

Original Research Article

HIV - TB Dual Infection among Patients Attending ART Centre in Vijayawada: A 3 Year Hospital Based Study

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Abstract: HIV and TB co-infection is a major public health problem now-a-days throughout the world. HIV infection not only causes reactivation of tuberculosis disease, also responsible for rapid progression of TB. Active TB also negatively affects HIV disease, responsible for higher HIV viral load. The aim of present study is to know the prevalence of HIV-TB coinfection and treatment details among patients attending ICTC (Integrated Counseling and Teaching center). This is a retrospective study done in a tertiary care hospital. All the data regarding patients at both ICTC and RNTCP (Revised National Tuberculosis Control Program) were saved and kept unlinked anonymously. This study has done among adult patients from the year 2013 to 2015. Patients attending to ART tested for Human Immunodeficiency virus, both HIV 1 and HIV 2 using 3 kits supplied by NACO. All HIV positive patients were referred to RNTCP for testing of sputum AFB. A total of 2347 patients were HIV positive in these three years (2013 to 2015). Among them 92 adult patients about 3.9% were positive for both HIV and Pulmonary TB. Most of them were in the age group of 26-35 years about 46.7%. Males were predominant in this study about 82.6%. Out of 72 patients, 38 were received both Antiretroviral therapy (ART) and Antitubercular therapy (ATT), remaining 34 were received only ART. Among 12 female patients only 5 patients about 41.6% received both ART and ATT. Among 60 male patients only 33 patients about 55% received both ART and ATT. 5.5% deaths were noted. Instead of great diagnostic facilities and good accessibility to treatment to both HIV and TB still there is high incidence of HIV-TB dual infection. Patients need health education about condom promotion, drug de addiction, PPTCT, Basic hygiene practices to prevent the transmission of HIV. Those HIV-TB coinfecting patients should advice to take ATT under DOTS and ART regularly; they also need counseling and psychosocial support. Over all implementation of all these activities will reduce HIV-TB coinfection mortality rate.

Keywords: Human Immunodeficiency Virus, Tuberculosis, Coinfection, Antitubercular therapy, Antiretroviral therapy.

INTRODUCTION

The Human Immunodeficiency Virus (HIV) is a retrovirus that infects cells of the immune system, destroying or impairing their function. As the infection progresses, the immune system becomes weaker, and the person becomes more susceptible to infections. The Most advanced stage of HIV infection is Acquired Immunodeficiency Syndrome (AIDS).

Tuberculosis (TB) is causing much problem worldwide both in rural and urban areas because of droplet spread, offering more resistance to human immune system and arising as a Panbiotic resistance bacteria (Total resistance to Tuberculosis drugs). Next to HIV/AIDS, TB is the second most infectious agent as greatest killer worldwide.

HIV and TB co-infection is a major public health problem now-a-days throughout the world. There is a chance of HIV infected people getting TB 26 to 31 times greater than normal people; this is because people with weaker immune system are more prone to the risk of active TB. HIV and TB form lethal combination which worsens the prognosis and speed ups the mortality rate. In 2013, new cases of TB were 9 million, among which HIV-TB coinfecting were 1.1million. Among HIV positive people approximately 25% deaths occurred due to TB. In 2013 about 3, 60,000 people died of HIV associated TB. More number of HIV-TB cases was noticed in Sub Saharan Africa and Southeast Asia.

WHO recommends 12 TB/HIV collaborative TB-HIV activities, including the Three I's for TB/HIV [1]. Accurate timeliness of Anti-retroviral therapy

(ART) and Antitubercular therapy (ATT) needed to reduce morbidity and mortality of HIV people associated with TB. Globally ART received by 14.9 million people by the end of 2014. TB is a curable disease for drug sensitive cases. Because of inappropriate treatment or dosage or widespread of drug resistant bacteria MDR TB (Multidrug resistant TB) has risen now-a-days. In 2013 globally MDR-TB estimated to be about 4, 80,000 people. Among which 9% had XDR-TB. More than half of the cases were in India, China and the Russian Federation [1]. HIV infection not only cause reactivation of tuberculosis disease, also responsible for rapid progression of TB [2, 3, 4]. Active TB also negatively affects HIV disease, responsible for higher HIV viral load [5].

