

Seroprevalence of Hepatitis B Surface Antigen and Antibodies against Hepatitis C Virus among Pregnant Women Attending Rural Health Centre of South Punjab

MARYAM PARVEEN¹, MUHAMMAD ISMAILE², RABIYA MASOOD³

ABSTRACT

Background; Hepatitis in pregnancy presents challenging questions to the obstetrician. Most Asian countries have a high birth rate and a large pool of hepatotropic viruses causing hepatitis in pregnancy.

Methods: A total of 252 pregnant ladies were taken in this study cross – sectional study from 02-01-2017 to 31-03-2017 using non-probability purposive sampling technique. All the relevant information was inquired and noted in the proforma and analysis was done by SPSS-20.

Results; A total of 252 pregnant ladies were included in our study and mean age of these pregnant ladies was 25.78±5.04 years, ranging from 19 years to 38 years while majority of our study cases 203(80.6%) were aged less than 30 years of age. All of these pregnant ladies were housewives and none of them was working. One hundred sixty five (65.5%) belonged to poor families and 87(34.5%) were from middle income families. Family history of hepatitis was present in 49(19.4%) while it was positive 11.5% spouses of these ladies. Mean gestational age was 31.07±5.29 weeks and 11.9 % presented with first trimester, 115(45.6%) with 2nd trimester and 107(42.5%) with third trimester. Mean parity was 3.82±1.26 and 165(65.5%) had parity up to 3. History of previous surgical procedures was positive in 59(23.4%), while 86(34.1%) had previous history of deliveries at home, 127(50.4%) at private hospitals and 39(15.5%) at Govt. hospitals. History of dental procedure was positive in 19 (7.5%), injection therapy in 30.6% and blood transfusion in 49(19.4%). Hepatitis B surface antigen was positive in 10(4%) while anti – HCV in 29(11.5%).

Conclusion: High frequency of HBs Ag and anti – HCV was noted in our pregnant ladies belonging to rural population. Increasing age, parity, deliveries in private hospitals, previous history of any surgical procedures, blood transfusion and injection therapies were associated with spread of these infections. So there is dire need to launch an awareness campaign among community in general while among healthcare workers in particular regarding spread of these infections.

Keywords: Anti – HCV, HBs-Ag, pregnant women, risk factors.

INTRODUCTION

Chronic infections of hepatitis B and C viruses are important determinants of severe liver diseases such as liver cirrhosis, hepatocellular carcinoma as well as end stage liver disease^{1,2,3}. According to the estimates of WHO, 350 million people are infected with chronic hepatitis B and 170 million people with hepatitis C all over the world. Mortality rates attributed to hepatitis B range up to 563,000 and with hepatitis C up to 366,000 each year^{1,2,3,4}. Different risk factors have been associated with the transmission of these viruses in different population subsets these include⁵⁻⁹; IV drug use, Blood transfusions with contaminated blood, Unsafe sex with multiple partners, Surgical procedures, Haemodialysis, Needle stick injuries, Tattooing, Ear/Nose piercing, Dental procedures, Shaving the

face and armpits by barbers, Endoscopies with unsterilized equipments, Sharing common utensils like toothbrushes, combs and razors. Prevalence of HBV, in Europe, ranges as low as 0.1% in Ireland and Netherlands to as high as 7% in eastern Turkey. European countries have been classified into 3 categories owing to prevalence of HBV. Low prevalence; Denmark, Finland, Norway, Netherlands, Ireland and UK has less than 0.5% prevalence while Belgium, France and Italy have 0.5%-1%. Medium prevalence; Bulgaria, Greece, Slovakia and Spain have 1-4%. High Prevalence; Romania and Eastern Turkey have more than 4% prevalence of HBV. In the areas of low endemicity, prevalence of HBV infection is less than 2% such as in USA, Australia, Japan, Nepal, New Zealand and countries of South America. The Middle Eastern countries, South Asia, and the Mediterranean basin are considered areas of intermediate endemicity with a carrier rate between 2% to 8% such as 2.9% in Pakistan, 4% in India, 7.18% in china, 5.4% in Bangladesh, Thailand 4%

Woman Medical Officer, Rural Health Centre, Ayazabad Maral, Multan.

^{2,3}MO, Nishtar Hospital, Multan.

Correspondence to Dr. Maryam Parveen, Email: maryamparveen16@gmail.com Cell: 0332-6647686

and 7% in Iran. In high endemic areas, like countries of central Asian republics, Southeast Asian countries and Sub-Sahara African countries, the HBV carrier rate is more than 8%¹⁰.

