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Ratio of Hepatitis B and Hepatitis C viral infection in pregnant women of Haripur KPK, Pakistan

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ABSTRACT

AIM: To evaluate the frequency of viral infections by Hepatitis C virus (HCV) and Hepatitis B virus (HBV) in the group of pregnant women in Haripur Khyber Pakhtunkhwa, Pakistan. METHODS: The study was conducted prospectively, from October 2015 to December 2016. A total 360 samples collected from pregnant women from the region of Haripur. Samples were subjected to high speed centrifugation to collect plasma. Immunochromatographic (ICT) technique was utilized to screen the samples. RESULTS: In this study total of 2.22% of women were infected with HCV and 1.67% of pregnant women were infected with HBV. CONCLUSION: HCV infection was found to be higher than HBV infection in pregnant women in Haripur Khyber Pakhtunkhwa, Pakistan. The frequency of HCV was higher in younger women compared to older women, demonstrating the importance of education and increasing awareness in adolescents.

KEY WORDS: pregnant women; hepatitis B; hepatitis C

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INTRODUCTION

Viral infections with Hepatitis B virus (HBV) and Hepatitis C virus (HCV) cause persistent liver disease and crucial public health problems (1). In the year of 2006, globally 175 million people were infected with HCV only (2). On the other hand, the HBV is responsible for up to 500000 deaths annually and causes liver cirrhosis and hepatocellular carcinoma (3). In United States, it is estimated that approximately 2.7 million people are infected with HCV that causes 40% of all chronic liver disease (CLD) cases (2), and is the most common indication for liver transplantation (4). Hepatitis B virus is found frequently in Asia in both children and adult (5). Between 3 and 4% of population in Pakistan are known to be carriers (6). Most people are chronically infected with HCV and HBV and stays asymptomatic although infected (1).

Several different factors exists for high frequency of HCV and HBV, like unscreened blood transfusions, frequent use of unsterilized syringes and needles by workers in hospitals and health care settings, piercing body parts and unhygienic practices by barbers (2, 3). Moreover sharing of needles and syringes by drug users is a major risk factor for Hepatitis B and C all over the world (4, 5). Pakistan has the highest rate of intramuscular injections in a year (6).

The highest rate of HBV (9.3%) is found in Balochistan, and the lowest rate is reported in Khyber Pakhtunkhwa (1.1 %) (7). Frequency of HBV in Punjab is 2.4%, whereas 2.3% is found in Sindh.

For HCV, the highest prevalence of about 4.3% is in Punjab, 2.2% in Khyber Pakhtunkhwa, whereas 1.9% and 1.8% are found in Balochistan and Sindh respectively (8, 9).

General population infected with HBV and HCV may stay without any symptoms for prolonged periods of time (10).

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MATERIALS AND METHODS

Samples were collected as a part of routine screening only from pregnant female patients between 20 and 40 years of age who belong to district Haripur. Total of 360 women were tested. Women were divided into four groups, according to age: from 20-25 years, 25-30 years, 30-35 years and 35-40 years. There were 90 women in each group. The study was designed in the Department of Medical Laboratory Technology University Of Haripur and performed in the primary lab of Haripur from October 2015 to December 2016.

A detailed history was taken from all patients including general signs and symptoms, history of any present illness, family history and any past history of hepatitis or jaundice, as well as history of blood transfusions. The previous history of HCV and HBV were taken from any member of the family.

Three ml of venous blood were collected from all pregnant women by the venipuncture technique using disposable plastic syringes. Anti coagulated tubes were used and samples were centrifuged to obtain plasma from samples. Immunochromatoghraphy (ICT) was used for the detection of HCV and HBV. Antibodies to Hepatitis C virus were determined in serum or plasma by the rapid single step method for qualitative detection (11). Biotech kit was used for Hepatitis C virus antibodies made by Bio Tech laboratories used for screening in this study. Positive test results were confirmed by ELISA.

RESULTS

Total of 360 pregnant women were screened for Hepatitis B surface antigens and anti-HCV, showing that the HCV rate is high in contrast to HBV. Samples were collected from pregnant women in the age group of twenty to forty years and analyzed by age groups.

Frequency of HCV positivity in the age group of 20-25 years was found to be 4.4% and for HBV it was 1.1%. In the age group of 25-30 years, the frequency of HCV positivity was 2.2% and HBV was 0.0%. Frequency of both HCV and HBV positivity in the age group of 30-35 was 2.2%, while in age group of 35-40 years it was 0.0% and 3.3% respectively (Figure 1).

The frequency of HCV positivity among pregnant women of Haripur between 20 and 40 years of age was 2.22% and that of HBV was 1.67% (Figure 2).

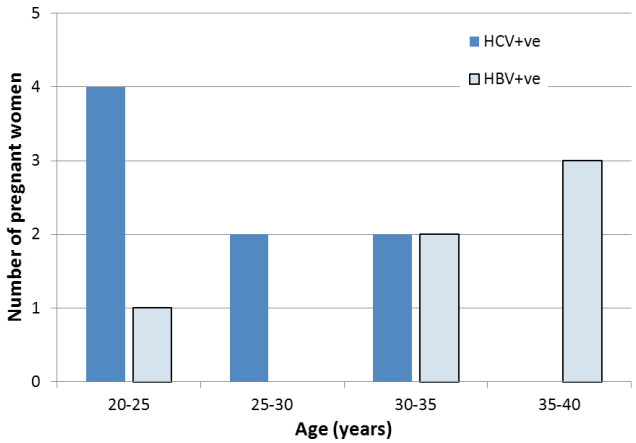

Figure 1 . Distribution of Hepatitis C positive (HCV+ve) and Hepatitis B positive (HBV+ve) women among pregnant women according to age groups

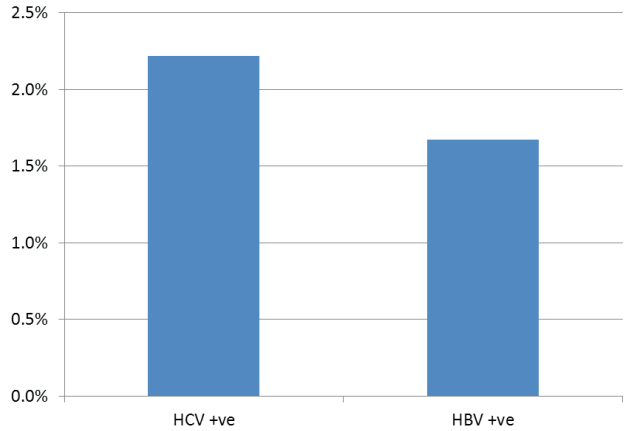

Figure 2. Percentage of Hepatitis C positive (HCV+ve) and Hepatitis B positive (HBV+ve) women among pregnant women

DISCUSSION

Illiteracy, pitiable socio-economic status, and the insufficient hygienic condition have also a pressure in the prevalence of Hepatitis B and Hepatitis C (12). Hepatitis B and Hepatitis C status in Pakistan is alarming and is among the leading cause of mortality and morbidity (13). The prevalence of hepatitis is rising day by day in general population as well as among pregnant women in Pakistan. An expected 20 million people has been infected with these viruses annually and 350 million chronic carriers of Hepatitis B virus (HBV) exist around the globe and in the world (14). Among most common viral diseases Hepatitis B is the most viral with more than 300 million people infected in the entire world (15). This study shows that 2.2% of pregnant women in Haripur KPK in Pakistan in the age group between 20 and 40 years are infect with HCV and 1.6% are infected with HBV.

A study conducted in Islamabad revealed that the reactive HCV in women was 52% (16) while the study of Sina Aziz from 2010, designed in the rural area of Sindh, reported 28.6% of HCV prevalence (17). High prevalence of HCV in these areas is due to the lack of education and awareness. Study conducted by Irshad from 2016 reported the frequency of HCV in pregnant women that was slightly lower than reported by the current study in Haripur, and this may be because of poor education among women in Haripur as well as the lack of awareness and sensitization to health issues (7). In another study by Munir from 2015 in Mardan the rate of reactive HCV in women was 7.2%, and this high rate of HCV prevalence was mostly due to the lack of education (18).

Previous study reported the prevalence of HBV in pregnant women to be 0.34% (19), while in this study we found the prevalence to be 1.67%, which is alarming high. This difference might be due to the lack of knowledge among women and poor socioeconomic conditions. Another previous study reported 3.98% prevalence of HBV in pregnant women (20) which is much higher than that found in the current study. Increasing incidence and prevalence of both HBV and HCV in women of child bearing age is alarming and risk noted factors include poor hygienic conditions, lack of awareness and sensitization about health issues.

Another study of Rabia Anwar from 2016 showed a 4.6% rate of HBV in pregnant women of Rawalpindi (21) and this rate, that is higher compared to our study, is mostly due to the increased number of population and reduced awareness.

Of special interest is that the frequency of HCV was higher in younger women (age 20-25 years) compared to older women (age 35-40 years). Given the significance of HCV as a cause of liver cirrhosis and hepatocellular cancer, and especially the lack of vaccination for this type of hepatitis, it is of special importance to focus on education and increasing awareness in adolescents.

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Ethical Approval

All investigations were performed as a part of routine medical care with no need for separate informed consent.

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