



Original Article

Frequency of Hepatitis B and C and its Risk Factors in Pregnant Women Presenting at Jinnah Postgraduate Medical Center, Karachi

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ABSTRACT

Hepatitis B and C are the most common infections throughout the world. Both viral infections in pregnancy have serious implications, including increasing the risk of chronic infection, perinatal transmission, accelerated liver damage. **Objective:** To identify the frequency of hepatitis B and C in pregnant women as well as the risk factors that contribute to these infections. **Methods:** A Cross-sectional study was conducted at Department of Gynecology and Obstetrics, Jinnah Postgraduate Medical Center (JPMC), Karachi from 10th July 2022 till 10th December 2022. After taking a verbal consent data were collected from 332 patients who met the diagnostic criteria. Quantitative data were presented as simple descriptive statistics using mean and standard deviation, whereas frequency and percentages were used for qualitative variables. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. chi square test was applied after stratification with p-value of ≤ 0.05 considered significant. **Results:** Mean age and gestational age was 33.41 ± 7.59 years and 38.24 ± 1.77 weeks respectively. Hepatitis B and C was found in 20.5% and 14.5% respectively. Most common risk factors are use of injections and various surgical procedure followed by blood transfusion, tattooing and multiple sexual partners is least common factors. **Conclusions:** The study indicated the high frequency of hepatitis B and C virus infection among pregnant women. HBV and HCV infection were associated with histories of injections, surgeries, and blood transfusions.

INTRODUCTION

A serious issue with world health is viral hepatitis. Viral hepatitis is thought to have been the cause of 1.34 million fatalities worldwide [1]. According to behavioral, environmental, and agent factors, prevalence varies from country to country [2]. 96% of hepatitis mortality was brought on by the HBV and HCV viruses alone [3]. Untreated hepatitis B and C virus infections can result in malignancy and liver cirrhosis, both of which require lifelong treatment [4]. There is a considerable risk of maternal problems when viral hepatitis occurs during pregnancy [5]. Fetal and neonatal hepatitis, which can have major consequences for the neonate and result in compromised mental and physical health later in life, is caused by a high rate of vertical transmission [6]. Pregnant women are advised to undergo routine testing for hepatitis B surface antigen

(HBsAg) [7]. HBV and HCV are spread initially through the transfusion of blood and blood products, surgical and dental procedures, contaminated syringes, needles, and other sharp objects, and sexual contact (>3%), and then vertical transmission (5%). Hepatitis B and C can be transmitted through sexual contact [8, 9]. The HCV burden worldwide is concentrated about 80% in those with poor and middle incomes [10]. After Egypt, Pakistan has the second-highest HCV prevalence (5%) in the world [11]. According to a national survey, the prevalence of HBV and HCV in the general population was 2.5% and 4.9%, respectively [12]. The purpose of the study is to find out how common hepatitis B and C are in pregnant women in order to provide a local viewpoint because a review of the literature from both international and local studies

revealed that prevalence was variable. The findings of this study offered clinicians new information that may have an impact on clinical practice.

METHODS

This cross-sectional study was carried out from 10th July 2022 till 10th Dec 2022 at the Department of Gynecology and Obstetrics, Jinnah Postgraduate Medical Center (JPMC), Karachi after approval from the institutional ethical review committee. Using WHO sample size calculator, the required sample size was determined to be 332 patients by using the hepatitis C prevalence of 8.5%, a margin of error of 3%, and a confidence level of 95% [13]. The study included all pregnant women between 20 to 40 years with confirmation of pregnancy by dating scan. Using non-probability consecutive sampling technique, researcher collected a brief history of the demographics and risk factors for hepatitis. Patients with histories of HIV, tuberculosis, acute liver failure, hepatocellular carcinoma, hypo- or hyperthyroidism, congestive heart failure, asthma, chronic renal failure, chronic obstructive pulmonary disease, and stroke were excluded. The researcher took blood sample, and then transported the sample to a hospital-based laboratory for hepatitis B and C screening using the ELISA method. The researcher gathered the reporting and entered it into Performa. Data analysis was done on SPSS Version 20.0. Means and standard deviations used for simple descriptive statistics including maternal age, parity, gravidity, gestational age and demographic data. Frequencies and percentages were computed for prevalence of hepatitis B and C positive cases. The stratification of mother age, gravidity, parity, family monthly income, educational attainment, and employment position allowed for the control of effect modifiers. Effect modifiers were controlled through stratification to see the effect of these on the outcome variable. Chi square test was applied after stratification with p-value of ≤ 0.05 considered significant.

RESULTS

Patients' ages ranged from 20 to 40, with 20 being the lowest and 40 being the highest. In our study, the average age and gestational age were 33.417.59 years and 38.241.77 weeks, respectively. Out of 332 patients, hepatitis B and hepatitis C was found in 68 (20.5%) and 48 (14.5%) respectively as showed in figure 1. None of the females had HBV and HCV co-infections.

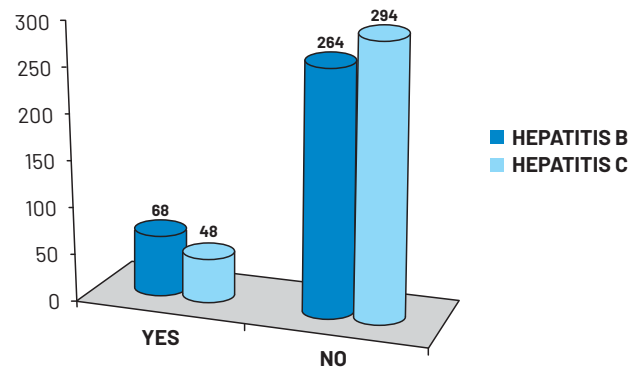


Figure 1: Hepatitis B and C seropositive cases distribution

Table 1 shows the prevalence of HBV and HCV infection in association to sociodemographic characteristics (age, parity, income, education and occupational status) of pregnant women.

