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Sociodemographic Variables of Hepatitis C Positive Cases among Pregnant Women Admitted in Tertiary Care Hospital

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ABSTRACT

Background: Hepatitis C virus (HCV) infection is one of the most prevalent chronic blood-borne infections globally and poses a significant public health challenge. Vertical transmission, where the virus is passed from mother to child, is a key route of HCV spread. Several factors including educational status, geographic location, socioeconomic background, and the timing of medical presentation, contribute significantly to maternal transmission of the virus. In southern Punjab, there is a lack of comprehensive research on the demographic factors influencing HCV prevalence. So the objective of the study was to assess the socio demographic variables of hepatitis C in pregnant women coming for antenatal visit in tertiary care hospital Bahawal Victoria Hospital Bahawalpur. **Methods:** A cross-sectional descriptive study was conducted in Gynecological and Obstetric wards Bahawal Victoria Hospital, Bahawalpur, for the duration of six months, from January 2024 to June 2024. The calculated sample size was 168. A predesigned and pretested questionnaire was used, the questionnaire included basic information like maternal age, parity, area of residence, socioeconomic status, mode of past deliveries, history of blood transfusion, needle sharing and any past surgical history. Data was entered and analyzed by using statistical package for social sciences (SPSS) version 23. **Results:** The mean age of the participants was 28±5.4 years. About 46 (27.4%) respondents belong to lower class, 81 (48.2%) were middle class while 41 (24.4%) were from upper class. It was found that most respondents 101(60.1%) belong to an urban residential area, while 67 (39.9%) were from the rural residential area. Majority (58.3%) participants were having more than 6 living children. Blood transfusion as a significant factor for hepatitis C, was positive in 78.8% of respondents. About 103(61.3%) participants had history of previous C-section. Another factor history of surgery other than C-section in past was 6.5%. Respondents were also inquired about another factor "needle sharing". It was found that only 3 (1.8%) participants found history of needle sharing. Only 5 (2.9%) cases gave history of parenteral drug abuse. **Conclusion:** The most commonly noted risk factors were history of blood transfusion (78.8%) and history of C-section (61.3%) while other factors including past surgical history (6.5%), history of needle sharing (1.8%) and history of parenteral drug abuse (2.9%). There is a need of public education and awareness regarding spread of hepatitis C infection, beside that implementing universal screening during pregnancy is advisable to reduce potential complications associated with the infection.

INTRODUCTION

Hepatitis C infection is a life threatening infection, represent a significant global health concern, especially in developing countries (1). Hepatitis C virus (HCV) infection is one of the most prevalent chronic blood-borne infections globally and poses a significant public health challenge (2). It affects approximately 56·8 million of the global population, out of them 1.8% were pregnant (3). A reported seroprevalence of anti-HCV antibodies during pregnancy in Pakistan around 9.3% (4). Common risk factors for HCV infection include intravenous drug use, exposure to infected blood or its components, surgical procedures, and sexual contact. However, in nearly 40% of cases, the source of infection remains unidentified (5, 6).

Vertical transmission, where the virus is passed from mother to child, is a key route of HCV spread. Vertical transmission of HCV from mother to child occurs in about 7–8% of cases. Notably, most individuals with HCV—

around 65–75%—are asymptomatic, and the infection is often detected incidentally (7). Therefore, screening for HCV during antenatal care is essential, as active infection in pregnant women increases the risk of fetal transmission. Compared to Hepatitis B, Hepatitis C is associated with significantly higher rates of long-term complications such as chronic hepatitis (in about 70% of cases), cirrhosis (20–30%), hepatocellular carcinoma, and liver failure (8). Although the rate of perinatal transmission remains relatively low, it is still a concern, with an incidence of less than 10%.

Several factors including educational status, geographic location, socioeconomic background, and the timing of medical presentation, contribute significantly to maternal transmission of the virus (9). In southern Punjab, there is a lack of comprehensive research on the demographic factors influencing HCV prevalence. Early detection is crucial to prevent vertical transmission and the subsequent development of chronic hepatitis. However, many pregnant women in our society face various social and cultural barriers that hinder timely diagnosis and treatment. The objective of the study was to assess the socio demographic variables of hepatitis C in pregnant women coming for antenatal visit in tertiary care hospital Bahawal Victoria hospital Bahawalpur.

MATERIALS AND METHODS

A cross-sectional descriptive study was conducted in Gynecological and Obstetric wards Bahawal Victoria Hospital, Bahawalpur, for the duration of six months, from January 2024 to June 2024. Sample size was calculated by using WHO cochran's formula by taking statistics for resident of rural area was 10.2% (10), margin of error 50% and 95% confidence interval. The calculated sample size came out to be 152.75. Adding 10% attrition the sample size became 168. The non-probability consecutive sampling technique was done. The participants included were (i) all pregnant hepatitis C positive cases (Anti HCV lgM and lgG positive by ELISA test) (ii) all HIV and HBs Ag negative females (iii) presenting in any trimester of pregnancy (iv) willing to participate in the study while those were excluded who were reluctant to participate in the study.

Study got approval from Ethical review committee and CPSP. Verbal informed consent was taken from all the participants. A predesigned and pretested questionnaire was used, the questionnaire included basic information like maternal age, parity, area of residence, socioeconomic status, mode of past deliveries, history of blood transfusion, needle sharing and any past surgical history. Data was entered and analyzed by using statistical package for social sciences (SPSS) version 23. Descriptive statistics were presented as frequency and percentage while mean and standard deviations were calculated for numerical variables.

