

Investigating the Association between Blood Transfusion and Hepatitis C infection During Pregnancy

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ABSTRACT

Objective: Aim was determine the association between blood transfusion and hepatitis C infection during pregnancy.

Study Design: Descriptive study

Place and Duration: Peoples University of Medical and Health Sciences Nawabshah. Feb 2021-Jan 2022

Methods: Total 171 pregnant women of age 18-40 years were presented in this study. The patient's age, parity, and other risk factors such as previous operations, vaginal births, and transfusions were recorded, and a thorough physical examination was conducted. Anti HCV positivity on Immunochromatography Test (ICT) was confirmed by Elisa in patients undergoing normal prenatal evaluation. The data collection process followed a carefully crafted proforma. To examine the information, we used SPSS 22.0.

Results: Among 171 patients, 82 (47.95%) females had age 18-25 years, 57 (33.3%) patients had age 26-35 years and 32 (18.7%) females had age 36-40 years. 75 (43.6%) cases had BMI >25kg/m². 49 (28.7%) cases were primigravida and rest 120 (71.3%) cases were multi-gravida. We found 15 (8.8%) cases of HCV positive. Among 15 cases, 8 cases had history of blood transfusion, 3 had history of surgery, 2 cases because of injections and 2 cases had jaundice. Among 15 positive cases, majority of the cases had age 26-35 years.

Conclusion: We found in this that blood transfusion is a significantly risk factor for HCV among pregnant females. There is need to educated pregnant females at institution to avoid its prevalence during pregnancy.

Keywords: Pregnant Females, Blood transfusion, HCV, Parity

INTRODUCTION

Viral hepatitis, caused by the hepatitis B and C viruses, is a serious public health issue, especially in poor regions of the world. Injections, blood product transfusion, surgical procedures, body tattooing, occupational injury, sexual and vertical transmission all increase the likelihood of contracting Hepatitis B or C, despite the fact that the majority of Hepatitis B and C infections occur in the home [1]. [2] However, many afflicted people deny history of any of these dangers, therefore in some cases the likely source remains unknown. [3] Although viral hepatitis is common in Pakistan and experiences recurrent outbreaks, its prevalence varies from region to region and population to population due to ethnic and socioeconomic differences. While the precise disease burden in Pakistan is unclear, data collected so far indicates a rising trend. In the few population-based studies that have been conducted to ascertain the prevalence of hepatitis B and C in various regions of the country, the percentage of hepatitis B surface antigen carriers has been estimated to be between 10 and 15 percent. The reported frequency ranges from 0.43 to 6.6% among the general population in Karachi ([4,5]). [10] The study indicated that the prevalence of HCV during pregnancy was 3.27 percent. [6,7]

The global incidence rate of HCV infection is 23.70 per 100,000 people, as reported by the WHO. [7] Hepatitis C virus infections are typically spread through sharing needles that have been tainted with blood or through bodily fluids. Foetal growth delays, preterm birth, and spontaneous abortion are only some of the obstetric complications that have been linked to HCV transfer from mother to child. Reported rates of HCV vertical transmission range from 5.8% in children born to mothers who are HCV RNA positive but not HIV positive, to 10.8% in children born to mothers who are both HCV RNA positive and HIV positive. [8] The estimated prevalence of HCV in pregnant women in Brazil ranges from 0.9% to 1.5%, with a vertical transmission rate of only 0.2%, according to the few research that have been conducted on the topic. There has been a lack of information on HCV infection during

pregnancy up until recently, with varying views on the significance of HCV to pregnancy and newborn health. Several recent books and articles have tried to fill this need. Although most of these studies only reported on a small portion of the time period, taken as a whole they revealed a rising frequency of HCV infections during pregnancy in the US over the past two decades. [9] Some studies revealed an association between HCV and negative perinatal outcomes, but they may not have properly controlled for other risk factors, such as substance abuse, which is also linked to severe pregnancy outcomes. [10]

The variables such as ear/nose piercing, tattooing, dental the extraction process, surgery, abortion, sexually transmitted diseases, shaved eyebrows, body piercings for treatment, TBA shipment, blood transfusion, several partners in sexual activity, history of communication with a jaundiced patient, administering medication, and vertical transmission can be used to predict the prevalence of viral hepatitis infection in a population [11,12].

