

UNIVERSAL HIV TESTING FOR TB PATIENT; IS IT REALLY APPLICABLE UNIVERSALLY?

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ABSTRACT

Background: Universal HIV testing for all TB patients regardless of their individual risk factors is being recommended by most of the authorities including WHO in recent guidelines. **Objective:** To determine the prevalence of HIV infection among Pulmonary TB patients presenting at Department of Pulmonology, Rahim Yar Khan, Pakistan. **Patients and Methods:** In this cross sectional study, one hundred consecutive newly registered smear positive pulmonary TB patients presented at Department of Pulmonology, Sheikh Zayed Medical College, Rahim Yar Khan from 1st April to 31st December 2010 were included in this study. Interviews were conducted to record the sociodemographic data and various HIV related risk factors for all patients. Consent was taken from the patients to be included in this study and for HIV testing. Test was done by ICT method at department of pathology of this institute. The data was entered and analyzed in SPSS version 15. **Results:** Out of 100 TB patients in this study, 56 were male and 44 were female. Majority (51%) of the patients were uneducated. Only 24% were earning more than ten thousands rupees per month. Sixty six percent patients were aged between 15-49 years. All the patients gave their consent for HIV testing. Only 4 of the 100 subjects had travelled abroad, 8 had history of blood transfusion and none of the patients admitted any history of drug abuse. None of the 100 patients in this study was positive for HIV infection. **Conclusion:** Despite the presence of risk factors in considerable number of participants of this study, HIV infection was not detected in any of the Pulmonary TB patient. This finding put a question mark over universal recommendation of HIV testing in all TB patients worldwide. However, larger study including all TB patients, both Pulmonary as well as Extra Pulmonary is required to confirm this finding.

Key words: Pulmonary tuberculosis, extra pulmonary tuberculosis, HIV.

INTRODUCTION

Human immunodeficiency virus (HIV) infection poses one of the greatest challenges to tuberculosis control.¹ HIV and TB form a lethal combination, each speeding up the other's progress. HIV is the most powerful known risk factor for progression of latent TB infection to active disease.² Someone who is HIV-positive and infected with TB bacilli is many times more likely to become sick with TB than someone infected with TB bacilli who is HIV-negative.^{3,4} In Africa, HIV is the single most important factor contributing to the increase in the incidence of TB since 1990.⁵ TB is a leading cause of death among people who are HIV-positive, one in four people living with HIV die as a result of TB.¹ In fact, TB has been designated as an AIDS-defining condition.⁶ About one-third of the 33.2 million HIV-positive people worldwide are co-infected with TB.¹

Majority of the people living in developing world do not know about their HIV status. Even in the UK, up to one third of people infected with HIV are unaware of their status.⁷ Considering these facts, most of the authorities (like WHO, CDC, British HIV Association, British Association for sexual health and HIV and British Infection Society) recommend regular, intensified TB case finding for all people living with HIV and universal HIV testing for all newly diagnosed TB patients.^{8,9,10,11} Universal HIV testing means that all individuals attending TB clinics are offered and recommended an HIV test as part of their routine care. WHO in recent guidelines recommended HIV testing for all patients irrespective of their age and regardless of individual risk factors or stage of the country's HIV epidemic.¹² Up till now, the policy of universal HIV testing is not implemented in Pakistan. Furthermore, there is no study on prevalence of HIV infection in general public or TB patients conducted at Rahim Yar Khan. This motivated our team to conduct this research. The objective of the study was to determine the prevalence of HIV infection among Pulmonary TB patients presenting at Department of Pulmonology, Rahim Yar Khan, Pakistan.

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PATIENTS AND METHODS

In this cross sectional study, one hundred consecutive newly registered smear positive pulmonary TB

patients presented at Department of Pulmonology, Sheikh Zayed Medical College, Rahim Yar Khan from 1st April 2010 were included. This study was completed on 31st December 2010. Being a tertiary care center, this hospital receives patients from large population of district Rahim Yar Khan and neighboring districts of Punjab, Sindh and Baluchistan. Department of Pulmonology in addition to its role as referral center, serves as a diagnostic and treatment center for about 316244 people of Rahim Yar Khan city and 4 neighboring BHUs for treatment of TB under DOTS program. In this study, Pulmonary TB patients coming from this defined population were included and those referred from other areas were excluded. Interviews were conducted to record the sociodemographic data and various HIV related risk factors for all patients.

Consent was taken from the patient to be included in this study and they were informed about the test. Test was done by HIV 1/2/O Tri-line Rapid Test device manufactured by ACON Laboratories, Inc (USA). The HIV 1/2/O Tri-line Human Immunodeficiency Virus Rapid Test Device (Whole Blood/Serum/Plasma) is a rapid chromatographic immunoassay for the qualitative detection of antibodies to HIV-1, HIV-2 and Subtype O in whole blood, serum or plasma to aid in the diagnosis of HIV infection. It showed 99.9% relative sensitivity and 99.8% relative specificity compared to ELISA and/or Western Blot. The data was entered and analyzed in SPSS version 15.

