ANTENATAL SCREENING OF WOMEN FOR HEPATITIS B AND C IN AN OUT-PATIENT DEPARTMENT

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ABSTRACT

Objective: To determine frequency of hepatitis B virus (HBV) and hepatitis C virus (HCV) and its clinical manifestation in pregnant women.

DESIGN: A cross-sectional descriptive study.

PATIENTS AND METHODS: Pregnant women visiting the Gynaecology and Obstetrics out patient's department of Sir Ganga Ram Hospital Lahore for antenatal check-ups from October 2006 to March 2007 were screened for hepatitis B and C. Immune- chromatography was used for initial screening and diagnosis was confirmed by ELISA technique. Data collection included maternal age, parity, symptoms or past history of jaundice, fatigue, tiredness, insomnia, depression, dyspepsia, fever, anorexia and pale stool. Risk factors investigated include past history of some surgical procedures, the dental visit, blood transfusion, tattooing, hospitalization and history of injection.

RESULTS: Among the screened population, 7.3% out of 2439 ladies were positive for anti HCV and 2.2% for HBsAg while dual infection with HBV and HCV was observed in 0.08 % . Symptoms observed in hepatitis B patients were fatigue (90%), depression and pale stool (70%), anorexia (60%), jaundice (57.2%), fever (56.4%) and dyspepsia (51.2%). In hepatitis C antibody positive patients fatigue was the main symptom (95.7%) followed by pale stool (84.5%) and depression (80.2%); 63.3% had insomnia, 59.1% had anorexia, 50.7% had fever, 50.7% had jaundice and 43.6% had dyspepsia. Past history of blood transfusion was reported by 32.3% patients, surgery by 42.2% and tattooing was observed in 0.70%. One or more tooth extraction was reported by 50.2% subjects, and 49.25% had history of repeated injections.

CONCLUSION: The frequency of sero-positivity for HBsAg and HCV among pregnant women is alarming. These sero-positive mothers are not only predisposed to chronic consequences of hepatitis, but also are a continuous threat to their offsprings and care providers. Hence, there is a direct need for further epidemiological studies and to take measures for prevention and control of the disease.

KEY WORDS: Hepatitis B Virus, Hepatitis C Virus, Antenatal screening.

INTRODUCTION

Approximately 350 million people are infected with HBV worldwide, and 170 million with HCV world wide[1,2]. The prevalence of chronic hepatitis B and C in Asia pacific region is 10% and between 4-12% respectively[3]. In Pakistan hepatitis B and hepatitis C virus infections are reported to be 2.5% and 6.7% in pregnant women respectively[4, 5].

HBV and HCV infections account for substantial proportion of liver disease worldwide. Because the two hepatotropic viruses share some common modes of transmission, co-infection with two viruses is not uncommon, especially in areas with high prevalence[6]. The exact number of patients co-infected with HBV and HCV is unknown[4]. Patients with co-infection have more severe liver diseases and are at an increased risk for progression to hepatocellular carcinomas[7]. Studies showed that subjects with dual HBV and HCV infection were more likely to be older in age, have a history of blood transfusion, intravenous drug use,

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unsafe sex, use of glass syringes, alcohol use and have a lower education level. Other modes of transmissions of both viruses are reported as sharing of household items such as razors, toothbrushes and shaving from barbers[8-10].

Prevalence of hepatitis C in pregnancy has been studied in many countries of Europe[11] and Africa[12]. Considering WHO classification, Pakistan lies in intermediate zone with burden of hepatitis being 0.13% of total infectious diseases in the country[13]. Being a vulnerable group, pregnant women are likely to be more predisposed to infection, but only few studies are available on the subject.

The objective of this study was to find out the frequency and clinical manifestations of HBV and HCV in pregnant women.

PATIENTS AND METHODS

This cross-sectional study was conducted by the PMRC, Research Centre, Fatima Jinnah Medical College and Sir Ganga Ram Hospital Lahore from October 2006 to March 2007. All the pregnant women irrespective of their age and parity visiting the antenatal clinic at the Gynecology and Obstetrics out-patients department were screened for hepatitis B and C.

Women having history of previous liver disease, Diabetes and pre-eclamptic toxemia were excluded from study. Venous blood was collected after taking proper antiseptic measures and all the samples were tested by immunochromatographic test (ICT) for initial detection of hepatitis B surface antigen (HBsAg) and anti-HCV antibodies. In positive cases diagnosis was confirmed using ELISA. Data collection included maternal age, parity, history of jaundice, fatigue, insomnia, depression, dyspepsia, fever, anorexia and pale stool. Risk factors investigated were history of some surgical and dental procedures, blood transfusion, tattooing, ear and nose piercing, hospitalization and parentral injection. Data were analyzed using SPSS 10.0 version and results were expressed in percentages.

RESULTS

A total of 2439 pregnant women were tested for HBsAg and anti HCV. Among those, 7.3% were positive for anti HCV, 2.2% for HBsAg and 0.08% were positive for both. Mean age of mothers was 27.26 ±5.01 years and mean parity 3.87 ± 2.12. Majority of pregnant ladies presented during 6.01 ± 1.51 month i.e. second trimester of pregnancy (Table I).