ART should start to HIV patients infected with TB irrespective of CD4 count as per World Health Organization (WHO). If CD4 count is less than 50 cells/mm³ in HIV associated TB patients then ART should start within 2 weeks of onset of ATT. If CD4 count more than 50 cells/mm³ then ART should initiate within 8 weeks of onset of ATT. As per WHO different treatment strategies has given to HIV - TB dual infection based on many surveys [1]. Immune reconstitution inflammatory syndrome (IRIS) may occur after initiation of ART. Both ART and TB treatment should be continued while managing IRIS.

The present study aimed at to know the prevalence of HIV-TB coinfection and treatment details among patients attending ICTC (Integrated Counseling and Teaching center) at tertiary care hospital, Vijayawada.

MATERIALS AND METHODS

This is a retrospective study done at ICTC (Integrated Counseling and Testing Center) in a tertiary care hospital at Vijayawada. All the data regarding patients at both ICTC and RNTCP (Revised National Tuberculosis Control Program) were saved and kept unlinked anonymously. ART and RNTCP medical officers' permission has taken to do this study.

This study has done among adult patients from the year 2013 to 2015. Patients attending to ICTC tested for Human Immunodeficiency virus, both HIV 1 and

HIV 2 using 3 kits (2 sensitive and 1 specific test) supplied by NACO (National AIDS Control Organization). A Venous sample about 3 ml collected from each patient by taking aseptic precautions and personal protective equipment. Pre and Post test counseling has given to patients by ICTC counselors.

The tests done were:

1. HIV Triline test
2. HIV Tridot test
3. HIV Combaids test

HIV strategies were followed to interpret HIV test results, which were suggested by NACO for further management. The results which were indeterminate advised for repeat test after 2 months or referred to higher centers for confirmation of HIV using western blot.

All HIV positive patients were referred to RNTCP for testing of sputum AFB (Acid Fast Bacilli). At RNTCP according to guidelines, 2 sputum samples were collected for testing using Auramine-O staining method. AFB bacilli were detected under Fluorescent Microscopy.

Patients with HIV and TB positive were advised to start ATT (Antitubercular therapy) under DOTS (Directly Observed Treatment Short course). CD4 count evaluation has done on HIV-TB patients using FACS (Fluorescent Assisted Cell Sorter) Calibur by BD Diagnostics Ltd. By CD4 levels assessment, ART (Antiretroviral Therapy) also advised to patients according to WHO (World Health Organization) guidelines. Patients received ATT and ART were noted.

Only pulmonary TB cases were assessed. All the data enrolled were analyzed and tabulated.

RESULTS

A total of 2347 patients were HIV positive in these three years (2013 to 2015). Among them 92 adult patients about 3.9% were positive for both HIV and Pulmonary TB. Most of them were in the age group of 26-35 years about 46.7%. Males were predominant in this study about 82.6% (Table1).

Table1: Age and Sex distribution of both HIV and TB positive individuals

Age Group	Females	Percentage (%)	Males	Percentage (%)	Total
18-25 years	4	25	18	23.6	22
26-35 years	9	56.2	34	44.7	43
36-45 years	2	12.5	11	14.4	13
46-55 years	1	6.25	8	10.5	9
Above 55 years	0	0	5	6.5	5
Total	16	100	76	100	92

Out of 92 patients, 20 were absconded among them 16 were males and 4 were females. Remaining 72 patients took antiretroviral therapy.

Out of 72 patients, 38 were received both Antiretroviral therapy (ART) and Antitubercular therapy (ATT), remaining 34 were received only ART (Fig. 1).

