FREQUENCY OF PULMONARY TUBERCULOSIS IN HIV/AIDS PATIENTS PRESENTING TO ANTI RETRO VIRL CENTER HAYATABAD MEDICAL COMPLEX PESHAWAR

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ABSTRACT

Background: Acquired immune deficiency syndrome (AIDS) epidemic is a global health problem of this century. It has fuelled the resurgence of tuberculosis resulting in increased mortility and morbidiy.

Objectives: The purpose of this study is to determine the frequency of pulmonary tuberculosis in Human immunodeficiency virus/ Acquired immune deficiency syndrome (HIV/AIDS) patients presenting to Anti Retro Viral (ARV) centre in Hayatabad Medical Complex Peshawar.

Material and Methods: Cross sectional descriptive study was performed on 100 HIV/AIDS patients attending the Anti RetroViral center Hayatabad medical complex from October 2009 to October 2010. HIV infection was confirmed on western blot and third generation Enzyme- linked immunosorbent assay(Elisa). Diagnosis of pulmonary tuberculosis was based on combination of history, clinical examination, chest X-ray(PA view) digital standard size,three consecutive fasting sputum AFB smear. The details of patients'demographics and presence of dual infection(HIV and TB) were noted and described as frequency and percentages.

Results: The study enrolled 100 HIV/AIDS patients above 12 years of age. Mean age of these patients was 33.57 years with standard deviation±12.08. Out of these, 28% were female and 72% patients were male. Sixty four percent were employed and 36% patients were unemployed. Among these 100 HIV positive patients 74% were without coinfection with pulmonary tuberculosis while 26% patients were coinfected.

Conclusion: Pulmonary tuberculosis is an opportunistic infection frequently found in HIV/AIDS patients. Thus assessment for tuberculosis is mandatory in these patients as it increases the morbidity and mortality.

INTRODUCTION

The acquired immune deficiency syndrome (AIDS) epidemic remains one of the most important global health problems of the 21st century despite the substantial advancements in therapy[1]. More than 40 million People are infected with Human immunodeficiency virus(HIV) /Acquired immune deficiency syndrome (AIDS) worldwide[2]. HIV/AIDS has fuelled the resurgence of tuberculosis all over the world[3]. Millions of people are infected with both HIV and tuberculosis (TB). Every third person of the world's 40 million with HIV/AIDS is likely to develop active tuberculosis[4]. The eye of storm is in Sub-Saharan Africa where as many as 80% of tuberculous patients are HIV co-infected[5]. Eleven percent of total HIV related deaths are caused by tuberculosis[6].

Tuberculosis can occur during the entire spectrum of HIV, but chances are more when cluster of differentiation four (CD4) cell count is less than 200[7]. HIV patients are co-infected with tuberculosis either by reactivation of latent infection or by acquiring new infection as HIV induced immunosuppression put the patient at high risk for active tuberculosis[1]. Mortality is four times higher for HIV/AIDS-TB co-infection than for tuberculosis alone.[8] A matter of great anxiety is the emergence of multidrug resistant (MDR-TB) and extensively drug resistant (XDR-TB) tuberculosis,which is increasing dramatically and are associated with HIV co-infection[9].

HIV-TB co-infection presents serious challenge regarding diagnosis as HIV induced immunosuppression modify the clinical and radiological presentation[10]. Treatment of tuberculosis is also difficult in HIV/AIDS patients because of adverse effects and pharmacological interactions between drugs[11].

HIV/AIDS is not uncommon but hidden epidemic of Pakistan. Eighty five thousand cases of HIV/AIDS are documented which represents 0.1% of adult population.[12] First AIDS case was diagnosed in 1986 in Pakistan. The Government of Pakistan has established National AIDS Control Program (NACP) based on National Institute of Health.[13] Tuberculosis is one of the major infectious disease. Though no nation is immune from the disease but main brunt of the disease is in the developing countries. Pakistan is sixth in ranking among the 22 high TB burden countries. It is estimated that 2,68,000 new cases of tuberculosis ap-

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pear each year in Pakistan and is responsible for 64,000 deaths annually. A major concern regarding control of tuberculosis is the drug resistance and HIV infection is one of the cause of drug resistance.[14]

As a poor nation we are at losing end regarding TB burden due to multidrug resistance, poor compliance with drugs and limited supply of antiretroviral drugs. The purpose of this study was to document the frequency tuberculosis in patients with HIV reflecting the association between HIV and TB.

MATERIAL AND METHODS

After approval from hospital Ethical committee, 100 HIV seropositive patients of both gender registered with ARV center based on third generation enzyme-linked immunosorbent assay (Elisa) and western blot were enrolled in the study after informed written consent. Their demographic characteristics like age, sex and address were recorded. Diagnosis of tuberculosis was based on clinical examination, X-ray chest (PA view) Digital standard size, three consecutive fasting sputum smear visualized by microbiologist for the presence of acid fast bacilli. Chest x-ray was reported by radiologist. Three morning fasting sputum specimens were collected for AFB smear. Those who were not able to produce sputum were nebulized with saline to get the required sample. AFB Smear was reported after Ziehl-Neelsen staining by microbiologist. Bronchoscopy with bronchoalveolar lavage was done in few cases and were examined by microbiologist for the presence of mycobacteria.

