

Original Research Article

Incidence of Twin Hepatitis Infections in People Living with HIV (PLWH) at a Tertiary Care Hospital**Dr. N. Padma Priya¹, Dr. S. Pavani^{2*}, Dr. Haseeba Tanveer³, Dr. S. Jaya Prakash Rao⁴, Dr. G. Sasikala⁵**¹Associate Professor, Dept. of Microbiology, Osmania Medical College, Koti, Hyderabad, Telangana State, India²Assistant Professor, Dept. of Microbiology, Osmania Medical College, Koti, Hyderabad, Telangana State, India³Final Year PG, Dept. of Microbiology, Osmania Medical College, Koti, Hyderabad, Telangana State, India⁴Professor, Dept. of Microbiology, Osmania Medical College, Koti, Hyderabad, Telangana State, India⁵Professor & HOD-- Dept. of Microbiology, Osmania Medical College, Koti, Hyderabad, Telangana State, India***Corresponding author**

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Abstract: HIV and Hepatitis B Virus, Hepatitis C Virus co-infection has emerged as leading cause of morbidity due to liver diseases throughout the world. The study is undertaken to evaluate the seroprevalence of Hepatitis B virus and Hepatitis C virus co-infection in PLWH attending ART center at Osmania general hospital, Hyderabad. A total of 120 HIV infected cases and 40 healthy adult controls were included in study. Their serum samples were tested for Hepatitis B surface antigen (HBsAg) and anti HCV antibodies by ELISA method. Out of 120 HIV infected cases, co-infection with HBV is seen in 9 cases and co-infection with HCV is seen in 5 cases. None of the healthy controls were positive for either HBV or HCV infection. Co-Infections with HBV & HCV are higher in HIV infected cases than that of healthy subjects. Hence all HIV infected patients must be screened for markers of HBV & HCV infection.

Keywords: Co-infection, Hepatitis B virus, Hepatitis C virus, Human immunodeficiency virus, Enzyme linked immunosorbant assay, People living with HIV(PLWH)

INTRODUCTION

Human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) co-infection has emerged as a leading cause of morbidity due to liver disease throughout the world in the last two decades [1, 2]. Among the HIV infected patients, HBV and HCV co-infections are more prevalent due to overlapping transmission routes [3] Consequently, the importance of co-morbidities such as chronic liver disease due to HBV and HCV infection is being recognized as significant problems. HIV infection modifies the natural history of chronic parenterally acquired hepatitis C with unusually rapid progression to cirrhosis. Overall survival of HIV positive patients is not affected by the presence of HCV. However, HCV predisposes to death from liver failure. In co-infection, the presence of one virus impacts the natural history of the other virus. HIV accelerates the natural course of HBV and HCV infection and facilitates faster progression of liver disease to cirrhosis and hepatocellular carcinoma. Disease progression to cirrhosis in HIV positive patients is almost three-times faster as compared to HIV

negative patients[4, 5]. Most of the studies [6], in HIV-HBV and HIV-HCV co-infected patients have been conducted among western patient populations. Understanding HBV and HCV co-infection with HIV is particularly important in Asian countries due to high background prevalence of HBV and HCV [7]. The present study was undertaken with the objective to assess the presence of HBV or HCV co-infection in HIV infected patients at a tertiary care centre.

MATERIALS & METHODS

The study was carried out at the Department of Microbiology, ART centre and ICTC centre at Osmania General Hospital, Hyderabad, Telangana, India for a period of three months. The study included 150 PLWH patients attending ART centre. The study was prospective observational study. 40 healthy controls were also included in the study. These healthy controls were seronegative for both HBV and HCV, attending to the general laboratory in Department of Microbiology. Five ml blood was drawn for various investigations. These individuals had normal renal functions, liver functions and normal haemogram. The patients were

recruited randomly. Written informed written consent was taken from all the subjects. The study protocol was approved by the Institutional Ethics Committee, Osmania Medical college, Hyderabad. A detailed history of sexual activities, blood transfusion, intravenous drug abuse and other opportunistic infections was obtained. All patients with HIV infection underwent complete haemogram, liver function tests (LFT), chest X-ray, Mantoux test, and CD4+ T-lymphocyte count. HIV infected patients and healthy controls were also tested for HBsAg (The Merilisa Hepatitis B kit) and anti-HCV antibodies (Microlisa Hepatitis C) by enzyme linked immunosorbent assay (ELISA) as per the manufacturer's instructions [3, 8]. Samples positive for HBsAg and/or anti HCV antibody by first test were retested for confirmation of results.

