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Frequency and risk factors of hepatitis B and C among pregnant women: An observational study

Hina Shams Solangi
Consultant Obstetrician and Gynecologist, Department Obstetrics and Gynaecology, Dr Sulaiman Alhabib Hospital Alkhobar, Saudi Arabia

Sumera Khan
Senior Registerar, Department of Gynae and Obs, United Hospital Karachi, Pakistan

Ayesha Humaira
Senior Registerar-Gynaecology, Sheikh Zayed Hospital, Rahim Yar Khan, Pakistan

Muhammad Asif Khan
Lecturer, Department of Community Medicine, Loralai Medical College Loralai, Pakistan

Sajida Hassan
Senior Gynaecologist, Muhtharma Shaheed Benazir Bhutto Hospital, Gulistan Town, Quetta, Pakistan

Shahida Hashim Marwat
Fellow OBG, Obstetrics and Gynaecology, Khyber Teaching Hospital Peshawar, Pakistan
Corresponding author email: dr.shahidamarwat@gmail.com

***Abstract*---**Aim: To determine the frequency and risk factors of HCV and HBV in pregnant women. Material and methods: An observational study was conducted at Gynecology Department Sheikh Zayed Hospital, Rahim Yar Khan, Punjab for six months in the duration from January, 2023 to June, 2023. Pregnant women of age 18 to 40 years were enrolled. Screening was done for HCV and HBV using ELISA method. Frequency of HCV and HBV were determined along with risk factors. Results: Mean age recorded was 29.11±6.93 years. The frequency of Hepatitis C was 12 (8%) Hepatitis B was 27 (18%). Surgical procedure and blood transfusion were statistically significant with HCV while dental procedure among the risk factors were statistically significant with HBV. Conclusion: Frequency of Hepatitis C and Hepatitis B virus in our study was 12 (8%) and 27 (18%)

respectively in pregnant women. Associated factors with HCV were surgical procedures and blood transfusion while dental procedures were significantly associated with HBV.

***Keywords*---**hepatitis C, hepatitis B, pregnancy, risk factors.

Introduction

Hepatitis viruses present a significant challenge to the health of individuals all over the world. It is estimated that viral hepatitis was responsible for the deaths of 1.34 million people all over the world [1].The frequency of a disease might differ greatly from one nation to another due to behavioral, environmental, and agent factors. On their own, the HBV and HCV viruses were responsible for 96% of all deaths caused by hepatitis [3]. Both hepatitis B and C virus infections, if left untreated, can cause cancer and liver cirrhosis, two conditions that require therapy for the rest of a patient's life [4]. When viral hepatitis arises during pregnancy, there is a significant possibility that the mother will experience complications [5].A high rate of vertical transmission is the root cause of fetal and neonatal hepatitis that can have substantial repercussions for the newborn and lead to mental and physical health problems in later life [6].

It is strongly recommended that pregnant women get tested for hepatitis B surface antigen on a regular basis. HBV and HCV spreads by the transfusion of blood and blood products, surgical and dental operations, infected syringes, needles, sharp objects, and sexual contact (>3%). Vertical transmission accounts for 5% of all HBV and HCV transmissions. Sexual interaction is a risk factor for the transmission of hepatitis B and C [7, 8]. According to the results of a survey that was conducted on a nationwide scale, the overall incidence of HBV and HCV in the general population was, respectively, 2.5% and 4.9% [10].

The availability of efficient screening technologies for HCV has resulted in a decrease in the number of new cases of transfusion-associated hepatitis C infection in children [11]. Recently, the health condition of mothers and their kids in relation to hepatitis C infection has become a matter of concern on a global scale. However, becoming infected with HCV during infancy through the transmission of the virus from mothers to their infants has grown into one of the most prevalent methods of transmission. Injection of medicines, insufficient sanitation of medical equipment, particularly syringes and needles, unscreened blood transfusions, and perinatal transmission are also major ways that HCV is passed on [12].

The objective of the study is to determine the rate of hepatitis B and C and its risk factors among pregnant women so that a regional perspective can be offered. This is due to the fact that an evaluation of the literature comprising both worldwide and regional studies found that occurrence varied from study to study. Clinicians were provided with new knowledge that may have an influence on clinical practice as a result of the findings of this investigation.