RESULTS

Sociodemographic characteristics of subjects of this study are shown in Table No.I. Out of 56 male and 44 female patients, 66 were married, 2 widows and 32 unmarried. Majority (51%) were uneducated, 13% passed secondary school examination and only 4% were graduates. Only 24% were earning more than ten thousands rupees per month.

Sixty six percent patients were aged between 15-49 years, 24% between 15-24 years and 85% between 13-64 years. All the patients gave their consent for HIV testing. Only 4 of the 100 subjects had travelled abroad, 8 had blood transfusion and none admitted any history of drug abuse. None of the 100 patients in this study was positive for HIV infection.

Table I: Sociodemographic data of study subject (N=100)

Age	
Range	9 to 90 years
Median	32.50 years
Mean	35.90 years
Sex	
Male	56%
Female	44%
Residence	
Urban	79%
Rural	21%
Education	
Uneducated	51%
Primary	32%
Secondary	13%
Graduate	04%
Marital status	
Never married	32%
Married	66%
Widow	02%
History of travel abroad	
Yes	04%
No	96%
History of blood transfusion	
Yes	08%
No	92%
History of drug abuse	
Yes	00%
No	100%

DISCUSSION

Human immunodeficiency virus (HIV) infection is the single most important cause of recent resurgence of tuberculosis worldwide. Due to its potential of impairing the cell mediated immunity in people living with HIV, chances of progression of latent TB infection (LTBI) to active TB disease are 21-34 times higher compared with those who are HIV-negative.¹³ In countries where high number of latent TB infection is present, its impact is more pronounced. On the other hand, in countries where LTBI is less common, diagnosis of active tuberculosis in any patient raises the possibility of immune deficiency like HIV infection. Therefore, it is very important to know the HIV status of people to ensure proper preventive measures. However, this is not the case in most of the developing world. According to WHO report 2011 on global TB control, in Pakistan, only 2% of TB patients know their HIV status.¹³ Even in

the developed world situation is far from ideal. In UK, up to one third of people infected with HIV are unaware of their status.⁷ To improve this situation, most of the authorities have modified their guidelines to intensify TB case detection in HIV infected people and HIV testing in all the known and suspected cases of TB and their contacts.^{8,9,10,11}

Among the 22 high burden TB countries, Pakistan is ranked 8th. Unfortunately, no reliable data on HIV prevalence is available. According to WHO Global Tuberculosis control report 2011, there are 6289 HIV cases have so far been reported since 1986 and 22 patients have been reported to be co infected with TB and HIV in Pakistan.¹³ But officials believe that the majority of cases go unreported due to social taboos about sex and victims' fears of discrimination. UN and government estimates put the number of HIV/AIDS cases around 97,000 ranging from lowest estimate 46,000 to highest estimate-210,000.¹⁴ On the other hand, more detailed and recent data suggests that this may be an overestimate.^{15,16} Limited data suggest that infection is extremely common among sex workers and highly uncommon among the general population. A large national study of women in antenatal and labor clinics (which is an internationally accepted measure of assessing HIV in the general population) found no HIV and few sexually transmitted infections (STIs) in 2001 (NACP'2001).¹⁷ More recently NACP has started an HIV / AIDS surveillance project. Results available as a draft on web showed 12 out of 26,510 study participants were confirmed positive for HIV infection corresponding to a prevalence of 0.05%. Peshawar had the highest prevalence of HIV infection (0.22%), followed by Multan (0.07%), Karachi (0.03%) and Larkana (0.03%). No confirmed HIV positive infections were identified in Lahore, Thatta, Quetta, Gawadar and Abbottabad. Higher prevalence in Peshawar might be due to a large number of Afghan refugees or overseas workers residing there.¹⁸

Our study included 66% of adult participant (aged 15 -49) and 24% young adults (aged 15- 24 years), the two age groups proposed as denominator by WHO for monitoring & evaluation of TB / HIV activities.¹⁹ Despite of fact that certain participant

fall in high risk group (8% had blood transfusion & 4% had traveled abroad), none of the 100 TB patients was found to be HIV Positive. A study conducted at Lahore in 2009, found 3 HIV infected TB patients out of 1074 (0.28%) tested.²⁰ A similar study at Multan, Pakistan found no case of HIV among none of the 49 tested.²¹

Considering the results of this study, question may arise on the cost effectiveness of recommendation of HIV testing for all TB patients especially in countries with limited resources. However, the number of participants is too small to conclude this. There are other limitations of this study as the risk factors for HIV infection especially sexual history were not sought in detail and inclusion of only smear positive pulmonary TB cases. Therefore, it will be appropriate to conduct a larger study in which all newly registered cases of TB, both Pulmonary & extra Pulmonary be included and all risk factors for HIV infection be evaluated.

CONCLUSION

Despite the presence of risk factors in considerable number of participants of this study, HIV infection was not detected in any of the Pulmonary TB patient. This finding put a question mark over universal recommendation of HIV testing in all TB patients worldwide. However, larger study including all TB patients, both Pulmonary as well as Extra Pulmonary is required to confirm this finding.

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