ISSN 2347-5579

Unique Journal of Medical and Dental Sciences

Available online: www.ujconline.net

Research Article

SEROPREVALENCE OF HEPATITIS B & C CO-INFECTION AMONG HIV REACTIVE PATIENTS IN SECUNDERABAD & THE ADJOINING AREAS

Sudha Rani V[1*], Taruni[2], Nagamani K[3]

[1]Associate Professor, Dept. of Microbiology, Kakatiya Medical College, Warangal, India
[2]Assistant Professor, Dept. of Microbiology, Osmania Medical College, India
[3]Professor & HOD, Dept. of Microbiology, Gandhi Medical College, India

Received: 11-01-2015; Revised: 10-02-2015; Accepted: 09-03-2015

*Corresponding Author: **Dr. V. Sudha Rani,**
Associate Professor, Dept. of Microbiology, Kakatiya Medical College, Warangal Contact: 9441244265

ABSTRACT

Context: HIV reactive patients from a tertiary care hospital

Aims: To know the seroprevalence of Hepatitis B & C co-infection among HIV reactive patients.

Methods and Material: About 200 serum samples which were received in the microbiology department from 1st January 2011 to 30th June 2011 and were found reactive for HIV, were tested for HBV and HCV. For HBV the marker used was HBsAg which was tested by rapid immunochromatography test and for anti HCV antibodies SD BIOLINE HCV rapid test and ERBA HCV ELISA were used.

Results: Out of 200 HIV reactive serum samples tested, HBsAg was detected in 24 samples showing 12% positivity and in 12 serum samples HCV antibody was detected by ELISA showing 6% positivity. 3 (1.05%) samples showed both HCV antibody & HBsAg positivity. Out of 24 HBsAg positive samples 18 were in the age group of 30-40yrs and out of 12 HCV positive samples 8 were in the age group of 30-40.

Conclusion: HIV infected patients have high probability of getting HBV/HCV infection due to enhanced immunodeficiency by HIV. Thus routine screening of HIV infected patients for concurrent infection with HBV & HCV should be made mandatory because it 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.

Keywords: Human Immunodeficiency Virus, Co-Infection, Hepatitis B Virus, Hepatitis C Virus.

INTRODUCTION

Human immunodeficiency virus (HIV),Hepatitis B and C virus (HBV&HCV) are the three most common chronic viral pathogens of major public health concerns.[1,2]These viruses have similar routes of transmission, namely through blood and blood products, sharing of needles to inject drugs and sexual activity[1].

Co-infections of HBV and HCV in HIV positive patients are associated with reduced survival and an increased risk of progression to severe liver diseases with higher susceptibility towards hepato-toxicity due to antiretroviral therapy.[2] 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[3,4]. However, HCV predisposes to death from liver failure[5,6]. 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 appropriate management of such patients. In developing countries like India, no such uniform guidelines are available. Moreover literature regarding the prevalence of HIV co-infection with HBV &/or HCV in south India is sparse. Hence the present study was undertaken to detect the current seroprevalence of HBV & HCV co-infection in HIV reactive patients in Secunderabad & the adjoining areas.

SUBJECTS AND METHODS

About 200 serum samples which were received in the microbiology department from 1st January 2011 to 30th June 2011 and were reactive for HIV were tested for HBV & HCV. Samples were screened for HIV by rapid TRIDOT assay and for HBV the marker used for routine screening was hepatitis B surface antigen (HBsAg). HBsAg was tested by rapid immunochromatography test and for antiHCV antibodies SD BIOLINE HCV rapid test and ERBA HCV ELISA were used.

The SD Bioline HCV test is an immunochromatographic (rapid) test supplied by Standard diagnostics. The SD BIOLINE HCV test contains a membrane strip, which is pre-coated with recombinant HCV capture antigen (core, NS3, NS4 and NS5) on test band region. The ERBA ELISA HCV test kit manufactured by TRANS ASIA BIOMEDICALS LTD. was used, which is a solid phase immunoassay, utilizing a mixture of synthetic peptides and recombinant proteins of HCV i.e., CORE, NS3, NS4 and NS5 for detection of HCV antibodies present in human serum and plasma. The ELISA tests were performed as per the manufacturer's instructions along with validity check and incorporation of internal controls in each run.