RESULTS

The mean age of the participants was 28±5.4 years. When the respondents were inquired about their household monthly income, it was found that 46 (27.4%) respondents belong to lower class had a monthly household income between Rs. 10,000-Rs.30,000, 81 (48.2%) were middle class had monthly income between Rs.30,000-Rs.100,000, while only 41 (24.4%) had earning greater than Rs. 100,000. Women living in urban and rural areas have a great difference in their lifestyles. The urban residential area was also taken as a factor for hepatitis C. It was found that most respondents 101(60.1%) belong to an urban residential area, while 67 (39.9%) were from the rural residential area. About 27 (16.1%) mothers were having less than 4 living children while 43 (25.6%) mothers were having 4-6 living children but majority (58.3%) were having more than 6 living children as mentioned in Table 1.

Table 1

Demographic Characteristics of Study Participants

Variable		n=168
Age (years)		28±5.4
Socioeconomic status	Upper	41 (24.4%)
	Middle	81 (48.2%)
	Lower	46 (27.4%)
Residential area	Urban	101(60.1%)
	Rural	67 (39.9%)
Parity	≤4 children	27 (16.1%)
	4-6 children	43 (25.6%)
	≥6 children	98 (58.3%)

Blood transfusion as a significant factor for hepatitis C, was inquired. It was answered “Yes” in 98 (78.8%) of respondents while only 70 (21.2%) respondents answered “No”. C-section mode of delivery was also inquired as to a factor for positivity of hepatitis C in pregnant women. When respondents were inquired about it, 103(61.3%) had history of previous C-section. Another factor history of surgery other than C-section in past was also inquired and 11 (6.5%) had positive past surgical history. Respondents were also inquired about another factor “needle sharing”. It was found that only 3 (1.8%) participants found history of needle sharing. Only 5 (2.9%) cases gave history of parenteral drug abuse as shown in Table 2.

Table 2

Frequency of Risk Factors Associated with Hepatitis C

Risk Factors		**n=168**
History of blood transfusion	Yes	98 (78.8%)
	No	70 (21.2%)
History of C-section		103(61.3%)
History of abortion		25 (14.9%)
Past surgical history		11 (6.5%)
Needle sharing		3 (1.8%)
History of parenteral drug abuse		5 (2.9%)

DISCUSSION

According to the World Health Organization (WHO), around 3% of the global population is living with chronic HCV infection. Roughly half of these individuals become chronic carriers, placing them at increased risk of developing liver cirrhosis (11). In the United States, the rate of hospitalization due to HCV rose from 0.8 to 4.1 per 1,000 individuals between 2000 and 2015. Additionally, maternal HCV infection rates doubled from 1.8 to 3.4 per 1,000 live births between 2009 and 2014 (12).

A hospital-based cross-sectional study conducted in southern Ethiopia included 222 pregnant women, with a mean age of 29 years. Most participants (72.5%) were between 21 and 30 years old, and 57.2% resided in urban areas. Regarding obstetric history, 98.7% were

multigravida, and 98.6% had experienced multiple births. A majority (79.5%) were housewives, and 74.3% had received formal education (10). In Iran, a study reported an HCV prevalence rate of 1–8% among pregnant women. Preventing vertical transmission is vital, as early-life infections often result in chronic carrier status. Most of the HCV-positive women were in their third trimester, educated, and had histories of blood transfusion, surgical procedures, abortion, or dental work (13). A screening of 200 pregnant women at an antenatal clinic in KSUTH revealed an HCV positivity rate of 0.5%. Most of the positive cases were aged between 31 and 35 years. Among these, 2.56% had received primary education, while 1.12% had secondary education (14). The current study favored these findings the mean age in the current study was 28±5.4 years and majority (48.2%) belong to middle class. The risk factors noted in the current study were history of blood transfusion (78.8%), history of C-section (61.3%), past surgical history (6.5%), history of needle sharing (1.8%) and history of parenteral drug abuse (2.9%). Another study conducted on hepatitis C positive pregnant women in Uttarkhand, found that past surgical history and history of blood transfusion were the most commonly noted risk factors (25.8% and 8.1% respectively) (15).

Another study, conducted at Lagos Island Maternity Hospital in Nigeria, involved 400 pregnant women attending antenatal clinics. The mean age was 30.6 years, with a standard deviation of 15 years. The highest proportion (33.2%) of participants fell within the 30–34 age group. About 46.5% of participants were aware that HCV could be transmitted through blood transfusions, while 39.8% and 43.5% recognized unprotected sexual activity and contaminated needles as transmission routes. Additionally, 18.8% were aware that no vaccine exists for HCV, 21.8% knew co-infection with HIV is possible, and 15.8% understood that HCV can lead to liver cancer (16).

CONCLUSION

The prevalence of hepatitis C infections is on the rise. The most commonly noted risk factors were history of blood transfusion (78.8%) and history of C-section (61.3%) while other factors including history of abortion and D& C (14.9%), past surgical history (6.5%), history of needle sharing (1.8%) and history of parenteral drug abuse (2.9%). There is a need of public education and awareness regarding spread of hepatitis C infection, beside that implementing universal screening during pregnancy is advisable to reduce potential complications associated with the infection.

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