Mean and Standard deviation were calculated for age. Frequency and percentages were calculated for gender, and for patients co-infected with pulmonary tuberculosis and those without co-infection (Tuberculosis).

RESULTS

This study was performed at the Anti Retro Viral Centre, Hayatabad Medical Complex, Peshawar. A total of 100 HIV positive patients were selected for the study between 14th October 2009 to 13 October 2010.

TABLE NO 1. AGE DISTRIBUTION (N=100)

Age Range	Frequency	Percentage
1-10 Years	0	0%
11-20 Years	13	13%
21-30 Years	36	36%
31-40 Years	29	29%
41-50 Years	13	13%
51-60 Years	9	9%
Total	100	100%

Out of these 100 HIV/AIDS patients, 13(13%) were in the age range of 10-20 years, 36(36%) patients were in age range from 21-30 years, 29(29%) patients were in age range from 31-40 years, 13(13%) patients were in age range from 41-50 years and 9(9%) patients were in age range from 51-60 years. Mean age of these patients was 33.57 years with standard deviation ±12.08. (Table No 1).

TABLE NO 2. GENDER DISTRIBUTION (N=100)

Gender	Frequency	Percentage
Male	72	72%
Female	28	28%
Total	100	100%

There were 72(72%) males and 28(28%) female.

TABLE NO 3. OCCUPATION DISTRIBUTION (N=100)

Occupation	Frequency	Percentage
Employs	64	64%
Un-Employs	36	36%
Total	100	100%

Occupational distribution was 64(64%) employed and 36(36%) unemployed.(Table No3)

TABLE NO 4. MARITAL STATUS (N=100)

Marital status	Frequecny	Percentage
Married	64	64%
Un married	36	36%
Total	100	100%

TABLE NO 5. PULMONARY TUBERCULOSIS (N=100)

Tuberculosis	Frequency	Percentage
Positive	26	26%
Negative	74	74%
Total	100	100%

(Table No 2).

Sixty four (64%) patients were married and 36(36%) were unmarried. (Table No 4).

There were 26 (26%) patients coinfected with pulmonary tuberculosis while 74(74%) patients were without coinfection with tuberculosis(Table No 5).

DISCUSSION

The endimicity of tuberculosis is very high in Asia and Africa. Sixty percent of the world total TB cases are in Asia and there is also a marked rise in HIV seroprevalence (22% of the world total). Thus coinfected patients are a challenge for practitioners and public health worker[15]. Tuberculosis is the leading cause of death in HIV patients in developing countries[16]. Our study showed that 26% of HIV positive patients were suffering from tuberculosis on screening. This was in comparison to 30% found in a study done in Karachi and 28% in Pakistan Institute of Medical Sciences.(Islamabad).[4,6]

A study done in Dar-es-Salam(Tanzania) found 15% prevalence of tuberculosis in patients attending HIV care and treatment clinic.[17] This differs from our study and the difference between these two studies can be explained by the fact that prevalence of tuberculosis is very high in our region because of poverty, malnutrition, overcrowding, poor public health and medical infrastructure and patients with low immunity due to HIV are more likely to acquire tuberculosis in an area with high tuberculosis prevalence.

The risk of tuberculosis increases after HIV seroconversion, doubling within first year, thereafter, the risk progressively increases with declining immunity.[18,19,20] HIV modifies the clinical presentation and management of tuberculosis[6]. Tuberculosis also has a negative impact on HIV disease, increasing the risk of AIDS or death.[21]

Tuberculosis infection is also associated with significant increase in plasma HIV viremia.[22,23]

Tuberculosis is one of the most common opportunistic infection of HIV infected patients in developing countries. Pulmonary involvement is in 70 to 93% of TB cases[15]. The risk of extrapulmonary tuberculosis is greater in HIV infected patients with advanced immunosuppression.[24] The most common sites of extrapulmonary involvement are lymph nodes and pleura, but virtually any site can be involved.[25]

All HIV positive patients should be educated about tuberculosis as early diagnosis and treatment of tuberculosis can improve survival and prognosis of HIV/AIDS patients.

A limitation of our study is that it is hospital based and the patients included were those who were seriously ill. Thus we might have missed the group of not seriously ill.

CONCLUSION

Pulmonary tuberculosis is frequently present opportunistic infection in HIV infected patients. Thus assessment for tuberculosis is mandatory in HIV/AIDS patients as it increases the mortality and morbidity.

RECOMMENDATIONS

All HIV seropositive patients should be screened for tuberculosis before starting on Anti Retroviral therapy.

There should be close collaboration between Tuberculosis and HIV programmes.

There is a need to improve the joint support of tuberculosis and HIV programme at primary health care level.

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