Variables	Hepatitis B			Hepatitis C		
	Yes	No	p-value	Yes	No	p-value
Age (years)						
20-30	32 (47.1%)	87 (33%)	0.02	18 (37.5%)	101 (35.6%)	0.45
31-40	36 (52.9%)	177 (67%)		30 (62.5%)	183 (64.4%)	
Parity						
Primi	38 (55.9%)	72 (27.3%)	0.00	27 (56.2%)	83 (29.2%)	0.00
Multi	30 (44.1%)	192 (72.7%)		21 (43.8%)	201 (70.8%)	
Income						
Lower income	00 (00%)	29 (11%)	0.00	00 (00%)	29 (10.2%)	0.03
Lower middle income	12 (17.6%)	74 (28%)		12 (25%)	74 (26.1%)	
Middle income	50 (73.5%)	123 (46.6%)		33 (68.8%)	140 (49.3%)	
Upper Middle income	06 (8.8%)	26 (9.8%)		03 (6.2%)	29 (10.2%)	
Upper income.	00 (00%)	12 (4.5%)		00 (00%)	12 (4.2%)	
Education						
Illiterate	00 (00%)	17 (6.4%)	0.00	00 (00%)	17 (6%)	0.00
Primary	00 (00%)	33 (12.5%)		00 (00%)	33 (11.6%)	
Secondary	44 (64.7%)	75 (28.4%)		27 (56.2%)	92 (32.4%)	
Higher	24 (35.3%)	139 (52.7%)		21 (43.8%)	142 (50%)	
Occupational status						
Employed	15 (22.1%)	104 (39.4%)	0.00	09 (18.8%)	110 (38.7%)	0.00
Unemployed	53 (77.9%)	160 (60.6%)		39 (81.2%)	174 (61.3%)	

Table 1: Prevalence of HBV and HCV infection in association to sociodemographic characteristics of pregnant women

The majority of patients had a dental history, as shown in table 2. 56 people (16.9%) had previously received intravenous injections. 09 people (2.7%) had access to medical care. 15 (4.5%) had previously had more than one sexual relationship.

Risk factors	Frequency (%)
Dental procedure	116(35)
Blood transfusion	32(9.60)
Jaundice	68(20.50)
Tattooing	15(4.50)
Intravenous drips, injections, needle prick	56(16.90)
Operation	56(16.90)
Multiple sexual partner	15(4.50)

Table 2: Analysis of risk factors and HBV and HCV infection among pregnant women

DISCUSSION

Globally, viral hepatitis poses a serious health risk [14]. Pakistan's situation is worse than that of the world's industrialized nations. A recent national assessment on the prevalence of hepatitis B and C in Pakistan's overall population was done by the Pakistan Medical Research Council (PMRC) showed that there were 12 million people in Pakistan are infected, according to the 7.4% total positivity rate for both viruses [1-3, 5, 10]. In our study hepatitis C was found in 14.5%. This frequency is close to and consistent with a prior study from Karachi that found that 13.3% of expectant mothers had HCV [15]. In our study the prevalence of HCV was higher than that among pregnant women in Quetta (0.6%) and Egypt (6.1%) in the earlier study [16, 17]. However, compared to our study, a previously reported prevalence for Hepatitis C of 40% in pregnant women was extremely high. According to our research, 20.5% of pregnant females had HBV. Our results, however, are higher than those of other local and international research (2.1%, 3.2%, 4.5%, and 5%) [18-21]. According to our research, the average age and gestational age were 33.41 ± 7.59 years and 38.24 ± 1.77 weeks, respectively. In a different study by Arshad and Ashfaq, the participants' average age was 27 (SD ± 4.75 years) [22]. The WHO recommends screening of pregnant women for HBV routinely and universal access to HBV vaccine to 90% by 2030 to minimize vertical transmission due to lack of hepatitis B vaccination [23]. When compared to other studies that were carried out globally, our study's findings which revealed that 20.5% of pregnant women were HBV positive are rather significant. Numerous research conducted in many nations have shown inconsistent results, ranging from 1 to 7.1%. [1, 3]. Our results vary depending on the location of Pakistan, ranging from 1.16% to 23.25% [24]. Several risk factors for hepatitis B virus infection are investigated in this study. The most common hepatitis B risk factors were identified to be having a history of dental procedures, using intravenous drugs, and undergoing various kinds of surgical procedures similar to other research [25]. This can be the result of inadequate tool sterilization and insufficient infection control. Blood donors had a 0.62% and 0.96% prevalence of anti-HCV and HBsAg, respectively. In our analysis, as has been reported by others, blood transfusion was among the other most prevalent risk factors linked to hepatitis B and C infection [26]. This suggests that both infections could be spread by blood transfusion with insufficient screening. Hepatitis B prevalence was found to be connected with sexual risk behaviors, although our study revealed that it is not as widespread as in other nations. Our study have shown that tattooing history can transmit hepatitis similar to other [27]. Similar to Saleem *et al.*, study, multivariate analysis

revealed that low parity and education below the secondary level were substantially linked with anti-HCV seropositivity [28]. It is possible to do screening during the antepartum period, and those who are found to have hepatitis C during that time can receive the appropriate therapy. Women can be treated and followed up on throughout the postpartum period for both self-care and avoidance of future pregnancies.

CONCLUSIONS

Hepatitis B and C virus infection is very common in pregnant women according to this study. Blood transfusion history, jaundice, tattooing, and having several partners were all linked to HBV and HCV infection.

Conflicts of Interest

The authors declare no conflict of interest.

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