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Original Research Article

Incidence of Sero-prevalence of Hepatitis virus Among HIV Positive Individuals in Tertiary Care Hospital at, North Bihar, India

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Abstract
Objective: *The Co-infection of Hepatitis B and C viruses with HIV accelerate disease progression and also have an effect on the management of patients infected with HIV. There was a broad distribution of incidence and prevalence of HIV Co-infection with hepatitis viruses. This study is planned to evaluate the prevalence of HIV Co-infection with Hepatitis B and C viruses in North Bihar.*
Materials and Methods: *A total of 720 patients enrolled in the ART centre were retrospectively analyzed for the presence of HBV and HCV on the basis of the presence of HBsAg and anti-HCV markers.*
Results: *In patients infected with HIV, the prevalence of Co-infection with HBV was 9.44% (68/720), the prevalence of Co-infection with HCV was 2.91% (21/720) and the prevalence of Co-infection with both HBV and HCV was 0.7% (approximate 1%, 5/720).*
Conclusion: *The prevalence rate of HBV and HCV are increasing in patients infected with HIV and that's why the knowledge about the importance of such a Co-infection, it is mandatory to all the HIV positive patients should be screened for HBV and HCV Co-infection for the longevity of the patients.*
Keywords: *HIV, HBV, HCV, sero-prevalence, Co-infection.*

Introduction

People at high risk for Human Immunodeficiency Virus (HIV) infection are also likely to be at increased risk for other pathogens like the Hepatitis B Virus (HBV) and the Hepatitis C Virus (HCV), which share the route of transmission with HIV. There is a high degree of epidemiological similarity between these viruses in terms of routes of transmission, associated risk factors and the presence of these viruses in various body fluids. With increased availability of antibiotics and anti-fungal drugs, HBV and HCV infection are becoming a cause for significant concern for individuals infected with HIV. Ever since the institution of high affinity anti-retroviral therapy (HAART) in individuals infected with HIV, liver disease has emerged as a major cause of morbidity and mortality in such individuals.

The Co-infection of HCV with HIV is associated with a loss of immunological control of HCV and more rapid progression of HCV disease. In a multi-centre AIDS cohort study (MACS) in 2002, it was observed that liver-related mortality rates per 1000 person-years of observation were 1.7 in HIV-Seropositive patients, 0.8 in HBsAg positive patients and 14.25 in the Co-infected patients (significantly higher as compared with mono infected patients).

Furthermore, Co-infection with hepatitis viruses may complicate the delivery of anti retroviral therapy (ART) by increasing the risk of drug-related hepatotoxicity and may interfere with the selection of specific agents. Expert guidelines developed in the United States and Europe recommend screening of all individuals infected with HIV for infection with HCV and HBV to help in appropriate management of such patients. In developing countries like India, no such uniform guidelines are available.

Globally, the studies conducted on the prevalence of hepatitis viruses in patients infected with HIV have shown the rate of HIV and HBV/HCV Co-infection to be around 12 to 15%. Few studies conducted in India have shown the prevalence of co-infection of HBV with HIV to vary in different geographical areas from as low as 9% to as much as 30% and of HCV with HIV to vary from 2 to 8%. The present retrospective study, with a larger sample size, was an endeavour to detect the current prevalence of HBV and/or HCV co-infection in patients infected with HIV in Patna and the adjoining areas.

Materials and Method

The present study was conducted in the Department of Microbiology, Government Medical College, Bettiah, West Champaran, North Bihar with the technical help of attached ART centres, during the period of October 2017 to December 2018. A total of 720 samples were received from the ART centre for detection of HBV and HCV markers. For HBV, the marker used for routine screening is HBsAg (Australia antigen), and for HCV, Anti HCV test is done. Both the test is performed first by rapid card methods and than by fully automated CMIA methods using Architect system, supplied by Abbott laboratories.

The test is performed as per the manufacturer's instructions. Validity of the test is assessed as per the given criterion and the result is calculated. Samples that giving borderline results are retested and those repeatedly giving borderline values are considered negative. HBV and HCV markers were retrospectively and longitudinally assessed and demographic profile of the patients were noted.

Results

Out of 720 HIV positive samples, the male patients were 74.45% (536/720) as compared with 25.55% (184/720) for female patients, male to female ratio was 2.91:1.

The Prevalence of HBV as assessed on the basis of the presence of HBsAg in patients infected with HIV was 9.44% (68/720). The prevalence of HCV with HIV was 2.91% (21/720) and the prevalence of HIV with both HBV and HCV was 0.7% (5/720) i.e. approximate 1%.

Table shows Age and Sex Distribution of HIV+HBV, HIV+HCV, and HIV+HBV+HCV Co-infected patients

Age of patients (years)	HIV + HBV		HIV + HCV		HIV + HBV + HCV	
	Male	Female	Male	Female	Male	Female
Less than 10	1	0	1	0	0	0
10 – 20	3	1	1	0	0	0
21 – 30	10	10	18	2	2	0
31 – 40	28	7	4	2	2	1
More than 40	6	2	2	1	0	0
Total no. of patients	48	20	16	5	4	1
Gross Total with Percentage	48/720 = 9.44%		21/720 = 2.91%		5/720 = 0.7%	

Discussion

India has a high burden of HIV, ranking 2nd in the global list. Also, among the individuals infected with HIV, it is estimated that 2-4 million people have chronic HBV Co-infection, while 4-5 million are co-infected with HCV. It is already reported that co-infection of HBV and or HCV with HIV complicates the clinical course, management and therapy for HIV infection. The geographical variance of Co-infection rates of HBV and HCV may be due to different risk factors and type of exposure.

Our observations showed that the mean age of the study group is less as compared with previous studies from India. Thus, the younger population in the economically productive age group is being increasingly affected by HIV, leading to a loss to the economy. This could be because of the increased exposure of this population to the risk factors like promiscuity, parenteral drug abuse, etc. The increase in the prevalence of HIV infection in the younger population could also be attributed to a lack of awareness in spite of intensive programs carried out on the national and international levels.

The study group comprised predominantly of a male population (74.45%), which is significantly higher than the female population (25.55%). This is in accordance with previous studies showing that male subjects are at a significantly higher risk of acquiring HIV infection.

In the present study, the rate of co-infection with HBV and HCV either alone or in combination was 13.05% (approximate 14%), a significantly higher rate than reported in the general population. In the present study, both the HIV/HBV and HIV/HCV Co-infections were higher in the sexually active age group as compared with another study from India where HCV/HIV Co-infection was higher in the more than 50 years old age group. We find Co-infection with both HCV and HBV in patients with HIV, hence, it is likely that the prevalence rate of HBV and HCV is increasing in patients infected with HIV and both these viruses can be seen in the same patient.

Conclusion

The implication of HBV and/or HCV Co-infection in patients with HIV is of serious concern in developing countries like India. Knowledge about HBV/HCV Co-infection in individuals infected with HIV has become important since the institution of HAART has prolonged their life and they need to be managed for their Co-infection with HBV and/or HCV. The present study underlines the necessity of a uniform guideline in which all the patients infected with HIV should be screened for HBV and HCV to help the management of co infection.

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