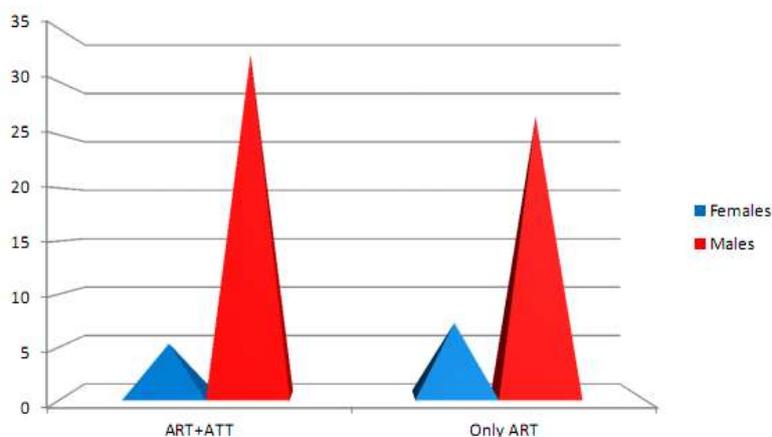


Fig. 1: Showing Sex distribution among patients received ATT and ART

Among 12 female patients only 5 patients about 41.6% received both ART and ATT. Among 60 male patients only 33 patients about 55% received both ART and ATT.

compared to females, this may be due to males work in other places for earning money, contact with sex workers and females are less commonly consult to doctors.

Out of 72 patients, 4 deaths have noted which about 5.5% is.

DISCUSSION

HIV patients' presents with lower immunity due to destruction of CD4 cells because of which there is increased opportunistic infections, TB is the most common among them. HIV-TB co-infected individuals are at high risk of deaths [6, 7].

HIV-TB is becoming a major challenge to many public health departments. Because of increasing the incidence of TB, chances of arising drug resistant bacteria is becoming more and more now-a-days. Effective therapy and health education is needed all over the world to decrease the incidence of HIV-TB dual infection and to reduce the mortality rate.

As the HIV-TB dual infection prevalence is increasing all over the world. TB and HIV co-infection increasing the morbidity and mortality rate. TB is responsible for faster progression of HIV from asymptomatic stage to AIDS complex. HIV infected TB patients also progress more frequently to Disseminated TB [8]. The decrease in CD4 count in HIV patients influences the severity and frequency of active TB disease [9, 10].

In this study, Out of 72 patients, 38 were received both Antiretroviral therapy (ART) and Antitubercular therapy (ATT), remaining 34 were received only ART.

In the present study, 3.9% were positive for both HIV and Pulmonary TB. Most of them were in the age group of 26-35 years about 46.7%. Males were predominant in this study about 82.6%.

Previously it was difficult to patients to get medicines because of high cost and weak infrastructure especially in low and middle income countries. Now-a-days with the aid of political commitment and financial help by different organizations and government services, population has benefited to take regular medications.

10-20% of lifetime risk of developing TB among persons infected with MTB only [11, 12]. Among HIV-TB dual infected persons the annual risk can exceed 10% [13, 14, 15].

Even though ART and ATT centers are providing drugs for infected patients, persons are not accessing the treatment. In the present study, among 12 female patients only 5 patients about 41.6% received both ART and ATT and among 60 male patients only 33 patients about 55% received both ART and ATT.

HIV is mainly seen in adult patients especially among low socioeconomic status people from rural field area. HIV is most common among males when

Paradoxical reactions are common in patients on ATT, regardless of HIV antibody status. These reactions however, more frequent in coinfecting patients receiving HAART (Highly Active Antiretroviral Therapy) [16]. Patients who develop IRIS (Immune

Reconstitution Immune syndrome) should continue ATT and ART.

Instead of great diagnostic facilities and good accessibility to treatment to both HIV and TB still there is high incidence of HIV-TB dual infection. Patients need health education about condom promotion, drug de addiction, PPTCT, Basic hygiene practices to prevent the transmission of HIV. Those HIV-TB coinfectd patients should advice to take ATT under DOTS and ART regularly; they also need counseling and psychosocial support. Over all implementation of all these activities will reduce HIV-TB coinfection mortality rate.

ACKNOWLEDGEMENTS

We are thankful to Counselors and staff at ICTC and RNTCP and also Medical officers at ART for helping us to cooperate in doing this study. We are also grateful towards WHO for providing detailed information related to TB and HIV.

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