

ADDING MISERY TO THE INSULT: MYCOBACTERIUM TUBERCULOSIS AND HIV CO-INFECTION

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ABSTRACT

Background and Objectives: Pakistan is a high prevalence country for tuberculosis. Till recently HIV incidence was low. However HIV prevalence in high risk groups has been on the rise in the recent years. Patients having co-infection of both tuberculosis and HIV are at increased risk of morbidity and mortality. This paper reports five cases of such co-infection from our institution to share our experience with others.

Methods: All the cases were admitted to Shalamar Teaching Hospital for various clinical conditions complaints diagnosed as suffering from tuberculosis and were treated as such but because of poor response they were further investigated and were diagnosed to have co-infection with HIV as well.

Results: Three of the patients were referred to specialized HIV clinic for management. Two patients died in the hospital because of advanced stage of the disease.

Conclusion: Tuberculosis patients refractory to therapy and those from high risk groups must immediately be screened for HIV co-infection and referred to HIV clinic if found positive.

Key words: Tuberculosis, HIV, Co-infection.

INTRODUCTION

Mycobacterium tuberculosis (MTB) was discovered in 1882.¹ Tuberculosis (TB), the disease caused by this bacterium, has claimed more human lives than any other microorganism and TB has rightly been called the People's Plague.² About 100 years later, the humanity encountered another microorganism, later named as Human Immunodeficiency Virus (HIV). What started as modest case reports,³⁻⁵ soon changed in to an epidemic. By December 2000, more than 36 million people were living with HIV infection and it had claimed more than 21million lives.⁶

Tuberculosis of any organ (pulmonary or extra-pulmonary) is one of the HIV associated acquired immunodeficiency syndrome (AIDS) defining criteria.⁷ Twenty five percent deaths among TB patients occur in those co-infected with HIV, and similarly, 25% deaths among AIDS patient occur in those co-infected with TB of any organ.⁸ The morbidity and mortality due to these diseases would increase manifold if the two diseases coexist in the same patient. A state of syndemic is thought to have occurred in this situation.⁹

The purpose of this manuscript is to report our experience of the cases of TB who were incidentally found to be HIV positive and propose recommendations in this situation.

Case No 1 (June 2014)

A 23-years-old male patient presented with history of pyrexia of unknown origin (PUO) for one year to the Outpatient Department of Shalamar Teaching Hospital (STH). He had recently developed pain in the right hypochondrium and jaundice with decreased urine output and gave history of burning micturition for the last one month. There was history of treatment of TB for the last 6 months and he had been treated for Enteric fever twice during the last year. Because of the poor response to therapy, the treating physician requested HIV antibodies test which was reported positive. The HIV-1&2 antibodies detection was carried out using Anti-HIV 1+2 Reagent Pack on VITROS ECiQ system which utilizes chemiluminescent technique. Patient was referred to HIV/AIDS treatment center and lost to subsequent follow up.

Case No 2 (December 2014)

A 36-year-old male patient presented, to the Outpatient Department (OPD) of Shalamar Teaching Hospital (STH), with one month history of loss of appetite and loss of weight (up to 25kg). The patient was a drug abuser and his HIV and Hepatitis C (HCV) statuses were both positive. The HIV 1&2 antibodies test was performed using the same methodology as in case 1

whereas HCV status test was done using Anti-HCV II Elecsys Pack on Cobas e411 which utilizes Electro ChemiLuminescence (ECL) technique. He also gave history of diagnosis of tuberculosis and was on Anti tuberculosis treatment (ATT) for the last 6 months. During his stay in the hospital, his condition deteriorated rapidly and he died three days after admission.

Case No 3 (January 2015)

A 56-year-old male patient presented to the OPD of STH with one month history of progressive weakness. There was mild cough with occasional production of sputum, and he gave history of constipation off and on. The patient had history of inguinal hernia and hemorrhoids which were operated 20 years ago. On examination, omental thickening was noticed and there was mild ascites. The patient was admitted with provisional diagnosis of abdominal TB and started on ATT. The omental biopsy later confirmed the diagnosis. Few days later, a call was sent to the neurologist who advised screening for Hepatitis B surface antigen (HBsAg), HCV and HIV status. The HBsAg test was done using HBsAg II Elecsys Pack on Cobas e411 which utilizes Electro ChemiLuminescence (ECL) technique. The HIV 1&2 and HCV antibodies tests were performed using the same methodology as mentioned earlier. HIV antibodies test was reported as positive and the patient was referred to a specialized center for HIV management and lost to subsequent follow up.

Case No 4 (June 2015)

A 35-year-old female patient was admitted with one year history of PUO and generalized body itching and rash, which started from extremities and later spread to other areas, worsening with time. During the year, she was admitted to different hospitals on more than one occasion and was diagnosed to be suffering from tuberculosis and started on ATT, which was continued during her stay at STH. Patient also lost weight during the year as her appetite was reduced. She had aphthous ulcers in the mouth. Because of pancytopenia and palpable lymph nodes, hematologic consultation was sought for performing bone marrow biopsy. During history taking and examination by the hematologist, patient revealed that her ex-husband was an intravenous drug user (IDU). Keeping in view her history and spouse drug abuse, the hematologist recommended performing HIV antibodies test. Using the same methodology, her HIV antibodies test was found to be positive. She was referred to a specialized center for HIV management and lost to subsequent follow up.