MATERIALS AND METHODS

This Descriptive study was conducted at Peoples University of Medical and Health Sciences Nawabshah from Feb 2021-Jan 2022. The software G Power, version 3.0.10, was used to determine the appropriate sample size. Power of test (1 - err prob) was 0.8, and a one-tailed t-test with an alpha error of 0.05 yielded a sample size of 171 instances. Patients were chosen using a method of non-probabilistic convenient sampling. Women between the ages of 18 and 40 who were pregnant at the time of enrollment were included. Patients who were not pregnant and those who had already been diagnosed with Hepatitis C were not included.

Women who were pregnant and scheduled for their first prenatal checkup were included. All participants had extensive demographic information collected from them, including age, parity, risk factors such blood transfusion history, surgical history, number of previous vaginal deliveries, and so on. Patients who were determined to be Anti HCV positive using the ICT method during regular antenatal investigation had their results verified

using Elisa. The data collection process followed a carefully crafted proforma. The patient gave their permission after being fully briefed. Information was analysed using SPSS 22.0. Mean and standard deviation were displayed for all continuous variables (including age and length of pregnancy). Quantitative data were presented as frequencies and percentages for all categorical variables (Anti HCV ICT, Anti HCV Elisa).

RESULTS

Among 171 patients, 82 (47.95%) females had age 18-25 years, 57 (33.3%) patients had age 26-35 years and 32 (18.7%) females had age 36-40 years. 75 (43.6%) cases had BMI >25kg/m².(table 1)

Table-1: Demographics of the females

Variables	Frequency (171)	Percentage
Age		
18-25 (years)	82	47.95
26-35 (years)	57	33.3
36-40 (years)	32	18.7
Body Mass Index		
>25kg/m ²	75	43.6
<25kg/m ²	96	56.4

In all, 49 (28.7%) cases were primigravida and rest 120 (71.3%) cases were multi-gravida.(figure 1)

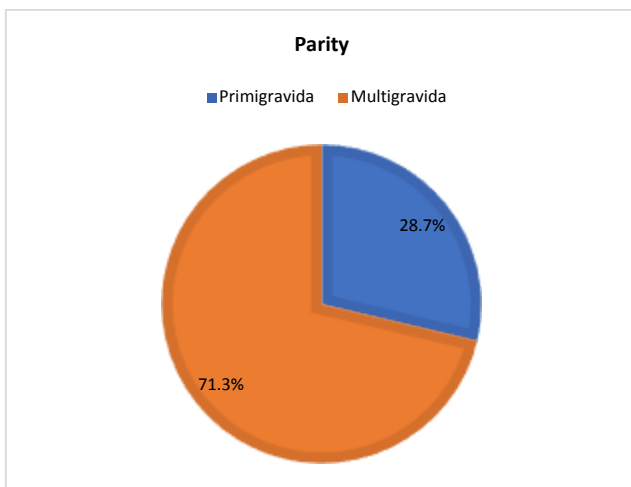


Figure-1: Parity of the pregnant females

We found 15 (8.8%) cases of HCV positive.(figure 2)

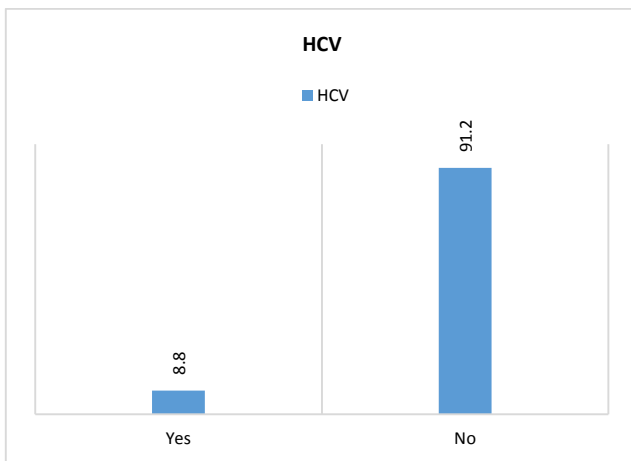


Figure-2: Frequency of HCV positive cases

Among 15 cases, 8 cases had history of blood transfusion, 3 had history of surgery, 2 cases because of injections and 2 cases had jaundice.(table 2)