Material and Methods

We conducted this observational study at Gynecology Department Sheikh Zayed Hospital, Rahim Yar Khan, Punjab for six months in the duration from January, 2023 to June, 2023. Ethical approval certificate was obtained prior conducting the study. Using non probability consecutive sampling we enrolled 150 pregnant women in the age group of 18 to 40 years and having gestational age between 30 to 38 weeks. Their basic demographics were noted. The screening of the patients for HCV and HBV were done using ELISA method. Patients having history of hyperthyroidism, renal failure, heart diseases and HIV were excluded. The frequency of HCV and HBV were determined. Statistically analysis were performed using IBM SPSS 24. Frequencies and percentages were calculated for HCV, HBV, socioeconomic status and risk factors while age and gestational age were analyzed using mean and standard deviation. Chi Square test was applied for association between HCV, HBV and risk factors keeping P value < 0.05 as significant.

Results

This study was conducted on 150 pregnant patients. The mean age of the patients was 29.11±6.93 years. The mean gestational age of the patients was 35.15±1.95 weeks. We observed that majority of the patients were in the age bracket of 18 to 30 years (59.3%) while 40.7% were in the age bracket of 31 to 40 years. The socioeconomic status showed that most of the patients belonged to the middle class background (47.3%), from poor background there were 41.3% patients and from upper background there were 11.3% patients. The frequency of Hepatitis C was 12 (8%) while the frequency of Hepatitis B was 27 (18%). The risk factors observed in our study were dental procedure which was 44 (29.3%), surgical procedure 32 (21.3%), blood transfusion 25 (16.7%) and sexually transmitted diseases 21 (14%). We observed that surgical procedure and blood transfusion were statistically significant with HCV while dental procedure among the risk factors were statistically significant with HBV.

Figure 1 Age distribution

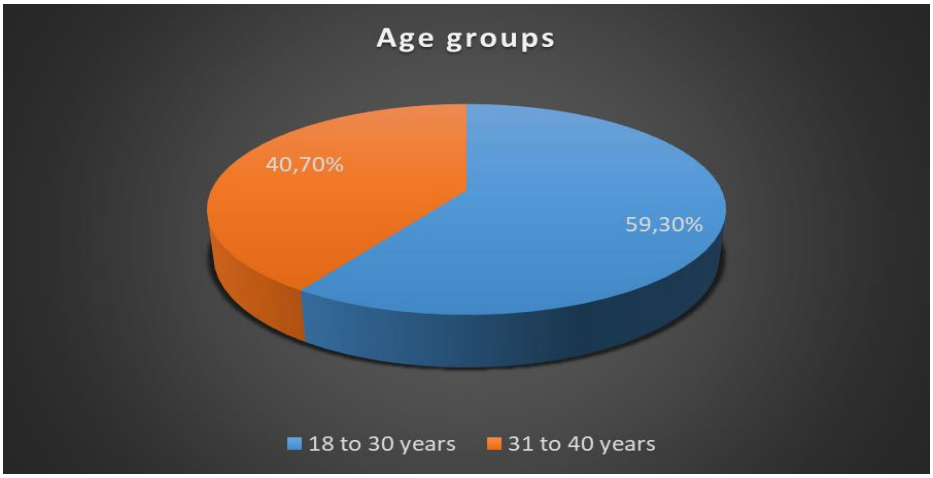

Table 1 Frequency of HCV and HBV

		Frequency	Percentage
Hepatitis C	Yes	12	8.0%
	No	138	92.0%
Hepatitis B	Yes	27	18.0%
	No	123	82.0%

Table 2 Risk factors

		Frequency	Percentage
Dental procedure	Yes	44	29.3%
	No	106	70.7%
Surgical procedure	Yes	32	21.3%
	No	118	78.7%
Blood transfusion	Yes	25	16.7%
	No	125	83.3%
STD	Yes	21	14.0%
	No	129	86.0%