RESULTS

About 200 serum samples reactive for HIV were tested for HBsAg and HCV. Out of these 200 serum samples, 120 were from males and 80 were from females. Out of 200 HIV reactive serum samples tested, HBsAg was detected in 24 samples showing 12% positivity and in 12 serum samples HCV antibody was detected by ELISA showing 6% positivity. 3(1.05%) samples showed both HCV antibody & HBsAg positivity [Table1]. HIV reactivity was high in the age group of 30-40yrs. Out of 24 HBsAg positive samples 18 were in the age group of 30-40yrs and out of 12 HCV positive samples 8 were from patients in the age group of 30-40 [Table2].

Table 1: Distribution of HBV / HCV co-infection in HIV + patients

	Males	Females	Total Number	Percentage
No. Of HIV + ve patients	120	80	200	100
No. Of HIV + ve Patients with HBV	18	6	24	12
No. Of HIV + ve Patients with HCV	8	4	12	6
No. Of HIV + ve Patients with HBV with HCV	2	1	3	1.05

Table 2: Age wise distribution of HIV, HBV & HCV positive patients

Age in Years	No. Of HIV + ve patients	No. Of HIV + ve Patients with HBV	No. Of HIV + ve Patients with HCV	No. Of HIV + ve Patients with HBV with HCV
10-20	4	-	-	-
21-30	56	05	04	-
31-40	110	18	08	03
41-50	24	01	-	-
51-60	06	-	-	-

DISCUSSION

Worldwide, HBV accounts for about 370 million chronic infections, HCV for an estimated 130 million, and HIV for about 40 million. About 2–4 million people infected with HIV have chronic HBV co-infection and 4–5 million have HCV co-infection.[7] The prevalence rates vary greatly from one region to another and over time. Our study showed male predominance (60%) amongst HIV infected patients, which was much in concordance with other studies (73% and 86%) supporting the fact that male subjects are significantly at high risk of developing HBV/HCV co-infection.[1,3] HIV reactivity was more in the age group of 30-40 years which is the normal age for HIV positivity in India[1].

We found that the seroprevalence of HBV and HCV was 12% and 6% in HIV positive patients. This was significantly higher than the HBV and HCV seroprevalence in non HIV infected general population,[8,9] but higher than the results obtained in another Indian study performed on HIV positive patients (9 & 2.2%) respectively.[1] Our results were much in concordance with a South Indian study group where HBsAg was positive in (6.4%) of HIV positive patients and (2.1%) demonstrated HCV antibody. [10] Thus different studies depict that co-infection rates of HBV & HCV in HIV patients are variable worldwide depending on geographical region, risk group and also the type of exposure. Within India only, HBV & HCV co-infection among HIV positive patients varies from one region to other as is evident from different studies. The co-infection for HBV varies from 9-30% and for HCV 2-8%. Moreover, it has been reported in literature that the co-infection rate rises with disease progression[11]. Both HBV and HCV positivity in HIV reactive persons was 1.05%, whereas it was 0.7% in a study from Nigeria[12].

Co-infection with these hepatitis viruses will increase the risk of cirrhosis, liver deficiency and mortalities in comparison to single infection by either HBV/HCV. It may complicate the delivery of anti-retroviral therapy (ART)by increased risk of drug related hepato-toxicity and interference with selection of specific agent[13].

