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Research Article

Seroprevalence of Hepatitis C and Hepatitis B surface antigen in HIV infected patients in Sir Takhtsinhji Hospital, Bhavnagar

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Abstract: Purpose of the study is to analyze prevalence of Hepatitis C & Hepatitis B surface antigen in HIV infected patients visiting ICTC of Sir Takhtsinhji Hospital, Bhavnagar. Total of 250 patients were included in the study from January to June 2012. Care has been taken to maintain confidentiality regarding HIV status of an individual. All samples were tested to detect HBsAg by Enzyme Linked Immunosorbent Assay (ELISA). Samples were tested to detect Anti-HCV antibodies by Enzyme Linked Immunosorbent Assay (ELISA). Samples were tested for antibodies to HIV by three different methods. Out of 250 HIV infected patients, 55 cases (22%) are reactive for HBsAg and 4 cases (1.6%) are reactive for HCV antibodies. HIV infected individuals have a high probability of getting co-infected with HBV and/or HCV. HIV disease progression and enhanced immunosupression has a direct bearing on the natural history and pathogenesis of these infections. Monitoring of HIV infected patients for concurrent infection with HBV and HCV is therefore necessary.
Keywords: Hepatitis B, Hepatitis C, ELISA, Hepatotropic virus

INTRODUCTION

Human Immunodeficiency Virus (HIV) causes acquired Immunodeficiency Syndrome (AIDS), a serious disorder of the immune system in which the body's normal defenses against infection break down, leaving it vulnerable to a host of life-threatening infections. It is a RNA virus of retroviridea family, so named because it contains an enzyme that transcribes RNA into DNA [1]. Human Immunodeficiency Virus (HIV) infection appears to influence the natural history of infections with certain hepatitis viruses. Interactions between the HIV and concurrent infections with hepatitis viruses may alter the natural history and treatment response of both diseases [2]. Recently infection with hepatitis C virus (HCV) is being recognised as an important problem. HCV is the most common cause of post-transfusion non-A non-B hepatitis in the developed world. The prevalence of HCV antibodies in blood donors in developed countries ranges from 0.4-2%. Blood transfusion is well documented route of transmission of HCV. A large number of HCV infections have been associated with intravenous drug abuse or administration of blood products [3]. For HIV and HBV co-infection (HIV/HBV), the seroprevalence ranges from 6.3% to as high as 39% [4-6]. Co-infection of HIV with HBV and/or HCV is known to result in higher viral load of hepatitis virus and greater liver damage [2]. Therefore present study was undertaken to look at the prevalence of HCV & Hepatitis B in HIV infected patients.

MATERIALS AND METHODS

This study was carried out in Department of Microbiology, Sir Takhtsinhji Hospital, Bhavnagar from January to June 2012. Total of 250 cases were included in the study, which were divided in various age & sex groups. History of blood transfusion & needle stick injury was also taken in consideration. HIV status of the patients was confirmed by three different tests which were Microlisa – HIV, PAREEKSHAK HIV 1/2 Triline card test & HIV TRI-DOT test which are according to ICTC guidelines. Sera of 250 patients were tested for Hepatitis B surface antigen by QUALISA – HbsAg based on principle of ELISA. Anti HCV antibodies were detected by using 4th generation ELISA (QUALISA – HCV, Qualpro diagnostics).

RESULTS

A total of 250 samples from HIV infected individuals were screened for Hepatitis B Virus infection, Hepatitis C Virus infection as under:

- Detection of HBsAg by ELISA test
- Detection of anti-HBC antibody by ELISA test

There were 55 samples were positive for HBsAg out of 250 samples, so overall prevalence for HBsAg is 22% which was comparable to Dhanvijay *et al.* (22.58%) [7]. Seroprevalence is highest in age group 26 - 35 years (43.63%). Prevalence of HBsAg among male patients is higher (67.27%).

