



Association of Tuberculosis and Aids having Drastic Effect on Health

Saleem Q¹, Jawed B^{2*} and Fruk B³

¹khairpure Medical College Khirpure, Pakistan

²Department Pathology, khairpure Medical College Khirpure, Pakistan

³Community Medicine, khairpure Medical College Khirpure, Pakistan

***Corresponding author:** Jawed Ahmed Badvi, Professor and Head of Department Pathology, khairpure Medical College Khirpure, Pakistan, Email: jawedbadvi1958@gmail.com

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Abstract

Mycobacterium tuberculosis and human immune deficiency virus (HIV) have interlaced over the past years as a synergistic epidemic for a population with biological connections which exacerbated the burden of each disease condition. Under the influence of HIV epidemic, Tuberculosis has revived again as one of the deleterious disease of recent times especially in developing countries, even after the subsequent improvement in morbidity and mortality earlier; as this disease is poor population because of low immunity and associated with aids (acquired immune deficiency syndrome) is more liable to cause early death.

Keywords: Tuberculosis; Aids; Immunity; Disease; Epidemic

Introduction

The problems regarding diagnosis, treatment and control of either disease in resource limited nations has worsened due to emergence of drug-resistant tuberculosis (DR TB), the prevalence of which is usually unknown in undiagnosed individuals [1]. With the advent of Human Immunodeficiency Virus pandemic since 1980s, TB has become global health concern for everyone. AIDS and TB hold the highest positions as the gruesome infectious condition of mankind with increasing rate of mortality among patients [2]. With immense global impact of tuberculosis, estimated 200 million will be affected by the year 2020 [3]. Over the years, the increasing number of cases of tuberculosis in Asian countries has alarmed the world health organization (WHO) and health officials of concerned countries. The inability of low income countries to control the endemic of TB and HIV has raised the demand of efficient techniques for diagnosing the cases of tuberculosis having hidden HIV infection, in order to control the morbidity, mortality, incidence and spread of new infections in the community. Another burning

issue is the existence of stigmatization towards AIDS patient which is not the case with TB patient. Hence, TB patients openly seek for health services regarding diagnosis and treatment while HIV patients remain hesitant to visit the clinics for the sake of their self-respect [4]. For the dilemma regarding unawareness of disease severity and social restrictions, tuberculosis and HIV co-infection is becoming common in financially low-income countries as there is lack of awareness programs and disease cope up strategies due to limited resources. Collective efforts are required to deal with the rising burden of both the diseases in the community [5].

In Pakistan, despite the low prevalence of only 0.04% of AIDS, the chances of widespread of disease are high due to existence of risk factors [6]. Furthermore, the high prevalence of TB in Pakistan has rendered the individuals susceptible to contracting the HIV infection or vice versa. Surveillance reports on HIV prevalence in Pakistan has been published time to time, calculating the increasing trend of infection along with identifying risk factors for the disease. Still there is significant gap in assessing the exact prevalence

of the infection in general population and in patients with co morbid conditions like tuberculosis. This could be due to the unacceptable attitude of the community for these HIV infected patients. Hence, dynamic efforts are needed to unveil the hidden HIV infection in order to optimize the clinical services needed by them. Recognizing the requirement for updating data regarding prevalence of HIV infection in TB positive patients, current study was planned in local hospital setup. Furthermore, efficiency of different diagnostic assays for HIV was also investigated for acknowledgement of better HIV diagnostic tool, which could help the clinicians in proper and speedy diagnosis [7,8].

This study included 300 patients of tuberculosis who were diagnosed by gene Expert technique. The diagnosed patients then tested for HIV status by Chromatography and confirmed by ELISA method and PCR.

As with other studies on occurrence of tuberculosis, in this study also TB was more prevalent in males of the society, keeping up with the WHO statement that males are more prone to contracting the disease in comparison to females [9]. This finding is also validated by previous researches which delineated the high frequency of tuberculosis in male patients [6]. As TB is an airborne infection, the reason behind male predominance could be high occupational exposure of males as they are the earning members and needs to go out more frequently and meet different people [7]. Our observation on age of contracting TB showed higher prevalence in subjects of less than 30 years of age. A report on dynamics of tuberculosis also documented the over presentation of tuberculosis in young adults, convicting HIV infection to be one of the culprit to produce disproportionate number of cases among young male and female [6]. Previous data proposed the fact that young age of 12-24 years is the highest risk factor for acquiring the disease as they have broad span of social contacts as compared to children and older individuals. This fact and our results were supported in a study which used WHO global TB surveillance data and documented highest number of TB cases in 20-24 year of patients [10]. The increased transmission and incidence of tuberculosis has been documented more frequently in urban residential settings. As the presence of houses in close proximity easily enhances the chances of contracting the airborne infection. The apartment system with multiple floors in developed and underdeveloped countries is the most susceptible risk factor for spread of any kind of infection. A study done in Singapore documented the high incidence of TB infection in urban areas [11], which is line with our finding of higher TB cases in urban setting.

Another possibility of high infection rate in urban areas is the increase in migration rate of rural individuals for better lifestyle through high paid jobs in urban societies.

The prevalence of TB among these migrants depends on their living conditions like crowded spaces, poor knowledge regarding early diagnosis and disease progression, nutritional deficiencies, poor sanitation and most importantly, lack of seeking health facility due to financial constraints [12]. Hence, this could be the possibility of high number of cases from urban areas in our study as Karachi is a metropolitan city with extensive job opportunities which attracts majority of rural individuals to become urban inhabitants. In this study the prevalence of HIV in TB patients came out to be 1.8% by ultra-rapid test and ESR while it was 1.6% by PCR. We observed a quite increased percentage of HIV in TB patients as compared to previous studies of 1997, 2012, 2007 and 1997, done in province of Sindh including Karachi. Collectively the HIV/TB co infection in these studies was 0.34% only [7]. Hence, our observation shows increase in the prevalence of HIV in TB patients, which clearly depicts the picture of poor management strategies for TB and HIV infections individually and for TB/HIV co infection in our country.