Thus routine screening of HIV infected patients for concurrent infection with HBV & HCV should be made mandatory because it 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.[14]

CONCLUSION

HIV infected patients have high probability of getting HBV/HCV infection due to enhanced immunodeficiency by HIV. Shared route of transmission also plays significant role and is of epidemiological importance in our country .There is also an urgent need to conduct detailed studies on the interplay of HIV and hepatotropic viruses in India as co-infection with these hepatitis viruses will increase the risk of cirrhosis, liver deficiency and mortalities in comparison to single infection by either HBV/HCV. It may complicate the delivery of anti-retroviral therapy (ART)by increased risk of

drug related hepato-toxicity and interference with selection of specific agent.

Thus routine screening of HIV infected patients for concurrent infection with HBV & HCV should be made mandatory because it 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.[14]

REFERENCES

1. Saravanan S, Velu V, Kumarasamy N, Nandakumar S,Murugavel KG,Balakrishnan P,et al Coinfection of hepatitis B and hepatitis C virus in HIV infected patients in South India. World J Gastroenterol 2007; 13: 5015-20.
2. Mohammad M, Talel G, Sheikhian A, Ebrahimzade F, Pournia Y, Ghasemal E et al. Survey of both hepatitis B virus (HBsAg) and hepatitis C virus (HCV-Ab) co-infection among HIV positive patients.Virology journal 2009;6:202.
3. Duming JRG, Nelson M. HIV and hepatitis with co-infection. Int J Clin Pract. 2005; 59: 1082–92. [PubMed]
4. Alter MJ. Epidemiology of viral hepatitis and co-infection. J Hepatol. 2006; 44 (Suppl 1):S6–9. [PubMed]
5. Mocroft A, Monforte A, Kirk O, Johnson MA, Friis-Moller N, Banhegyi D, et al. Decline in AIDS and death rates in EuroSIDA study; an observational study. Lancet. 2003; 362: 22–9. [PubMed]
6. Soto B, Sanchez Quijano A, Rodrigo L, del Olmo JA, García-Bengoechea M, Hernández-Quero J. Human immunodeficiency virus infection modifies the natural history of chronic parentally acquired hepatitis C with an unusually rapid progression to cirrhosis. J Hepatol. 1997; 26:1–5. [PubMed]
7. Singal AK, Anand BS, Management of hepatitis C virus infection in HIV/HCV co-infected patients; clinical review. World J Gastroenterol.2009; 15: 3713–3724.
8. Tandon BN, Acharya SK, Tandon A. Epidemiology of hepatitis B virus infection in India Gut 1996;38 (2):556-9.
9. Chandra M, Khaja MN, Farees N, Poduri CD, Hussain MM, Aejaaz Habeeb M. Prevalence, risk factors and genotype distribution of HCV and HBV infection in the tribal population: a community based study in south India. Trop Gastroenterol 2003; 24: 193-5.
10. Padmapriyadarshani C, Chandrabose J, Victor L, Hanna LE, Arunkumar N,Swaminathan S. Hepatitis B or Hepatitis C co-infection in individuals infected with human immunodeficiency virus and effect of anti-tuberculosis drugs on liver function. J Postgrad Med 2006; 52: 92-6.
11. Tankhiwale SS, Khadase RK, Jalgoanker SV. Seroprevalence of anti HCV and hepatitis B surface antigen in HIV infected patients. Indian J Med Microbiol 2003; 21: 268-70.
12. Tremeau-Bravard A, Ogbukagu IC, Ticao CJ, Abubakar JJ.Seroprevalence of hepatitis B and C infection among the HIV-positive population in Abuja, Nigeria; African Health Sciences 2012;12: 312-317.
13. Sanjiv Ahuja, Shalini Malhotra, Ankit Chauhan, Charoo Hans, Seroprevalence of Hepatitis B and C Co-Infection in HIV Positive Patients from a Tertiary Care Hospital, JIMSA 2013; 26:(2) 91-92.
14. Chandra N, Joshi N, Raju YSN, Kumar A, Teja VD. Hepatitis B and/or C co-infection in HIV infected patients: A study in a tertiary care centre from south India. The Indian Journal of Medical Research 2013; 138(6): 950-954.

Source of support: Nil, Conflict of interest: None Declared