Table 1: Prevalence of HBsAg among in various age groups HIV infected individuals

Age Group (Years)	Number	Percentage
16 – 25	20	36.36%
26 – 35	24	43.63%
36 – 45	07	12.72%
46 – 55	03	5.45%
>55	01	1.81%
Total	55	

Out of 55 HBsAg positive patients, 9 (16.36%) patients have history of blood transfusion, out of which most common age group affected is 26 – 35 years (44.44%) followed by 16 – 25 years (33.33%).

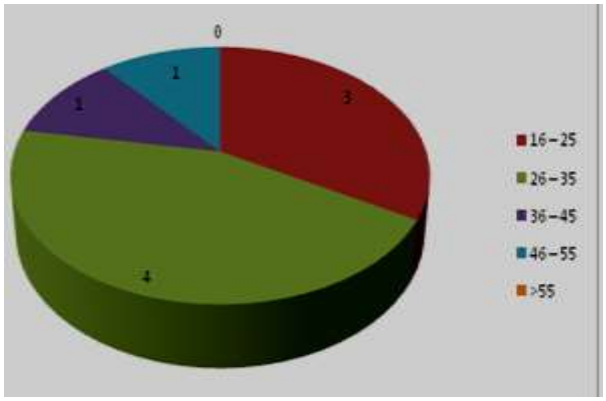

Fig. 1: Prevalence of HBsAg among individuals with history of blood transfusion

Out of 55 HBsAg positive patients, 4 patients have history of needle stick injury (7.27%), out of them seroprevalence in more in 26 - 35 years of age group (75%) followed by 16 – 25 years age group (25%).

Out of 250 HIV infected patients, there are 4 cases (1.6%) of anti HCV antibodies which was comparable to Saravanan S et al (2.2%) [8]. Seroprevalence is highest in age group 16 - 25 years (50%), followed by 25% each in age groups of 26 – 35 years & 46 – 55 years. Prevalence of anti HCV antibodies among male patients is higher (75%).

Table 2: Cases of anti HCV antibodies

Age Group (Years)	Number	Percentage
16 – 25	02	50%
26 – 35	01	25%
36 – 45	00	0%
46 – 55	01	25%
>55	00	0%
Total	04	

As far as blood transfusion is concerned, anti HCV antibodies found positive in 2 cases representing 50% each in age groups of 16 - 25 years & 26 – 35 years.

DISCUSSION

HIV shares common route of infection with HBVand HCV [9]. HIV and HBV are known to be transmitted sexually. Sexual transmission of HCV appears to be less efficient means, certainly less efficient than is the case for HIV-1 [10]. However sexual transmission of HCV has been documented [11]. It is therefore not surprising to find that some patients with HIV are co-infected with HBV and/or HCV [11, 12]. The co-infection has pronounced effect on the natural history of these infections. Although the effect of HBV infection on HIV infection is uncertain, HIV appears to have marked influence on the natural history of HBV infection. Co-infection of hepatotropic viruses in HIV disease reportedly leads to massive impairment of cell mediated responses and enhances the kinetics of hepatotropic viral replication [13-16]. Furthermore, HBV co-infection in HIV disease considerably complicates its diagnosis and management. Patients with AIDS apparently are less likely to clear HBV infection after exposure or more likely to reactivate latent HBV infection or both [16, 17]. Until recently, the effect of HIV on HCV infection has not been investigated. Patients with HIV died long before their liver disease became problematic. It is known that HCV clearance is associated with the development and persistence of strong virus specific response by CTL and Th. The loss of these cells has been linked to the re-emergence of viraemia [18].

CONCLUSION

It is thus clear that apart from other infections, HIV infected individuals have a high probability of getting co-infected with HBV and/or HCV. HIV disease progression and enhanced immunosupression has a direct bearing on the natural history and pathogenesis of these infections. Sexual transmission of both HBV and HCV also appears to be significant and is of epidemiological importance in the light of heterosexual transmission of HIV in India. Monitoring of HIV infected patients for concurrent infection with HBV and HCV is therefore necessary.