Table 3 Association of risk factors with HCV

		Hepatitis C				
		Yes		No		P value
		N	%	N	%	0.75
Dental procedure	Yes	4	33.3%	40	29.0%	
	No	8	66.7%	98	71.0%	
Surgical procedure	Yes	10	83.3%	22	15.9%	0.0001
	No	2	16.7%	116	84.1%	
Blood transfusion	Yes	5	41.7%	20	14.5%	0.01
	No	7	58.3%	118	85.5%	
STD	Yes	3	25.0%	18	13.0%	0.25
	No	9	75.0%	120	87.0%	

Table 4 Association of risk factors with HBV

		Hepatitis B				
		Yes		No		P value
		N	%	N	%	0.0001
Dental procedure	Yes	20	74.1%	24	19.5%	
	No	7	25.9%	99	80.5%	
Surgical procedure	Yes	7	25.9%	25	20.3%	0.52
	No	20	74.1%	98	79.7%	
Blood transfusion	Yes	7	25.9%	18	14.6%	0.15
	No	20	74.1%	105	85.4%	
STD	Yes	5	18.5%	16	13.0%	0.45
	No	22	81.5%	107	87.0%	

Discussion

Hepatitis B and C infections, which are both caused by viruses that attack the liver, are big problems for world health. Pregnant women are among the most vulnerable people because their health and the health of their babies could be affected by problems. This talk gives a thoughtful look at how often hepatitis B and C cases happen in pregnant women, taking into account epidemiological trends, risk factors, and how important it is to have good screening and prevention methods.[13]

The spread of hepatitis B and C diseases around the world is shown by their epidemiology. The World Health Organization (WHO) says that in 2020, about 257 million people had chronic hepatitis B and 71 million people had chronic hepatitis C.[13] There are a lot of differences in where these cases happen, and they are more common in low- and middle-income countries. This uneven spread is caused by the health care system, socioeconomic factors, and the number of people who do risky things. Hepatitis B and C infections in pregnant women follow a similar trend, though the rates vary from one place to another. There is a wide range of hepatitis B infections in pregnant women around the world, from less than 1% to more than 10%. Most of these infections happen in places where hepatitis B is common, or "endemic." In comparison, the number of pregnant women with hepatitis C is usually lower, ranging from 0.1% to 5%. This shows how important it is to make healthcare plans based on the prevalence and risk factors of an area.[14]

Hepatitis B and C diseases are common in pregnant women because of a number of risk factors. One of the most common ways to get sick is through vertical transmission, which can happen during childbirth or while nursing. Hepatitis B is easily passed from mother to child, but hepatitis C is less likely to be passed from mother to child. A history of injecting drugs, risky medical practices, high-risk sexual behavior, and not enough blood screening are also risk factors. The different prevalence rates seen around the world are caused by these risk factors, as well as differences in access to health care and schooling.[15] The fact that these infections can hurt the health of both the mother and the baby shows how important it is to take effective steps to stop them. Even though most pregnant women with hepatitis B don't have any symptoms, there is a risk that the virus will be passed on to their babies. Chronic hepatitis B infection in newborns can cause major health problems in the long run, such as cirrhosis and hepatocellular cancer. Even though the chance of passing hepatitis C to the baby is lower if the mother has it during pregnancy, it can still cause bad things to happen, like giving birth early, having a baby with a low birth weight, or giving the baby hepatitis.[16]

In our study the prevalence of HCV and HBV were 12 (8%) and 27 (18%) respectively, similar prevalence was reported by a study which showed that the prevalence of HCV and HBV in their study were 14.5% and 20.5%[17]. In our study we observed that the risk factors which were statistically significant in HCV were surgical procedures and blood transfusion, a study reported that surgical procedure were significantly associated with HCV in pregnant women.[13] Dental procedures were statistically associated with HBV, the aforementioned study also

reported similar findings, they also reported that dental procedures were significantly associated with HBV.[13]

Conclusion

From our study we conclude that the frequency of Hepatitis C and Hepatitis B virus in our study was 12 (8%) and 27 (18%) respectively in pregnant women. Associated factors with HCV were surgical procedures and blood transfusion while dental procedures were significantly associated with HBV.

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