Prevalence of hepatitis C virus (HCV) varies among European countries such as; Low Prevalence; Belgium, Netherlands, Sweden, Germany and UK have less than 0.5% prevalence of HCV among general population¹¹. Intermediate prevalence; Bulgaria, France, Hungary, Romania, Denmark and Finland have 0.5% to 2% prevalence rates. High prevalence; Italy has more than 2% prevalence rate of HCV. In developed countries like USA prevalence of HCV infection is less than 2% whereas countries of Asia pacific, Latin America and North America also have less than 1% prevalence of HCV, 0.4% in China, in India and Iran it is 1%. While countries of south and southeast Asia, Sub-Saharan Africa, Australia, Caribbean countries have 2%-4% prevalence of HCV¹². Central Asian republics, East Asia, North Africa and Middle Eastern countries have more than 4% prevalence of HCV. Prevalence of as high as 10% has been reported from Egypt. In Pakistan it is 5.9% in general population^{13,14,15}.

Sexual transmission of hepatitis B virus has been well described while that of hepatitis C with some variable findings. Similarly vertical transmission of hepatitis B virus has been well established however hepatitis C virus is not associated with vertical transmission but chances increase with co – infection with HIV and high maternal viral load of HCV¹⁴. So pregnancy plays an important role in the spread of these diseases to the newborns, hence this study was conducted to ascertain proportion of the burden in a rural health centre. Most of the studies done locally have been conducted in bigger cities while there is limited data regarding magnitude of the problem in rural patients where prevalence can be more due to availability of less healthcare facilities and lack of awareness.

MATERIAL AND METHODS

Two hundred and fifty two pregnant ladies aged more than 18 years coming to the Obstetrical OPD of the rural health centre, Ayazabad Marral were included in

this study. All the specific information regarding their personal history, socioeconomic status of the family, occupation, family history of index patients of hepatitis, status of their husbands, no. of children, place of previous births, injection therapies, previous history of having any surgery, history of dental procedures, blood transfusions and trimester was noted in the study proforma. Blood samples of these pregnant ladies were drawn and tested for Hepatitis B surface antigen and antibodies against hepatitis C virus by rapid screening device method. Socioeconomic status was defined as poor if the total family income was less than 25000 rupees per month while those families earning more than 25000 to 50000 rupees were defined as middle income and were defined as rich if their family income was more than 50000 rupees per month. Primigravida and those were not willing to take part in the study were excluded.

RESULTS

A total of 252 pregnant ladies were included in our study and mean age of these pregnant ladies was 25.78 ± 5.04 years, ranging from 19 years to 38 years while majority of our study cases 20(80.6%) were aged less than 30 years of age. All of these pregnant ladies were housewives and none of them was working. One hundred sixty five (65.5%) belonged to poor families and 87(34.5%) were from middle income families. Family history of hepatitis was present in 49(19.4%) while it was positive 11.5% spouses of these ladies. Mean gestational age was 31.07 ± 5.29 weeks and 11.9% presented with first trimester, 115(45.6%) with 2nd trimester and 107(42.5%) with third trimester. Mean parity was 3.82 ± 1.26 and 165(65.5%) had parity up to 3. History of previous surgical procedures was positive in 59 (23.4%), while 86(34.1%) had previous history of deliveries at home, 127(50.4%) at private hospitals and 39(15.5%) at Govt. hospitals. History of dental procedure was positive in 19(7.5%), injection therapy in 30.6% and blood transfusion in 49(19.4%). Hepatitis B surface antigen was positive in 10(4%) while anti-HCV in 29(11.5%).

Table 1: Distribution of HBs Ag with different characteristics (n = 252)

Characteristic		Hbs Ag		P - value
		Positive	Negative	
Age groups	Up to 30 Years	02	201	0.001
	> 30 Years	08	41	
Socioeconomic status	Poor	07	158	0.793
	Middle Income	03	84	
Family History	Yes	10	39	0.001
	No	00	203	
Parity	Up to 3	02	163	0.004
	More than 3	08	79	
Place of deliveries	Home	00	86	0.006
	Private hospital	10	117	
	Govt. hospital	00	39	
History of surgical procedures	Yes	09	50	0.001
	No	01	192	
Trimester	First	00	30	0.001
	Second	00	115	
	Third	10	97	
Dental procedure	Yes	01	18	0.999
	No	09	224	
Injection	Yes	08	69	0.002
	No	02	173	
Blood Transfusions	Yes	08	41	0.001
	No	02	201	

Table 2: Distribution of anti - HCV with different characteristics (n = 252)