Table-2: Risk factor of HCV

Variables	Frequency (15)	Percentage
Risk Factors		
blood transfusion	8	53.3
history of surgery	3	20
injections	2	13.3
jaundice	2	13.3

Among 15 positive cases, majority of the cases had age 26-35 years.(table 3)

Table-3: Age of the HCV positive cases

Variables	Frequency (15)	Percentage
Age		
18-25	2	13.3
26-35	9	60
36-40	4	26.7

DISCUSSION

In Pakistan and other impoverished nations, hepatitis C is widespread. Journal of the Pakistan Medical Association reported in 2003 that hepatitis C virus antibodies were found to be 20 times greater in impoverished countries than in developed countries.[13]In Pakistan, estimates place the overall prevalence anywhere from 4% to 25%.[14]

Our study found that 8.8% of pregnant patients had anti-HCV antibodies. Prevalence of HCV in pregnant patients was reported to be between 0.7% to 20% in a 2002 meta-analysis by Shah and Shabbir.[15] The incidence of hepatitis C was 9.2% in a research by Shirazi and colleagues in Karachi[16], which is higher than the prevalence found in the present study. When compared to the results of other studies conducted in Pakistan, the 1.03 percent incidence of HCV among pregnant women reported by Kumar et al. in 2007 is impressively low.[17] The prevalence of HCV in our study (7.1%) is equal to that found in an epidemiological analysis of 34,336 individuals in Japan (7.1%[18]), but the prevalence of anti-HCV in a single study of Turkey (2.4%) is much lower than in our study.

Infection with the hepatitis C virus is linked to more than just liver problems. Women with HCV in this study group had higher Charlson-Deyo Comorbidity Index scores at baseline than their HCV-negative counterparts. We also found that the likelihood of having gestational hypertension, having a caesarean section, going into labour early, having a low birth weight baby, or having a baby that is distressed was all increased when the mother had HCV. While early pregnancy losses are typically due to genetic abnormalities, maternal HCV infection was related with a decreased risk of spontaneous miscarriage.[19] In the 1990s and early 2000s, when there was conflicting data available, elective caesarean delivery was used to avoid mother-to-child HCV infections.[20] Elective caesarean delivery for maternal HCV was advised against by the American College of Obstetricians and Gynaecologists in 2007[21], suggesting a probable temporal connection. Analysis of nationally representative data from 2012-2018, however, showed that HCV-positive women had higher probabilities of having a caesarean section than HCV-negative women.[22]

In current study 53.3% cases had history of blood transfusion and 60% HCV positive cases had age 26-35 years. Results were in line with the previous studies.[23,24] In their study, Farhana et al. found that having a surgical history was the single most important predictor of HCV infection.[25]Surgery and blood transfusions are major risk factors, according to another study done at Shifa International Hospital Islamabad.[26] According to a 2007 study conducted in India, 62% of female HCV carriers exhibited no signs of having been exposed to any known risk factors.[27] According to a US study, intravenous drug use is the

primary risk factor in the vast majority of cases where anti-HCV antibodies are present.[28]

People with more education are more likely to be aware of the spread of the disease and to take protective measures. But we did find a correlation between education level and gender for both sexes, and that's something to keep in mind. Again, this demonstrates that women's health is not solely under their control, but rather is influenced by their spouses' degree of education. HCV screening during routine antenatal clinic visits is not routinely accepted, however it is necessary in underdeveloped countries due to a lack of healthcare infrastructure and training of healthcare workers. This highlights the critical need for immediate action to raise awareness of the importance of hepatitis C prevention and early treatment.

CONCLUSION

We found in this that blood transfusion is a significantly risk factor for HCV among pregnant females. There is need to educated pregnant females at institution to avoid its prevalence during pregnancy.

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