The incidence of HIV/TB co infection shows wide variation among different regions and countries, having highest trend in African and southeast Asian countries. The prevalence of HIV/TB co infection is high in our neighboring countries. In India alarming figures of 56% of co infection have been documented in a most recent study. This high rate of infection could be due to the fact that India is a densely populated country with problem of poverty and crowded neighborhood. And ignorance from the government side with lack of health facilities enhances the worse scenario [13]. Situation is not different in other countries like China, which observed the HIV prevalence of 13.66% in TB patients, and for this high rate they identified risk factors like unprotected sex, intravenous drug users, and professional sex workers, use of contaminated needles, diseases like hepatitis, herpes and tuberculosis [4]. When seeing prevalence of HIV//TB co infection in relation to genders, we found more female prevalence with 3.2% while in males it was only 0.6%. This finding is supported by Indian research study, which also showed trend of female involvement. They implicated the existence of anemia and nutritional deficiencies in Indian females as a cause of high infection prevalence [14]. However, we could imply on the same reason as women are the most unprivileged population in Pakistan also.

Another study done in China, documented the same female predilection for HIV infection in TB patients. The reported prevalence for males and females was 12.77% and 14.43% respectively [15]. Furthermore, HIV infection was found to affect female sex workers of young age in India. HIV prevalence was high (12.5%) in age <20 years as compared to old age workers. This could be linked to the cervical condition of younger workers subjected to

continuous irritation and trauma leading to cervical ecotype, hence paving way for easily contracting the infection and further transmission [13]. In the current study, majority of the patients exhibited HIV/TB co infection between the age ranges of 20-29 years. A study of Cape Town also observed almost same pattern in their young adults of 20-24 years of age having highest prevalence of HIV/TB co infection [4]. A study in Iran, calculated the prevalence of co infection in patients of <40 years and >40 years and found the highest rates in younger age group, thus corroborating with our results [14]. Another study done in Nepal documented the age range of 21-30 years, to be most affected by the HIV/TB co infection.

A common reason for this involvement in all the mentioned studies were history of unprotected sexual contact, unsafe drug injections and possibility of weak immune response in young age. In 2009, a meeting by United Nations (UN) and task teams identified needs of young people who were most at risk of HIV. In the second decade of life, young people are more concerned about transition, which include entering into practical life, making relationships, trying new things thus taking risks with multiple things (drugs) and activities (sexual). Lack of proper parental guidance, lack of adequate information about diseases and prohibited activities render them vulnerable to contracting the lethal infections like HIV or TB. Hence, planning of health programs and implementing them with involvement of youth organizations could help in achieving the goals of controlling the spread of these infections, as young peers have better understanding of communication with their young associates because and they more conveniently understand the problems of youth [16].

Material and Method

This was proceeding in laboratory according to the protocol and result collected and result was discussed.

Discussion

Mycobacterium tuberculosis and human immune deficiency virus (HIV) have interlaced over the past years as a synergistic epidemic for a population with biological connections which exacerbated the burden of each disease condition. Under the influence of HIV epidemic, Tuberculosis has revived again as one of the deleterious disease of recent times especially in developing countries, even after the subsequent improvement in morbidity and mortality earlier. The problems regarding diagnosis, treatment and control of either disease in resource limited nations has worsened due to emergence of drug-resistant tuberculosis (DR TB), the prevalence of which is usually unknown in undiagnosed individuals. With the advent of Human Immunodeficiency

Virus pandemic since 1980s, TB has become global health concern for everyone. AIDS and TB hold the highest positions as the gruesome infectious condition of mankind with increasing rate of mortality among patients. With immense global impact of tuberculosis, estimated 200 million will be affected by the year 2020.

Surveillance reports on HIV prevalence in Pakistan has been published time to time, calculating the increasing trend of infection along with identifying risk factors for the disease. Still there is significant gap in assessing the exact prevalence of the infection in general population and in patients with co morbid conditions like tuberculosis. This could be due to the unacceptable attitude of the community for these HIV infected patients. Hence, dynamic efforts are needed to unveil the hidden HIV infection in order to optimize the clinical services needed by them. Recognizing the requirement for updating data regarding prevalence of HIV infection in TB positive patients, current study was planned in local hospital setup. Furthermore, efficiency of different diagnostic assays for HIV was also investigated for acknowledgement of better HIV diagnostic tool, which could help the clinicians in proper and speedy diagnosis. This study included 300 patients of tuberculosis who were diagnosed by gene Xpert technique. The diagnosed patients then tested for HIV status by Chromatography and confirmed by ELISA method and PCR. Surveillance reports on HIV prevalence in Pakistan has been published time to time, calculating the increasing trend of infection along with identifying risk factors for the disease. Still there is significant gap in assessing the exact prevalence of the infection in general population and in patients with co morbid conditions like tuberculosis. This could be due to the unacceptable attitude of the community for these HIV infected patients. Hence, dynamic efforts are needed to unveil the hidden HIV infection in order to optimize the clinical services needed by them. Recognizing the requirement for updating data regarding prevalence of HIV infection in TB positive patients, current study was planned in local hospital setup. Furthermore, efficiency of different diagnostic assays for HIV was also investigated for acknowledgement of better HIV diagnostic tool, which could help the clinicians in proper and speedy diagnosis. This study included 300 patients of tuberculosis who were diagnosed by gene expert technique. The diagnosed patients then tested for HIV status by Chromatography and confirmed by ELISA method.

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