ORIGINAL ARTICLE

Screening of HBsAg and Anti-HCV from Tertiary Care Hospital of Lahore

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ABSTRACT

Aim: To find out the frequency of hepatitis B surface antigen and hepatitis C antibodies in patients referred from the in-patient and out-patient departments of Shaikh Zayed Hospital Lahore.

Methods: This cross-sectional study was carried out at Shaikh Zayed Hospital, Lahore from January 2011 to December 2011. The patients were referred from the in-patients and out-patients departments of Shaikh Zayed Hospital for screening of HBsAg and Anti-HCV antibodies. Three milliliter of venous blood was collected from which the serum was separated, stored and tested for HBsAg and Anti-HCV antibodies.

Results: A total of 16822 cases were referred in a year. Overall prevalence of HBsAg, Anti-HCV antibodies and co-infection (HBsAg + Anti-HCV) was 3.92%, 16.06% and 0.76% respectively. HBsAg positive in male patients in one year screening was 2.46% and female was 1.45% while Anti-HCV antibodies positive male in this population were 8.23% and females were 7.82%. Rate of co-infection positivity in males and females population was 0.45% and 0.30% respectively. Male to female ratio for HBsAg, Anti-HCV and co-infection was 1.5:1, 1:1.08 and 1.2:1 respectively. Both the genders were generally infected by HBsAg and HCV but the male patients were predominantly more infected with HBsAg and HCV antibodies.

Conclusion: High frequency of HBsAg and Anti-HCV positivity was due to biased population of hospitalized cases. Serious efforts need to be done to create awareness regarding HBsAg and Anti-HCV antibodies in all public and private hospitals and health clinics.

Keywords: Hepatitis B surface antigen, Hepatitis C virus, Co-infection

INTRODUCTION

Chronic hepatitis B and C infections are the major health issue worldwide and especially in Pakistan[1]. Hepatitis B virus was first isolated in 1963[2] and hepatitis C virus (HCV) was identified in 1989[3]. Together, these two viral infections are the major case of morbidity and mortality in the form of chronic liver disease, cirrhosis and hepatocellular carcinoma[4].

Hepatitis B and C viruses pose a serious health problem around the globe.[1] Worldwide about 350 million people have chronic HBV infection[5], 170 million people have HCV and nearly 3-4 million people are newly infected each year.[6] Pakistan bears a huge burden of these viral diseases each year. A nation-wide survey carried out in 2007 and 2008 showed that the overall prevalence of HBV and HCV was 2.5% and 4.9% respectively. For HCV, the prevalence relative to provinces was 5% in Sindh, 6.7% in Punjab, 1.1% in KPK and 1.5% in Balochistan. For HBV infection, the figure were 2.5% in Sindh 2,4% in Punjab,1.3% in KPK and 4.3% in Balochistan.[7] The common risk factors for disease transmission are blood transfusion, haemodialysis, thalassemia, use of blood contaminated syringes, frequenting a barber, tattooing and also by sexual transmissions[8]. Other studies conducted in the past report the prevalence of HBV around 3-10% and 2-14% for HCV[9-12].

In general population HBV carrier rate has been reported up to 8-10% and HCV carrier rate around 6%.[13-15] This is considered high compared to the extremely low prevalence rate of 0-1.5% in England and other Scandinavian countries, 0-1.6% in USA and Northern Europe, 0-1.9% in Southern Europe and a relatively higher prevalence of 1.7-5.2% in African countries[16,17].

The main routes of transmission of both these viruses are parental. Although the seroprevalence among the general population has been documented, the disease still has a high prevalence in those seeking healthcare or admitted to hospitals. Present study was conducted to evaluate the frequency of HBV and HCV in patients referred from different wards and the out-patient department of Shaikh Zayed Hospital, Lahore for screening and confirmation purposes.

