

Hepatitis C virus infection in pregnant women in Southeastern Nigeria

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Abstract

Objective: To determine the seroprevalence of Hepatitis C virus and its possible risk factors in antenatal clinic attendees.

Methods: A cross-sectional survey involving 820 consecutive and consenting antenatal clinic attendees at five antenatal clinics in Aba, Southeastern Nigeria over the period 15 June – 15 November, 2010. A structured pre-tested questionnaire administered by research assistants was used to collect and record data on the medical and sociodemographic characteristics of the subjects. Blood samples were collected from the consenting antenatal clinic attendees and tested for Hepatitis C Virus (HCV) antibodies using rapid test Elisa kits (Acon laboratories, USA).

Results: Twelve (1.5%) of the 820 antenatal clinic attendees were found to be HCV positive and asymptomatic. History of having received blood transfusion in the past was associated with HCV seropositivity ($p < 0.05$). Maternal age, parity, educational level attained, marital status. Intravenous drug use, tattooing or jaundice in the past and Human Immunodeficiency Virus positivity did not show any association with HCV seropositivity.

Conclusion: HCV seropositive pregnant women in the study were asymptomatic and showed no association with the medical and sociodemographic characteristics examined except with a history of having received blood transfusion in the past. This strengthens the case for routine HCV screening in pregnancy in our setting.

Key words: Hepatitis C, Virus, Infection, Pregnancy.

Introduction

Viral hepatitis is one of the most common and potentially serious infections that can occur in pregnant women (1). Hepatitis C Virus (HCV) infection is a major global public health problem and can be transmitted parenterally, sexually, and from mother to infant. Chronic infection with HCV may result in cirrhosis leading to end-stage liver disease and hepatocellular carcinoma many years after the initial infection (2).

The World Health Organization (WHO) estimates that 3% of the world's population is chronically infected with HCV, most of these cases occur in Africa, which is reported to have the highest HCV prevalence rate (3).

Viral hepatitis during pregnancy is associated with high risk of maternal complications, high rate of vertical

transmission causing fetal and neonatal hepatitis (4,5). Optimal obstetric care of women infected with HCV is limited by the lack of any available prenatal or postnatal pharmacologic or immunologic measures to decrease the risk of vertical transmission. The knowledge of the seroprevalence of HCV and its possible risk factors in our locality will assist in estimating the burden of HCV, to combat the spread of the disease and to develop a strategy to inform and educate the public regarding HCV. Hence, the need for this study.

Materials and Methods

This was a cross-sectional survey involving 820 consecutive and consenting antenatal clinic attendees at five antenatal clinics in Aba, