

FREQUENCY AND RISK FACTORS FOR HEPATITIS C AMONG PREGNANT WOMEN

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ABSTRACT

Background: Hepatitis C virus is a major burden on public health worldwide. This study was conducted to evaluate the frequency and various risk factors for hepatitis C virus among pregnant women in our set-up.

Material & Methods: This cross-sectional study was conducted on pregnant women in Gynaecology & Obstetrics Department, Kuwait Teaching Hospital, Peshawar, from January 2007 to January 2009. After detailed history and examination, 5 ml blood was taken. Rapid Immuno-chromatographic Technique for qualitative detection of antibodies for hepatitis C was the screening technique used. Those found positive were confirmed by ELISA. The women were also evaluated for the presence of risk factors for Hepatitis C virus infection. Pre-structured proforma was used to collect and record data. Results were analyzed on SPSS version 16.

Results: During the study period 2050 pregnant women were tested for anti-HCV. Out of these, 103(5%) were found positive for anti-HCV. Regarding risk factors; history of previous delivery, abortions, injections, blood transfusion, surgery, dental extraction and tattooing were associated with HCV positive status. Sixty-four (62%) anti-HCV positive women did not have any identifiable risk factor.

Conclusion: Hepatitis C is a common infection in pregnant women. Risk factors include use of contaminated syringes, contaminated surgical instruments and blood products.

KEY WORDS: Hepatitis C virus, Anti-HCV, Pregnancy.

INTRODUCTION

Hepatitis C virus (HCV) is a major burden on public health worldwide as well as in Pakistan. Approximately 130 million individuals are HCV infected, with 3.4 million new cases per year, representing a leading cause of liver cancer and transplant.¹ Hepatitis C prevalence, according to WHO estimates is 3% of the world population.² The long term morbidity and mortality is far greater than its counterpart hepatitis B.³ Approximately 50% of infected patients who are followed for at least 12 months develop biochemical evidence of chronic liver disease. 20-40% of patients will progress to chronic active hepatitis within five years, and overall, 20-30% of infected persons will develop cirrhosis within 20-30 years of infection. Ultimately 75% of viraemic patients will become carriers.⁴ Once hepatitis C related cirrhosis has developed the prognosis is poor with a high incidence of hepatic carcinoma and hepatic decompensation leading to an early death.⁵

HCV is a hepatotropic virus that is readily transmitted by blood to blood contact.⁶ The overall rate of mother-to-child transmission for HCV from HCV infected, HIV-negative mothers has been estimated around 5%.^{7,8} Numerous risk factors for vertical transmission have been studied. In general, high viral load, HIV co-infection and invasive

procedures are the most important factors.⁹ Abnormal ALT levels in mothers in the year before pregnancy may help in identifying mothers with an increased risk of vertical transmission.^{10,12}

The seroprevalence of HCV varies from country to country and even in the same country, from region to region. Seroprevalence of HCV in Pakistan is unclear and its epidemiology, particularly in women and children has yet to be established.¹³ The prevalence of HCV in general population ranges from 4 to 25.7%.¹⁴ In an antenatal survey from England, the prevalence of anti-HCV in antenatal clinic attendees in Greater London area and Northern and Yorkshire region was found to be 0.43% and 0.21% respectively.¹⁵ The seroprevalence of anti-HCV in the healthy general population of India was found to be 1.5% each in 234 voluntary blood donors and 65 pregnant women.¹⁶⁻¹⁹

We conducted this study to assess the frequency of HCV infection in the obstetric population and to determine whether various risk factors for HCV infection could be identified.

MATERIAL AND METHODS

This cross-sectional study was conducted in the department of Obstetrics and Gynaecology

Kuwait Teaching Hospital Peshawar to determine the frequency of hepatitis C antibodies among the antenatal women over a two year period. Study was conducted on pregnant women who were screened for HCV antibody during antenatal consultation and were admitted for delivery. Rapid Immuno-chromatographic Technique (ICT) for qualitative detection of antibodies for hepatitis C was the screening technique used. Those found positive were confirmed by ELISA. Detailed history including age, parity, educational level, other demographic features and risk factors like past surgeries, blood transfusion, vaginal delivery, dilatation and curettage etc were documented on a prestructured proforma. All pregnant women 15-50 years of age admitted in labour room were included. Women excluded were those who had history of liver disease, diabetes or pre-eclampsia. All results were analyzed on statistical software SPSS version 16.

RESULTS

Total number of deliveries studied were 2050. HCV was detected in 103 patients with a frequency of 5%. HCV was found more in age group between 25-39 years. (Table 1) The frequency of hepatitis C

Table 1: Frequency of anti-HCV antibody positive test in different age groups of pregnant women.

Age in years	Number	Percentage
15-20	6	6
21-30	47	45.45
31-40	41	39.39
41-50	9	9
Total	103	100

Table 2: Risk factors analysis in pregnant population (n=64).

Risk factors	HCV Number (%)
Blood transfusion	4(6.25%)
Dilatation and curettage	5(7.81%)
Abortions	7(10.93%)
Acupuncture /tattooing	3(4.68%)
History of previous Surgery	7(10.93%)
History of previous delivery	23(35.93%)
History of injections	6(9.37%)
History of jaundice	4(6.25%)
History of dental surgery	4(6.25%)

in primigravidas, multigravidas and grand multigravidas was 19 (18.1%), 50 (48.4%), 34 (33.3%) respectively. The risk factors studied in HCV positive pregnant women are depicted in the Table 2.

DISCUSSION

Worldwide viral hepatitis is the commonest cause of hepatic dysfunction in pregnancy. Pakistan is highly endemic for hepatitis B & C.^{20,21} In our study the frequency of HCV was 5% while prevalence of HCV in developed countries is 0.68% to 0.98%, 0.95 in Taiwan and 0.7% in Italy.^{22,23} A study conducted on pregnant women from inner city of London showed a prevalence of 0.8%.²⁴ A study from Japan showed a prevalence of HCV as 7.1%.²⁵ A similar study in central Asia revealed a seroprevalence of 19%.²⁶ Another study from Swat, Pakistan in 2009 revealed the frequency among pregnant women to be 2.5%,²⁷ while our incidence is 5% which is higher and may be due to significant number of Afghan refugees attending our hospital. Prevalence of hepatitis C among 300 pregnant women in prenatal clinic of Lady Aitchison Hospital Lahore was found to be 6%.²⁸

In a study from Northern Italy, the principle risk factors were history of intravenous drug abuse (32%) and exposure to blood products (24%).²⁹

The highest prevalence of infection occurs among individuals of reproductive age.³⁰ Age is a known risk factor for HCV infection. Seropositivity has been reported to be increased until the age 40 and then declines over time.³¹ This can be explained by the greater probability of exposure of these women to risk factors. In our study the mean age of HCV positive women was 30.37. Our finding of the highest age specific prevalence in women aged 21-29 years also compares with other studies. A study in Scotland showed the highest seroprevalence of anti-HCV in women aged 25-29 years.³² It is also in agreement with the data from the mandatory reporting system which indicates that peak age specific incidence of HCV infection for women in Switzerland is 20-29 years.³³

In a study from Pakistan³⁴ when previous vaginal delivery with episiotomy, previous surgery, blood transfusion and D&C for abortion or dysfunctional uterine bleeding were taken as independent variables, only past history of surgical procedures was found to be the most important factor for transmission of HCV. It has also been reported that in resource poor countries the risk of iatrogenic HCV infection is high.³⁵ People who visit regularly for any kind of dental procedure had more prevalence rate of HCV³⁶ as compared to those who do not visit for any kind of dental procedure. Results of our study also show the history of previous surgery, blood transfusions, dental

surgery, history of injections, previous delivery and history of D&C and tattooing as risk factors with history of previous delivery and abortions as the highest risk factors. (Table 2)

Leikin et al³⁷ have reported a higher mean parity of HCV positive patients in their study. The prevalence of anti-HCV among the multiparous females was more than nulliparous females in our study.

A study from India in 2007 showed that a substantial proportion 62% of women with HCV had no evidence of exposure to any known risk factors.³⁸ This is in accordance with the results of our study.

Universal HCV screening in pregnancy is considered to be unjustified given the absence of an intervention to prevent mother to child transmission.³⁹ In developing countries because of poverty and lack of facilities, women have poor access to the hospitals, so screening for HCV should be carried out during antenatal visits as this might be their only interaction to a health care facility.

CONCLUSION

It is concluded from this study that HCV is a common infection in pregnant women. Risk factors include contaminated surgical instruments, use of contaminated syringes, and blood products.

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