Case No 5 (July 2015)

A 55-year-old patient was admitted in the medical ward with one month history of weight loss (7 kg). Patient also had developed fever for the last ten days and vomiting off and on. The fever was intermittent to start

with but became continuous and high grade for the last two days. The patient had headache which would be relieved by taking analgesics but would return quickly after sometime. Patient was a diagnosed case of tuberculosis and receiving ATT for the last six months. Upon admission to the hospital, Cerebrospinal Fluid was obtained to rule out tuberculous meningitis. In the laboratory, budding yeast was seen in the CSF cytology smear which was reported and the microbiologist suggested performing HIV antibodies test to rule out HIV infection. Using the same methodology, the test was found to be positive. Patient condition deteriorated quickly and he died on the third day in the hospital.

DISCUSSION

The animal studies have clearly demonstrated that the number of CD4 T cell count is inversely proportional to morbidity and mortality of infection with M tuberculosis and we can expect a similar outcome in humans also. Similarly, the risk of reactivation and dissemination of TB increases with TB/HIV co-infection.⁹ Clevenger et al reported that HIV infected TB lymphadenitis patients had a higher risk of developing generalized disease and presenting with systemic symptoms of TB.¹⁰

Pakistan is a country of high incidence and prevalence for TB but until recently the HIV incidence was low. The early studies carried out in the Pakistani blood donors in the nineties gave an estimated prevalence of 0.02% for HIV antibodies.¹¹ However, the HIV prevalence in the high risk groups [e.g. male (MSWs), female (FSWs), *hijras* (HSWs) sex workers and IDUs] has been on the rise in recent years and projection models have painted a bleak picture.^{12,13} It has been estimated that by 2015, the HIV prevalence is likely to reach 17 – 22% among MSWs/HSWs and 46 – 66% in IDUs of Karachi area and 44–49% in IDUs in Lahore.¹³

The five cases reported here were among a total of 7 out of 516 cases reported positive for HIV during the same period (unpublished data). They were neither a referral from Sexually Transmitted Disease Clinic nor even suspected in the beginning to be immunocompromized as they came through regular OPD clinics. Four out of five were previously diagnosed as suffering from TB and receiving ATT while the fifth case was diagnosed at STH and started ATT. The commonest symptoms were PUO and weight loss. Two of our cases were either an IDU (case 2) or infected by an IDU via heterosexual transmission (case 4). The spouses of IDUs in Pakistan have been referred to as a bridge group playing an important role in HIV transmission.¹⁴ The epidemic of HIV is rampant not only in high risk groups but has started affecting the families and children of IDUs, men having sex with men (MSM) and bisexual MSM.^{14,15}

The other important aspect is that healthcare workers (HCWs) in hospitals and clinics will be inadver-

tently exposed to blood borne viruses by virtue of providing services to these marginalized populations. The mathematical projection models suggest that the HIV prevalence may surpass 70% in IDUs by year 2025.¹³ The risk of needle stick injuries among HCWs is a real threat. The risk is more among those in the nursing profession, in females and if the duration of work is more than 5 years.¹⁶ Although the risk of transmission of HIV is the lowest among common blood borne viral pathogens,¹⁷ yet the stigma and consequences of being HIV positive HCW are too serious. The dental professionals in Central India are already indicating their reluctance to treat patients with HIV/AIDS or those in high risk groups.¹⁸ A similar situation may develop in Pakistan and may lead to change in attitude of HCWs. Consequently, they may be reluctant or even refuse to treat HIV infected patients as more of them approach hospitals, and other healthcare facilities for consultation and management, in the era of rising HIV prevalence in the high risk groups.

Keeping in view the high proportion of TB among HIV positive cases in our series, we reiterate the need for HIV screening in those suffering from TB in general and TB patients in the high risk group, in particular. Because having not suspected co-infection with HIV from the beginning, increases their misery as it did in our cases; and leads to either treatment failure or even death because the immune system is overwhelmed by the two diseases. In addition, an early detection in the course of patient management would help in restricting further spread of the two diseases.

In **conclusion** it is suggested that if a case is diagnosed to be suffering from TB and is also found to be among the high risk behavior group for HIV infection, he/she must be screened for HIV and offered appropriate counseling regarding further management, if found positive.

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Author's Contribution

T. N. conceiving the idea, compilation of case records, introduction and discussion writing). M. R. T. conceiving the idea, discussion writing). A. S., M. R. A. B. compilation of case records no 3 and 5). Y. H. compilation of case records no 2 and 3). S. U. Z. A. compilation of case record no 1).

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