

ORIGINAL ARTICLE

PREVALENCE OF HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION IN PATIENTS WITH PULMONARY TUBERCULOSIS

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ABSTRACT**OBJECTIVE:**

To determine the seroprevalence of Human Immunodeficiency virus (HIV) among patients of pulmonary tuberculosis (TB).

STUDY DESIGN:

Prospective randomized evidence based study.

STUDY SETTING:

Institute of Chest Medicine, Mayo Hospital, Lahore, a tertiary care hospital affiliated to King Edward Medical University, Lahore.

MATERIALS & METHODS:

One thousand and seventy four patients (560 males, 514 females) who were registered for treatment of tuberculosis were enrolled for the study. The diagnosis of pulmonary TB was based on history, physical examination, X-Ray chest, sputum testing for AFB. Patients were tested for HIV initially by strip method and then confirmed by HIV Elisa technique by the National AIDS control program Center at Mayo Hospital, Lahore

RESULT:

Out of 1074 cases of pulmonary tuberculosis, three men were HIV seropositive and all they were below the age of 40 years.

CONCLUSION:

Co-infection of Tuberculosis and HIV is seen in a small number of patients, in young males. Program efforts to implement comprehensive TB & HIV, services should be targeted and be able to manage this dual lethal infection.

KEY WORDS: Prevalence, Human Immunodeficiency Virus (HIV) Tuberculosis (TB), Pulmonary, Acid Fast Bacilli (AFB).

INTRODUCTION:

Human immunodeficiency virus (HIV) is a lentivirus (a member of the retrovirus family) that causes acquired immunodeficiency syndrome (AIDS). Infection with HIV occurs by the transfer of blood, semen, vaginal fluid, pre-ejaculate, or breast milk. Within these body fluids, HIV is present as both free virus particles and virus within infected immune cells.¹ HIV infection in humans is now pandemic. From 1981 to 2006, AIDS killed more than 25 million people. HIV has infected about 0.6% of the world's population. In 2005 alone, AIDS claimed an estimated 2.4–3.3 millions deaths, of which more than 570,000 were children.²

The first case of AIDS in a Pakistani citizen was reported in 1987 in Lahore. During the late 1980s and 1990s, it became evident that an increasing number of Pakistanis, mostly men, were becoming infected with HIV while living or traveling abroad. Upon their return to Pakistan, some of these men subsequently infected their wives who, in some cases, transfer the infection to their children³. In 1993, the first recognized transmission of HIV infection through breastfeeding in Pakistan was reported in Rawalpindi. During the 1990s, cases of AIDS began to appear among groups such as commercial sex workers, drug abusers and jail inmates.⁴ Approximately 5,600 registered HIV positive people are currently present in Pakistan, out of which 2,500 cases have been reported from Sindh. According to a report of World Health Organization (WHO), an estimated 0.1 million patients living with HIV and AIDS are present in Pakistan out of which 27000 are women.⁵

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Approximately 2 billion persons (one third of the world's population) are infected with *Mycobacterium tuberculosis*, whereas an estimated one third of persons with HIV infection are co-infected with TB. TB is the cause of death for as many as half of all persons with AIDS. Since 1990, TB infection rates have increased 4-fold in countries that are heavily affected by HIV. As many as 25% of infected persons are unaware of their infection. It is estimated that 9% of all TB cases and nearly 16% of TB cases among persons aged 25 to 44 years occur in HIV-infected persons. Because HIV infection severely weakens the immune system, persons dually infected with HIV and TB, compared with persons not infected with HIV, are at very high risk for active TB disease, which may be contagious.

The dual epidemic of tuberculosis and HIV infection is a cause of concern in countries where these two infections are prevalent. In developing countries like Pakistan where HIV infection is increasing in prevalence and which is already a high TB burden country, its incidence is increasing.

OBJECTIVES:

To study the prevalence of HIV in Pulmonary TB patients.

STUDY SETTING:

Institute of Chest Medicine, Mayo Hospital, Lahore, a Tertiary Care Centre for the diagnosis and treatment of TB patients affiliated with King Edward Medical University, Lahore. Study Design. We conducted a prospective randomized evidence based study.