REFERENCES

1. Koneman EW, Allen SD, Janada WM, Scherckenberger PC, Winn WC Jr.; Colour Atlas and Text Book of Diagnostic Microbiology; 5th edition, Lippincott Williams & Wilkins, 1997.
2. Mc Carron B, Thyagarajan SP; HIV and hepatotropic viruses: interactions and treatment. Indian J Med Microbiol., 1998; 16(1): 4-11.
3. Alter MJ, Hadler SC, Judson FN, Mares A, Alexander WJ, Hu PY, Miller JK *et al.*; Risk factors for Acute Non A- Non B hepatitis in the United States and association with hepatitis C virus infection. JAMA, 1990; 264(17): 2231-2235.

4. Uneke CJ, Ogbu O, Inyama PU, Anyanwu GI, Njoku MO, Idoko JH; Prevalence of hepatitis - B surface antigen among blood donors and human immunodeficiency virus - infected patients in Jos, Nigeria. Mem Inst Oswaldo Cruz., 2005; 100(1): 13 - 16.
5. Puoti M, Airoldi M, Bruno R; Hepatitis B virus coinfection in HIV subjects. AIDS Rev., 2002; 4: 27 – 35.
6. Mendes - Correa MC, Barone AA, Cavalheiro NP, Tengan FM, Guastini C; Prevalence of hepatitis B and C in the sera of patients with HIV infection in São Paulo, Brazil. Rev Inst Med trop S Paulo., 2000; 42: 81 – 85.
7. Dhanvijay AG, Thakar YS, Chande CA; Hepatitis B virus infection in HIV infected patients. Indian J Med Microbiol., 1999; 17(4):167-169.
8. Sonth SB, Sathyanarayan MS, Mariraj J, Krishna S; Seroprevalence of HIV-HBV Co-Infection, Al Ameen J Med Sci., 2012; 5(2):18 -186.
9. Cropley I, Main J; Hepatitis C virus infection: co-infection with HIV and HBV. Baillieres Best Pract Res Clin Gastroenterol., 2000;14(2): 265-275.
10. Wyld R, Robertson JR, Brettle RP, Mellor J, Prescott L, Simmonds P; Absence of hepatitis C virus ransmission but frequent transmission of HIV-1 from sexual contact with doubly infected individuals. J Infect., 1997;35 : 163-166
11. Fainboim H, Gonzalez J, Fassio E, Martinez A, Otegni L, Eposto M, Cahn P *et al.*; Prevalence of hepatitis viruses in an antihuman immunodeficiency virus positive population from Argentina: A multicentric study. J viral Hepat., 1999; 6(1): 53 – 57.
12. Catalan-Soares BC, Almeida RT, Carneiro Proietti AB; Prevalence of HIV-1/2, HTLV-I/II, hepatitis B
virus (HBV), hepatitis C virus (HCV), Treponema pallidum and Trypanosoma cruzi among prison inmates at Manhuacu, Minas Gerais State, Brazil. Rev Soc Bras Med Trop., 2000; 33(1): 27-30.
13. Yachimski P, Chung RT; Update on Hepatitis B and C Coinfection in HIV. Curr Infect Dis Rep., 2005; 7: 299-308
14. Schooley RT; HIV and hepatitis C virus coinfection: bad bedfellows. Top HIV Med., 2005; 13(4): 112-116.
15. Koch S, Gobels K, Oette M, Heintges T, Erhardt A, Haussinger D; HIV-HBV-coinfection--diagnosis and therapy. Dtsch Med Wochenschr., 2006; 131: 1873-1877.
16. Murphy MJ; Managing HIV/HBV coinfection can challenge some clinicians. HIV Clin., 2003; 15(4): 6-9.
17. Miller AO; Management of HIV/HBV coinfection. Med Gen Med., 2006; 8: 4176.
18. Lauer GM, Walker BD; Hepatitis C virus infection. N Eng J Med., 2001; 345(1): 41-52.