Table I: Demographic profile of Subjects

Parameters	Number of subjects	Percentage
Age (years) <20	360	14.67
21-30	1682	68.96
31-40	397	16.37
Parity		
primigravida	683	28.01
Para 1-4	1268	51.98
Para 5 and above	488	20.01
Mean duration of pregnancy at antenatal visit in months	6.01 ± 1.51	-
Education		
Illiterate	839	34.39
Primary education	445	18.32
Secondary education	804	32.90
Graduate and above	351	14.39

Symptoms observed in hepatitis B patients were fatigue in 90%, depression and pale stool (70%), anorexia (60%), jaundice (57.2%), fever (56.4%) and dyspepsia (51.2%). In hepatitis C positive patients fatigue was the main symptom observed in 95.7% while 84.5% had pale stool, 80.2% had depression, 63.3% had insomnia, 59.1% had anorexia, 50.7% had fever, 50.7% had jaundice and 43.6% had dyspepsia.

Past history of blood transfusion was present in 32.3%, of surgical operations in 42.2% and tattooing was observed in 0.70%. The history of one or more tooth extraction was present in 50.2%, and repeated injections were reported in 49.25% subjects. Three major risk factors viz. blood transfusion, general and dental surgery were observed simultaneously in 8.4% subjects. Two major risk factors i.e. general surgery and blood transfusion were present in 5.6 % and dental interventions and blood transfusion were present in 11.2% simultaneously.

DISCUSSION

Infection due to hepatitis B and C viruses are significant health problems around the globe. The frequency of viral hepatitis B and C in this study was 7.3% and 2.2% respectively. These results are similar to another study where prevalence of HCV infection in pregnant women in Pakistan was 6.7%, which is much higher than 0.19% to 4.4% reported in Caucasians[14]. An important finding in this study was higher prevalence of HCV infection (7.3%) than HBsAg (2.2%).

Although most of the risk factors for the transmission of both infections are same like needle piercing, repeated

injections and blood transfusion; high frequency in advanced age and parity may indicate an association of HCV transmission with past obstetrical/surgical procedures[12] Low frequency of HBsAg can be attributed to increased public awareness and success of vaccination against HBV infection[15]. Prevalence of anti HCV in pregnant women may be even high in endemic areas[16]. All these carrier mothers are reservoir of virus transmission to their babies which can further increase the number of infected/carrier individuals in the community[17].

The main symptoms observed in this study of infected pregnant women were fatigue (95.7%) and pale stool (84.5%). All the patients were symptomatic with one or more symptoms. In an informal survey of hepatitis C symptomatology the main symptom observed was chronic fatigue (72%) ranging from simply getting tired easily to extreme, debilitating fatigue[18]. In another study carried out by Shaha et al. only 45.4% were symptomatic; of which 16.7% cases had an history of jaundice[19] . However these symptoms should be interpreted with caution in this particular group.

The associated risk factors observed in this study were history of blood transfusion, surgery and tooth extraction. Blood transfusion in the past without proper screening for hepatitis C can be a possible reason for this wide spread disease. Second major risk factor observed was surgery. Majority of women had previously undergone obstetrical surgery. This points to the quality of obstetrical care provided to them. Keeping in view these epidemiological characteristics there is need to follow effective preventive measures which should be evaluated time to time. Tooth extraction was another major risk factor in this study. High prevalence of hepatitis-B and C in patients exposed to dental surgery may be due to contaminated dental instruments, lack of sterilization facility, re-use of syringes and refilling vials of local anesthetics. All these factors might be responsible for transmission of blood pathogens including hepatitis B and C [20,21].

There is no standard care available for treatment of patients with co-infection. Clinical trials are needed to clarify the optimal treatment for such patients. Role of genotype of HBV and HCV in co-infection and mechanism of mutual inhibition should be evaluated through further research[1].

In this study 0.082% of patients had dual infection with HBV and HCV viruses. The number of patients with acute co-infection is limited and only few reports are available[21].

Immunochromatographic test (ICT) was used for this base-line screening due to being economical and availabile in the institution where poor population generally visits this health facility. ELISA method is relatively costly so it was used only to confirm hepatitis. Husbands were not screened for HBV and HCV, as women in the community usually visited antenatal clinics alone. Screening of husbands for HBV and HCV was also not the objective of this study. Further study in future may also include spouses.

CONCLUSION

There was a high frequency of HCV seropositivity as compared to HBsAg among pregnant women in the studied group. These seropositive mothers are reservoirs of these viruses, which can be transmitted to their offsprings. Therefore, antenatal screening for hepatitis B and C for every woman should be mandatory. Most frequent risk factors are blood transfusion, surgery and dental procedures. Spread by these routes may be minimized by adopting strict infection control regulations. Public awareness of modes of transmission, prevalence, diagnosis, prognosis and preventive measures will go a long way in reducing the burden of HBV and HCV in Pakistan.

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