ORIGINAL ARTICLE

PREVALENCE OF HIV IN TUBERCULOUS PATIENTS PRESENTING TO TB CLINIC OF A DIVISIONAL HEADQUARTERS HOSPITAL

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ABSTRACT

Background: Although the vast majority of patients with human immunodeficiency virus infection and tuberculosis live in the developing countries but co-infection is a threat around the world. The aim of this study was to find out the prevalence of HIV in tuberculous patients in our set-up. **Methods:** This observational study was conducted at DHQ Hospital Kohat, from January 2008 to July 2010. All tuberculous patients presenting at Tuberculosis Centre were screened for HIV with rapid test. All positive cases were further tested on ELISA. These patients were registered at ARV Centre Kohat and their CD4 count was performed and treatment for tuberculosis/HIV was monitored. **Results:** During the study period, out of 1262 patients with tuberculosis were reported. Of these 679 (53.8%) were females while 583 (46.2%) males. Among these 9(0.7%) were HIV positive. Of HIV positive patients 7 were males and 2 females. **Conclusion:** Testing tuberculous patients for HIV allows early diagnosis and timely HIV treatment. Joint effort of National AIDS Control Program and National TB Control Program is a matter of great urgency at basic health levels to control the co-infections.

KEY WORDS: HIV infection, Tuberculosis, AIDS.

INTRODUCTION

Although the vast majority of people with human immunodeficiency virus (HIV) infection and tuberculosis (TB) live in the developing countries but co-infection is a threat around the world.[1] Around 33 million people are living with HIV, each year around 2.7 million more people become infected with HIV and two million die of AIDS.[1] In 2008 the global TB incidence was 139 per 100,000 population, down from the peak of 143 per 100,000 population in 2004.[2] There are two High Burden Countries (HBCs) in the Eastern Mediterranean - Pakistan and Afghanistan.[3] In Pakistan the incidence of tuberculosis is estimated as 181 per 100,000 population.[4]

HIV infection is the strongest risk factor for TB among those with latent or new infection with *M. tuberculosis.*[5-9] It is possible that, in addition to increasing individual susceptibility to TB following MTB infection, the increased burden of HIV associated TB cases also increases MTB transmission rate at the community level, threatening the health and survival of HIV negative individuals as well.[10] In a population, the lifetime risk of developing active TB once infected, in absence of HIV infection, is about 10%[11]. However, it increases tenfold in HIV infected individuals. This has resulted in a large increase in the number of TB cases.[12,13] The proportion of smear-negative pulmonary TB (PTB) and extrapulmonary TB is higher among HIV co-infected TB patients.[14]

The aim of this study was to find out the prevalence of HIV in tuberculous patients in our set-up.

MATERIAL AND METHODS

This observational study was conducted on the prevalence of HIV in tuberculous patients presenting to TB Clinic at Divisional Headquarters Hospital KDA Kohat, Pakistan, from January 2008 to July 2010. TB clinic of the hospital works under the National TB Control Program. Patients were referred by physicians to TB Clinic in addition to those who directly presented to the Clinic. Three consecutive days sputum was screened for Acid Fast Bacilli (AFB) by Ziehl Neelsen staining. Sputum negative cases were diagnosed on clinical presentations like cough, fever along with radiological findings on chest X-ray. Extra-pulmonary TB cases were diagnosed on ascitic /pleural fluid cytology and biochemical analysis, histopathological examination of lymph nodes and response to anti-tuberculous therapy (ATT). All Tuberculous patients underwent HIV 1/2 Rapid Testing at the TB clinic. Pre-test and post test counseling was done. Written informed consent was taken. Confidentiality was maintained. Patients who refused HIV testing were excluded from the study. Patients with Positive rapid tests were further tested on ELISA

and registered at HIV treatment centre DHQ Hospital Kohat. CD4 counts were performed at Pakistan Institute of Medical Sciences Islamabad.

