FREQUENCY OF ANTI-HCV, HBsAg AND RELATED RISK FACTORS IN PREGNANT WOMEN AT NISHTAR HOSPITAL, MULTAN

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Background: Viral hepatitis is a global issue. Among the hepatitis viruses hepatitis B and C are important in South Asia including Pakistan. There are various modes of transmission of these viruses. Vertical transmission is also gaining importance. Antepartum screening for HBV and HCV would help the infected women for appropriate antiviral therapy at appropriate time as well as for taking proper care of the newborns. The present study was designed to see the frequency of HBsAg and anti-HCV in pregnant women at Nishtar Hospital, Multan. **Methods:** This was a cross-sectional study carried out using non-probability purposive sampling technique. The period of the study was from June 2006 to August 2007. Five hundred (500) pregnant women attending outpatient department of Gynaecology and Obstetrics were included. Informed consent was taken. A specially designed proforma was filled in. Anti-HCV and HBsAg were tested by device method. Data were analyzed on SPSS-11. **Results:** Out of 500 pregnant women 35 (7.00%) were found to be anti-HCV positive and 23 (4.60%) were positive for HBsAg. Mean age was 26.7±4.8 years. Majority of the patients 263 (52.60%) were in the age group 26–35 years. 138 (27.60%) women were nulliparous and 282 (56.40%) were para 1–4 and anti-HCV and HBsAg were common in this parity group. Only 80 (16.00%) women were para 5 or more. All anti-HCV and HBsAg positive women were house-wives. Most of them were belonging to rural areas having poor socio-economic status. Among 35 anti-HCV positive women, 20 (57.14%) had history of previous surgery, while 13 (37.14%) had history of multiple injections, 5 (14.28%) received blood transfusion, 4 (11.42%) had ear/nose piercing while tattooing was seen in only 2 (5.71%). Among 23 HBsAg positive women, 10 (43.47%) had history of previous surgery. History of multiple injections was present in 6 (26.08%) patients, 4 (17.39%) patients had history of blood transfusion, tattooing, ear/nose piercing, history of dental procedure, history of sharing needles was observed in 1 each. **Conclusion:** Frequency of anti-HCV is more common than HBsAg in our study population. Previous history of surgery, multiple injection therapy and blood transfusion were observed as risk factors among anti-HCV and HBsAg positive pregnant women.

Keywords: Anti-HCV, HBsAg, Hepatitis B, Hepatitis C, pregnancy

INTRODUCTION

Viral hepatitis is a global issue and according to WHO 12–15 million are being infected each year. In Pakistan the situation is not different from rest of the world. Among the hepatitis viruses, hepatitis B and C are the viruses which need extensive studies. Various studies conducted in various groups in health care settings have reported variable results regarding prevalence of hepatitis B and C. Recently, Pakistan Medical Research Council (PMRC) has conducted a national survey on prevalence of hepatitis B and C in general population of Pakistan. The preliminary reports reveal that HBsAg is positive in 2.5% and Anti-HCV in 4.9%. Thus overall positivity for both these viruses is 7.4%. According to this survey about 12 million population of Pakistan is affected by these viruses.[1] However, the study conducted by Khokhar *et al* has reported prevalence of HBsAg to be 2.5% and anti-HCV prevalence to be 5.3%.[2] It is evident from epidemiological studies that both these viruses are mainly transmitted through parenteral route. The transmission risk of these viruses increases among persons who are given un-sterilized therapeutic injections, sharing of infected needles among IV drug abusers, having transfusion of contaminated blood, patients on haemodialysis, having unsafe sex, sharing of items like toothbrushes/*Miswaks*, razors and infected combs, having dental procedure with infected instruments, having endoscopies with un-sterilised instruments, self infliction as a part of religious activity (*maatam*) with infected chains and persons who have their faces or armpits shaved by street barbers.[3,4] The cosmetic alterations like body piercing or tattooing done by un-sterilised needles and use of infected tweezers are becoming major threats for transmission of hepatitis viruses.

Sexual transmission of hepatitis-B and C has also been described. Sexual transmission of hepatitis B virus is more pronounced. In USA the heterosexual transmission of hepatitis B virus accounts almost to 39% among the new HBV infections in adults[5] and hepatitis C virus has also been transmitted sexually however prevalence is much less as compared to hepatitis-B[6]. HCV and HBV screening of blood products introduced in various countries has minimized the risk of transmission through blood transfusion. Vertical transmission of HBV is more common than HCV. It has been described if

mother is positive for HBV then transmission of HBV to infant is 85-90% if the mother is in replicative status (HBeAg positive) and transmission is 30% if the mother is HBeAg negative.[7] The risk also increases if mother develops HBV infection in 3rd trimester of pregnancy.[8, 9] The risk of transmission of HCV from viremic (HCV RNA positive) mothers to their infants is 3.2% and transmission risk further increases if the mother is co-infected with HIV to 7.9%.[7] Both these viruses can lead to chronic hepatitis, cirrhosis and hepatocellular carcinoma.[10]