Characteristic		Anti - HCV		P - value
		Positive	Negative	
Age groups	Up to 30 Years	13	190	0.001
	> 30 Years	16	33	
Socioeconomic status	Poor	20	145	0.691
	Middle Income	09	78	
Family History	Yes	09	40	0.113
	No	20	183	
Parity	Up to 3	11	154	0.322
	More than 3	18	69	
Place of deliveries	Home	02	84	0.015
	Private hospital	26	101	
	Govt. hospital	01	38	
History of surgical procedures	Yes	19	40	0.001
	No	10	183	
Trimester	First	00	30	0.027
	Second	19	96	
	Third	10	97	
Dental procedure	Yes	04	15	0.212
	No	25	208	
Injection	Yes	09	68	0.999
	No	20	155	
Blood Transfusions	Yes	14	35	0.001
	No	15	188	

DISCUSSION

A total of 252 pregnant ladies were included in our study and mean age of these pregnant ladies was 25.78 ± 5.04 years, ranging from 19 years to 38 years while majority of our study cases 203 (80.6%) were aged less than 30 years of age. A study

conducted by Taseer et al ¹⁶ has also documented 26.7 ± 4.8 years mean age of the pregnant women being screened for hepatitis B and C virus infection, which is similar to our results. The results of present study are comparable with a study in which, The frequency of Hepatitis B and C was more in age group ranging between 32–36 years¹⁷. In another

study, among the 959 patients who participated in that study, the ages varied between 15 and 43 years with a mean age of 27.6 ± 5.2 years¹⁸. Similarly in another International study, the mean age was 27.6 ± 5.8 years and the mean age of the controls were 27.0 ± 5.8 years. The study showed no significant difference in the distribution of ages between cases and controls ($P=0.189$). The age group having highest frequency among cases 106/303 (35%) and controls 133/303 (43.9%) was 18 to 24 years, whereas the age group with the lowest frequency among cases 14/303 (4.6%) and controls 14/303 (4.6%) was between 40 and 44 years. The range was 18-44 years¹⁹. All of these pregnant ladies were housewives and none of them was working. Our findings are in compliance with that of reported by Taseer et al¹⁶.

One hundred sixty five (65.5%) belonged to poor families and 87(34.5%) were from middle income families. Family history of hepatitis was present in 49(19.4%) while it was positive 11.5% spouses of these ladies. Mean gestational age was 31.07 ± 5.29 weeks and 11.9% presented with first trimester, 115(45.6%) with 2nd trimester and 107(42.5%) with third trimester. The aetiologic types of viral hepatitis in 169 pregnant women were compared with those of 70 non-pregnant women in another International study. The majority of pregnant women (87.6%) came with hepatitis in the last trimester of pregnancy²⁰.

In another study, sixteen pregnant women presented at the three main hospitals in Khartoum province, Sudan during the period of March-September 2007 with features of viral hepatitis. Their mean (SD) gestational age was 28 ± 6.7 weeks²¹ which is close to our study.

Increasing parity as a risk factor for spread of hepatitis B and C has been previously documented because in such under-privileged areas, most of the deliveries take place under poor conditions. Mean parity was 3.82 ± 1.26 and 165(65.5%) had parity up to 3. Taseer et al¹⁶ reported similar findings and associated hepatitis with increasing parity which is comparable to our results. History of previous surgical procedures was positive in 59(23.4%), while 86(34.1%) had previous history of deliveries at home, 127(50.4%) at private hospitals and 39(15.5%) at Govt. hospitals. Taseer et al¹⁶ have reported similar results which show compliance with our findings. History of dental procedure was positive in 19(7.5%), injection therapy in 30.6% and blood transfusion in 49(19.4%). Taseer et al¹⁶ have documented similar results.

Hepatitis B surface antigen was positive in 10(4%) while anti – HCV in 29(11.5%). Taseer et al¹⁶ have documented anti-HCV was positive in 7% while

hepatitis B was positive in 4.6% pregnant ladies which is similar to our study results. A study from Ghana²² documented 2.6% HBs Ag in pregnant women which is close to our study results. Ugbebor et al²³ reported 12.5% HBs Ag and anti HCV 3.6% which show different trends.

CONCLUSION

High frequency of HBs Ag and anti – HCV was noted in our pregnant ladies belonging to rural population. Increasing age, parity, deliveries in private hospitals, previous history of any surgical procedures, blood transfusion and injection therapies were associated with spread of these infections. So there is dire need to launch an awareness campaign among community in general while among healthcare workers in particular regarding spread of these infections.

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