RESULTS & DISCUSSION

One hundred and twenty(120) HIV patients comprising 68 (57%) males and 52 (43%) females were

enrolled in this study. (figure 1). Their age ranged between 21–59 years with a mean age of 33.92 (±8.96) years with men and 32.6 (±8.97) years for females. There were 14 (11.5%) co-infections with 9 (7.5%) HIV/HBV, 5 (4.1%) HIV/ HCV co infections. (see Table 1). In relation to gender, there was male predominance in dual infections of either HBV/HIV or HCV/HIV. Among those infected, majority of them were aged 25 and 40 years In addition, the mean CD4 counts in HBV/HIV co-infected patients were low compared to those with HCV/HIV co-infected patients (Table-2). All the controls were also screened for both HBsAg Antigen and Anti HCV Antibodies by ELISA Method and were found negative for both Hepatitis viruses. The present study is showing 7.5% of HIV+ HBV infection which is in correlation with the study conducted by Beatrice Mukami [8]. Michael Muita Gicheru *et al* in the year 2013(6%). Similarly [9] Jain *et al* showed a prevalence rate of 9.9% and 6.3% for HIV, HBV and HIV with HCV coinfections.

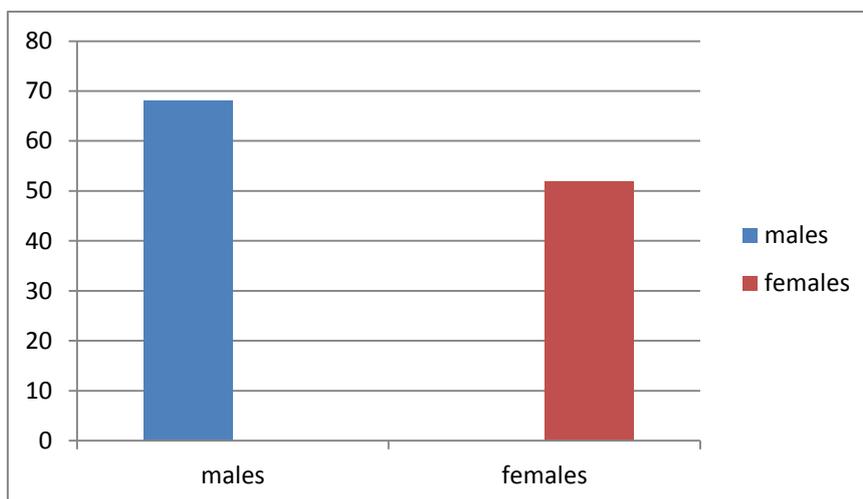


Fig-1: Ratio of males to females in the study

Table 1: Prevalence of HIV/HCV and HIV/HBV co-infected individuals

	HBsAg	Anti-HCV antibody	Both
TOTAL PLWH (120)	9(7.5%)	5(4.1%)	0
CONTROLS (40)	0	0	0

Table 2: Characteristics of HIV/HCV and HIV/HBV co-infected individuals

CATEGORIES	MALES	FEMALES	HIV/HBV	HIV/HCV
AGE(Mean)	33.6 yrs	31.5 yrs	34.3 yrs	33.3 yrs
CD4 Counts	360	375	252.2	325
HBV %	6/9 (66.6%)	3/9(33.3%)		
HCV%	3/5(60%)	2/5(40%)		

With the increased access to antiretroviral therapy in resource limited settings, people living with HIV/AIDS will continue to live longer. However, morbidity and mortality due to co-infections with other viruses will increasingly become important. Although

co infections with HBV and HCV among HIV positive patients is well documented in developing countries, the demographics and impact of these infections are not well defined in low resource countries like India. The need for new data on hepatitis coinfections to guide

health policy is on management of HIV coinfecting a patient is paramount.

CONCLUSION

In the present study among HIV-infected patients, it was evident that co-infection rates with HIV and HCV and/or HBV are higher among HIV infected individuals than populations that are HIV negative. There is therefore a need for constant surveillance of these infections that pose a challenge in vaccine design and treatment options. In this study, we examined the prevalence of HBV and HCV among HIV infected patients seeking CD4 testing services. From the results, it is clear that the co-infection rates of HIV-infected patients with HBV and HCV was high. This has an indication that hepatitis infection in HIV-infected persons may be higher than that of the general population. Hence, HIV patients should routinely be tested for HBV and HCV markers. Screening the high-risk population for these infections would aid in prompt diagnosis and treatment with improved outcomes in these patients which in turn may decrease the further spread of these chronic viral infections. Lower cost screening modalities for viral hepatitis are an urgent need to upgrade HIV care in resource-limited settings. Antiretroviral drugs with anti-HBV properties could be used preferentially in coinfecting persons [10].

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