The possibility of vertical transmission highlights the importance to diagnose the acute and chronic hepatic viral infections in pregnant women thereby justifying mandatory antepartum screening for HBV and HCV. It has benefits making it possible to refer these infected women for appropriate antiviral therapy at appropriate time and before the development of significant liver damage. The present study was designed to determine the frequency of HBsAg and anti-HCV in pregnant women at Nishtar Hospital, Multan. The results of this study would provide some data for the future in-depth studies on this vital subject.

MATERIAL AND METHODS

This cross-sectional study was carried out at Gynaecology and Obstetrics outpatient department, Nishtar Hospital Multan, a tertiary care hospital. The study was carried out from June 2006 to August 2007. A total of 500 pregnant women attending Gynaecology and Obstetrics outpatient department were included in this study. Informed consent was taken. A specially designed proforma was filled to collect the data. HBsAg and anti-HCV were tested by device method and data were analysed using SPSS-11.

RESULTS

Out of 500 pregnant women 35 (7.00%) were found to have anti-HCV positive and 23 (4.60%) were found to have HBsAg positive (Table-1, 2). Mean±SD age was 26.7±4.8 years. Majority of the patients 263 (52.60%) were in the age group 26–35 years (Table-3).

In this study 138 (27.60%) women were nulliparous and 282 (56.40%) were para 1–4. Anti-HCV and HBsAg were also common in this parity group. Only 80 (16.00%) women were para 5 or more (Table-4).

All the anti-HCV and HBsAg positive women were house-wives; most of them were belonging to the rural areas and have had poor socio-economic status (Table-5).

Among 35 anti-HCV positive women, 20 (57.14%) had history of previous surgery. Out of these 20 patients, 14 had obstetrical while 6 had gynaecological surgery. Thirteen (37.14%) women had history of multiple injections. Five (14.28%) women received blood transfusion, out of which 4 had single while 1 had multiple blood transfusions. Four (11.42%) had ear/nose piercing while tattooing was seen in only 2 (5.71%) anti-HCV positive women (Table-6).

Among 23 HBsAg positive women, 10 (43.47%) had history of previous surgery. Out of these 10 patients, 6 had Obstetrical while 4 had Gynaecological surgery. History of multiple injections was present in 6 (26.08%) patients. Four (17.39%) patients had history of blood transfusion, out of which 3 had single while 1 had multiple blood transfusions. Tattooing, ear/nose piercing, history of dental procedure, history of sharing needles was observed in 1 each HBsAg positive women (Table-6).

Table-1: Frequency of anti-HCV positivity (n=500)

Anti HCV	Patients	Percentage
Positive	35	7
Negative	465	93

Table-2: Frequency of HBsAg positivity

HBsAg	Patients	Percentage
Positive	23	4.60
Negative	477	95.40

Table-3: Age distribution of the study cases

Age (Yr)	Cases	HBsAg +ve	Anti-HCV +ve
16–25	208 (41.60 %)	7 (3.36 %)	11 (5.28 %)
26–35	263 (52.60 %)	14 (5.32 %)	18 (6.84 %)
>35	29 (5.80 %)	2 (6.89 %)	6 (20.68 %)

Table-4: Parity wise distribution of study cases

Parity	Cases	HBsAg +	Anti-HCV +
Nullipara	138 (27.60%)	3 (2.17%)	7 (5.07%)
Para 1–4	282 (56.40%)	14 (4.96%)	20 (7.09%)
Para 5 or more	80 (16.00%)	6 (7.50%)	8 (10.00%)

Table-5: Distribution of anti-HCV and HBsAg positive cases according to occupation, residential status and socio-economic status. (n=500)

Features	No. of cases	HBsAg Positive cases	Anti-HCV positive cases
Occupation			
House wife	495 (99.00%)	23 (4.64%)	35 (7.07%)
Working ladies	5 (1 .00%)	NIL	NIL
Residential Status			
Rural	218 (43.60%)	14 (6.42%)	19 (8.71%)
Urban	282 (56.40%)	9 (3.19%)	16 (5.67%)
Socio-economic			
Poor	340 (68.00%)	17 (5.00%)	26 (7.64%)
Middle Income	149 (29.80%)	6 (4.02%)	9 (6.04%)
Rich	11 (2.20 %)	NIL	NIL

Table-6: Distribution of anti-HCV and HBsAg positive cases according to risk factors