MATERIALS & METHODS:

One thousand and seventy four patients (560 males, 514 females) who were registered for treatment of pulmonary tuberculosis were enrolled for the study. The diagnosis of pulmonary TB was based on history, physical examination, X-Ray chest and sputum testing for acid fast bacilli (AFB). Prior consent was taken for HIV screening. Study patients were tested for HIV initially by strip method and then confirmed by HIV Elisa by the National AIDS control program center at Mayo Hospital, Lahore. HIV positive patients were inquired especially about their travel abroad and sexual history.

HIV TESTING:

1 STRIP METHOD:

SD Bio line HIV-1/2 3.0 test is an immunochromatographic (rapid) test for the qualitative detection of antibodies of all isotypes (IgG, IgM, IgA) specific to HIV-1, HIV-2 simultaneously in human serum, plasma or whole blood.

2- ELISA METHOD:

The Human anti-HIV 1 / 2 ELISA test is used to detect antibodies HIV-1 and HIV -2 in serum or plasma. Recombinant antigens (rAg) specific for HIV-1 (gp120, gp41, p24, p17) and HIV-2 (gp36) coated on micro titer wells bind to the antibodies present in the serum or plasma of the positive HIV patients forming double antigen antibody complexes for detection.

RESULTS:

A total of 1074 eligible patients were enrolled for the study. Study patients were analyzed accordingly to gender, age, marital status, residential background, smoking habits, any addiction and travel abroad. As regards laboratory determinants, sputum was tested for three days for acid fast bacilli (AFB). HIV testing initially performed by strip method and those who were positive for HIV, they were confirmed by Elisa technique.

Amongst 1074 patients, 560 were men and 514 were women with median ages of 37.2 years and 41.3 years respectively. As regards the marital status, 392 (70%) men and 334 (65%) women were married. One hundred and fifty men (26%) were tobacco smokers in the form of cigarettes and/or Hukka while in the female group there were only 30 (5.8%) smokers. Two men were heroin addicts. Sputum smear examination was positive in 84(15%) males and 67 (13%) females and overall it was positive in 151 (14%) study patients.

All study patients were tested for HIV by strip method. Only three men were positive. They were confirmed by HIV Elisa method by the National AIDS control program center at Mayo Hospital, Lahore. These three HIV positive patients were detailed about travel abroad and sexual contact.

One patient visited abroad and had extra marital sexual contact. Remaining two were unmarried. One of them was heroin addict with history of sharing syringes. None of these two admitted any sexual contact nor went abroad. All these three patients were of relatively young, ages 26, 29 and 33 years respectively.

DISCUSSION:

TB and HIV infection coexist in many people world wide¹⁰. In our study the incidence of HIV seropositivity is relatively low (0.28%); all were young males. The proportion of HIV seropositivity in males was 0.53%. The commonest risk factors for HIV are sexual contact or needle sharing with a HIV positive patient, one of three positive patients had extra marital sexual contact with females outside country, and another was heroin addict with sharing injections. The low seropositivity in this study is comparable with a study conducted in Multan in 2003 in which none of the 49 pulmonary TB patients were coinfectd with HIV¹¹. In neighboring India where HIV is more prevalent, a study from Tamil Nadu¹², showed overall HIV seroprevalence among TB patients as 4.7%. In this study the highest HIV seropositivity rate was found among patients aged 30-39 years (10.6%). In another study from India from 15 districts the HIV seropositivity varied from 1% to 13.8% in different districts¹³.

Although prevalence of HIV in pulmonary patients is not much in our study, but it is to be kept in mind while evaluating patients as HIV incidence in Pakistan is expected to rise in line with other countries in the region. In India, for example the trend is of rising cases of HIV and TB coinfection ranging from 1.00% to 13.8%, while this lethal duo is rampant in sub-Saharan Africa. The age prevalence and male dominance is similar to other studies.

CONCLUSION:

In pulmonary TB patients co-infection with HIV should be kept in mind especially in high risk (for HIV) groups. This dual infection is present commonly in younger age groups < 40 years and more common in males.

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