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SUBJECTS AND METHODS

The patients referred from different departments of Shaikh Zayed Hospital for HCV and HBsAg screening from January 2011 to December 2011 were included in the study. Three millilitre of venous blood sample was collected from each patient, serum was separated and kept under refrigeration. The test was performed for HBsAg and Anti-HCV antibodies run with positive and negative control with each batch by ELISA (4th generation kit). All the results were documented.

RESULTS

There were 16822 samples of patients that were sent to the Microbiology department. Total males were 8871 (52.73%) and total female were 7951 (47.27%), In-patient were 8264 (49.10%) and out-patient were 8564 (50.90%). Overall frequency of HBV was 3.92%, Anti-HCV was16.06% and co-infection with HBV and HCV was 0.76%. Total HB virus positive males were 2.46% and females were 1 .45%. Male to female ratio was 1.5:1. Total Anti-HCV positive males were 8.24% and females were 7.82%. Male to female ratio was 1.1:1.08. In HBV and HCV co-infection, total male affected were 0.46% and females were 0.30%, male to female ratio was 1.2:1 (Tables 1-2).

Table 1: Frequency of genders (n = 16822)

Gender	n	%
Male	8871	52.73
Female	7951	47.26

Table 2: Frequency of HBsAg, Anti-HCV and co-infection in different groups of patients

Gender	HCV +ve	HBsAg	Co-infection (B+C)
Total	2703(16.06%)	660(3.92%)	129(0.76%)
Male	1385(15.63%)	415(4.67%)	78(0.87%)
Female	1317(16.58%)	245(3.08%	51(0.64%)

DISCUSSION

Pakistan is highly endemic for Hepatitis B and C virus and Meta analysis of most of the studies presented in the meeting for formulation of guideline held in Karachi in 2003 put this in range of 4-25% depending on the population studied[18]. According to the first national hepatitis survey conducted by NHRC, the prevalence of HBV and HCV in general population of Pakistan was well established[19]. According to WHO survey, Pakistan falls into the intermediate zone of infection for both hepatitis B and C virus[20-21].

The present study showed a high prevalence of hepatitis B at 3.92% and 16.06% for hepatitis C in patients referred from the out-patient and in-patient departments, high prevalence in various departments was due to bias selection of patients with a higher progression of disease visiting the hospital for consultation and admission as Shaikh Zayed Hospital is a tertiary care hospital and patients are referred from all over the province and from various areas of the country.

In comparison, previous hospital based studies conducted in Pakistan showed hepatitis B prevalence at 5.9% and HCV at 12.8%[22]. In other studies, HBsAg positivity was 3-5% and Anti-HCV was between 2-13.5%[23,24]. In another study conducted in adult males, the frequency of HBsAg positive in Punjab was 3.7%, Sindh 5%, NWFP 1.8% and Balochistan and Azad Kashmir was 1.6% respectively. The frequency of Anti-HCV positive in Punjab was 1.9%, Sindh 4.1%, NWFP 0.9% and Balochistan 1.7%.[23] Other studies conducted in past report a prevalence between 3-10% of HBsAg and 2-14% of HCV antibodies[12]. In the present study, overall frequency of HBV & HCV positivity was compared to the other local studies mentioned above[25].

The prevalence of co-infection (HBV/HCV) in the National Survey was 0.1%[19] and in PMRC study it was 1.1%[22], where in this study it is 0.76% which is low compared to PMRC study but still high as compared to the national survey. These findings should be a matter of concern for healthcare providers and policy makers as the co-infection indicated in this study is more severe and difficult to treat, with high morbidity and mortality.

CONCLUSION

High frequency of HBV and HCV infection is due to a biased population of hospitalized cases. High frequency in this study indicates awareness and presence of highly specialized departments e.g. Gastrointestinal Department and Liver Transplant. Serious efforts are required about the awareness of the disease and its mode of transmission. Prevalence needs to be enhanced in all health care providers to curtail the spread of disease. Treatment is important to decrease the disease prevalence.

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