Features	HBsAg Positive cases (23)		Anti-HCV positive cases (35)	
	No.	%	No.	%
Previous Surgery				
Obstetrical	6	26.08	14	40.00
Gynaecological	4	17.39	6	17.14
Multiple injections	06	26.08	13	37.14
Blood transfusion				
Single	3	13.04	4	11.42
Multiple	1	4.34	1	2.85
Tattooing	1	4.34	2	5.71
Ear/Nose piercing	1	4.34	4	11.42
Dental Procedure	1	4.34	-	-
Sharing needles	1	4.34	-	-

DISCUSSION

Viral hepatitis B and C are the major concern throughout the world and being extensively studied. Worldwide many studies have been conducted to determine the prevalence of hepatitis B and C in their general population, in healthy blood donors and in different age groups. The studies have also been conducted on Hepatitis B and C in pregnant women. Zafar *et al*[11] conducted a study at a hospital in Lahore on 300 pregnant women and showed anti-HCV prevalence to be 6% while another study at Islamabad revealed anti-HCV prevalence to be 3.7%.[12] Another study conducted at Lahore on pregnant women, reported anti-HCV positivity to be 7.3% and HBsAg positivity to be 2.2%.[13] Kazmi from Pakistan has also reported incidence of HBsAg in child bearing age to be 4%.[8] A study conducted in Egyptian pregnant women, revealed high prevalence of anti-HCV 19%[14] while study conducted in the pregnant women of London revealed 0.8% positivity for anti-HCV[15]. Higher prevalence of anti-HCV in Egyptian pregnant women may be due to higher prevalence of anti-HCV in general population of Egypt.

Our study on pregnant women revealed anti-HCV positivity to 7% and HBsAg positivity as 4.6%. Anti-HCV and HBsAg positivity are comparable with the studies conducted by Batool *et al*[13] and Zafar *et al*[11]. Jaffery *et al*[12] reported low prevalence that may be due to the fact it was conducted in people who were educated and having better socioeconomic status and were health conscious as well as aware of hepatitis.

The mean age of was 26.7±4.8 years with majority of the cases (52.60%), were in the age group of 26–35 years. In our study, the positivity of HBsAg and anti-HCV was more related to parity. Para 1–4 women showed maximum positivity. These findings related to the parity are supportive with the findings of Kumar.[10] All the Hepatitis positive women were house wives mostly from rural areas with poor socio-economic status.

Among 35 anti-HCV positive women, 20 (57.14%) had history of previous surgery. Out of these 20 patients, 14 had obstetrical while 6 had gynaecological surgery. Thirteen (37.14%) women had history of multiple injections. Five (14.28%) women received blood transfusion, out of which 4 had single while 1 had multiple blood transfusions. Four (11.42%) had ear/nose piercing while tattooing was seen in only 2 (5.71%) anti-HCV positive women.

Among 23 HBsAg positive women, 10 (43.47%) had history of previous surgery. Out of these 10 patients, 6 had Obstetrical while 4 had gynaecological surgery. History of multiple injections was present in 6 (26.08%) cases. Four (17.39%) patients had history of blood transfusion, out of which 3 had single while 1 had multiple blood transfusions. Tattooing, ear/nose piercing, history of dental procedure, history of sharing needles was observed in 1 each HBsAg positive patient.

Previous history of surgery is a major risk factor for the transmission of hepatitis B and hepatitis C in our study and the same was reported by Jaffery[12] and Batool as 42.2%.[13] Multiple Injection therapy was observed as second important risk factor in our study and it has also been supported by Idrees *et al*.[16] Blood transfusion was important risk factor as reported by Batool[13] and Idrees *et al*[16] and also, our results further support it as an important risk factor.

A study conducted on women in Italy, revealed the principal risk factor was among IV drug user however in our study it was not the case because IV drug abuse among women is negligible.[17]

CONCLUSION

Frequency of anti-HCV is more common than HBsAg in our study population. Previous history of surgery, multiple injection therapy and blood transfusion were observed as important related risk factors among anti-HCV and HBsAg positive pregnant women. We also, observed that prevalence is related to parity and it was noted more common in women of para 1–4. Besides, education and socioeconomic status also play an important role in the spread of hepatitis.

SUGGESTIONS

1. Pregnant women should be screened for HBsAg and Anti-HCV.
2. Babies born to HBsAg positive mothers must be properly immunised.
3. Close contacts of the family must be tested for HBsAg, if negative, must be vaccinated.

4. Anti-HCV positive mothers and negative for HBsAg must be protected against HBV infection through vaccination.
5. Antiviral therapy, i.e., Lamivudine may be considered in active HBV positive mothers especially in last four weeks of pregnancy.
6. Awareness about the risk factors and transmission of these viruses should be made to the public through various media, e.g., print and electronic.

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