV co-infection in India. NTI Bulletin. 2003. 39/3 & 4, 11-18.

AUTHORS:

1. Parimala T. V.

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Microbiology, MVJ Medical College & Research Hospital.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Parimala T. V,
Associate Professor,
Department of Microbiology,
Shridevi Institute of Medical Sciences &
Research Hospital, Sira Road, NH-4,
Tumkur-572106, Karnataka, India.
E-mail: tvparimala@yahoo.co.in

Date of Submission: 07/04/2014.
Date of Peer Review: 08/04/2014.
Date of Acceptance: 22/04/2014.
Date of Publishing: 05/05/2014.