RESULTS

During the study period, a total of 1262 cases with tuberculosis were reported. Of these 679 (53.8%) were females while 583 (46.2%) males. Among these 548 (43.4%) were sputum AFB positive, 404 (32%) extra pulmonary tuberculosis and 310 (24.6%) sputum negative pulmonary tuberculosis. Of the 548 sputum AFB positive cases 320 were females and 246 males. Of 404 extra pulmonary tuberculosis patients, 214 were females and 190 were males, whereas in 310 sputum AFB negative pulmonary tuberculosis, 163 were females and 147 males. (Fig 1)

Of all cases, 373 had age less than 20 years whereas 363 were of age group 20-30 years. (Fig. 2)

Of these, 9 (0.7%) were HIV rapid test positive; 7 males and 2 females. 5 had extra pulmonary tuberculosis whereas 4 were having sputum AFB positive tuberculosis. 3 males while 2 females had extra-pulmonary tuberculosis. 4 males had sputum positive tuberculosis.

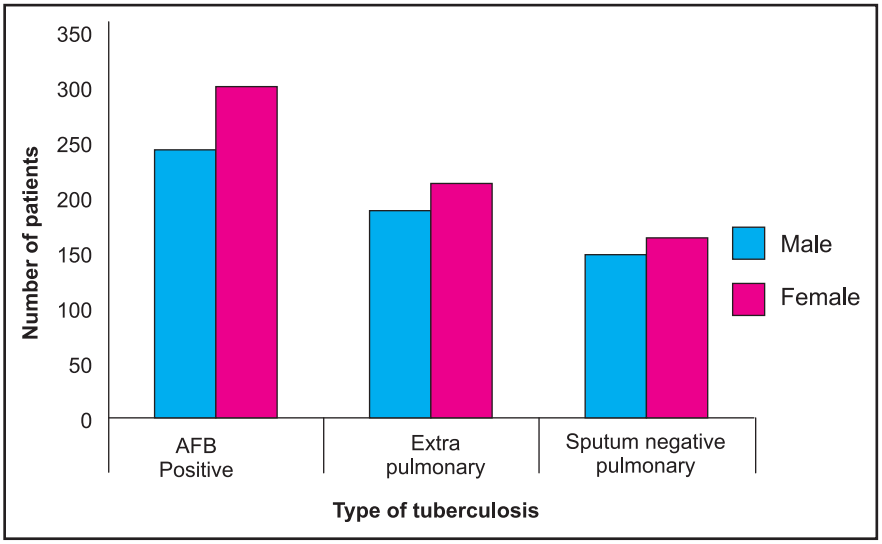

Fig. 1: Data is presented to show prevalence of AFB positive. Extrapulmonary tuberculosis and Sputum negative pulmonary tuberculosis in male and female patients.

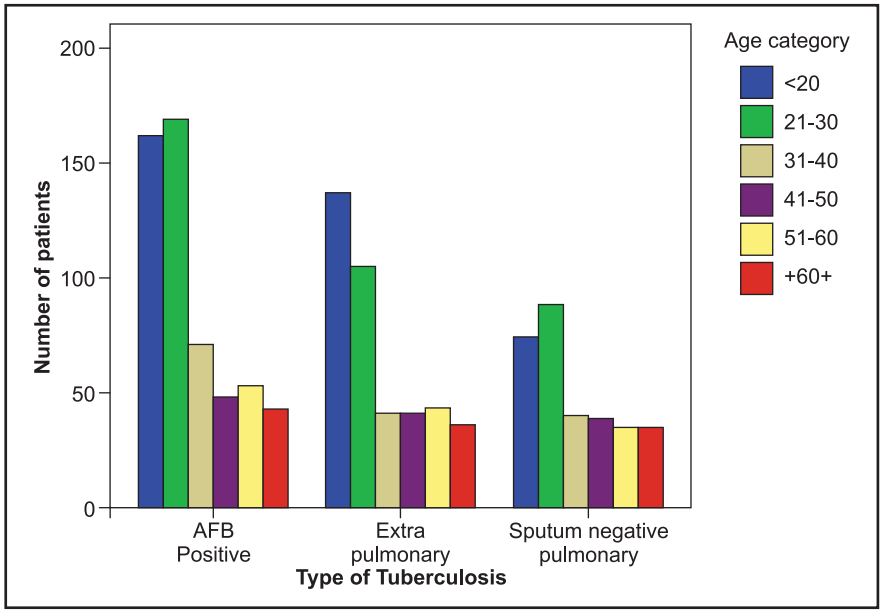

Fig. 2: Data showing prevalence of different types of tuberculosis in different age groups.

Two female patients were positive for HIV-1 rapid test whereas 5 males were positive for HIV-1 and two were positive for both HIV-1 and HIV-2 rapid tests. The CD 4 count could not be performed at 3 months interval, however single CD 4 counts were done at the time of diagnosis. The values of CD4 counts in females were 173 and 317, and in males 130, 150, 300 and 300 (mean 228). One male patient shifted to another city, one patient died while one patient was lost without taking therapy for tuberculosis.

DISCUSSION

Of the 15 countries with the highest rates of tuberculosis/human immunodeficiency virus (TB/HIV) co-infection among adults, 12 are in Africa and the others in Asia, including India, Myanmar and Thailand. Africa has recorded HIV infection rates of 50 per cent among TB patients[15]. The published reports about seroprevalance of HIV among tuberculosis patients give highly variable rates world wide. Enki et al[16] found that 66% newly diagnosed tuberculosis patients in Kampala (Uganda) were HIV seropositive. Eilhot et al[17] reported 60% seroprevalence among tuberculosis patients in Zambia. But, Onorato and McCray[18] had reported that 3.4% of the 3,077 tuberculosis patients had HIV co-infection in U.S.A. Several workers from India have reported highly variable seropositivity rates among TB patients[19]. A high prevalence of HIV seropositivity among TB patients has been reported from Chennai (1.7%) [20], Mumbai (6.7%)[21] and Pune (15%).[22] In a study conducted by Jain et al [23] in Dehli, prevalence was 0.68%.

In our study prevalence is 0.7%. Though prevalence is low in our study, TB patients have been suggested to be an important population for finding of HIV infections.[25] Screening HIV positive patients among the high risk population has been proven to be an effective strategy in finding infections, and then later in implementing interventions.[26-29]

A study conducted by Khalid et al[30] in Lahore Pakistan prevalence was 0.28%. A meta analysis by Gao et al[31] revealed prevalence of 0.9%.

Our study shows young people are affected more with tuberculosis because they are more exposed to infection due to their active life out side their homes. More patients were suffering from sputum AFB positive tuberculosis (see table). The reason could be delay in seeking medical consultation.

Both female HIV patients while three HIV positive males, in our study, were suffering from extra pulmonary tuberculosis. An explanation for this finding remains elusive but it suggests that endocrine factor might play a role in females or on individual level, there are indications for subtle anomalies in innate immune functions.[32,33]

HIV itself is a cause of extrapulmonary tuberculosis. This study also revealed that patients were having low CD4 count at the time of diagnosis and could develop MDR or XDR if not tested for HIV infection. HAART plays an important role in immune system recovery and clearance of tuberculosis infection.

All cases were followed up and they were completely cured. After one month chemotherapy for tuberculosis they were put on Highly Active Anti-Retrovral Therapy (HAART) and then both treatments were continued. (ATT for nine months).

The different prevalence of HIV between genders might be related to the potential differences of high-risk behaviors for HIV infection.

Routine HIV testing has been suggested to be more reasonable which also reduces the stigma associated with testing.[34,35]

CONCLUSION

Testing tuberculous patients for HIV allows early diagnosis and timely starting of HIV treatment thereby providing adequate care to TB-HIV patients. Joint effort of National AIDS Control Program and National TB Control Program is a matter of great urgency at basic health levels to control the co-infections.

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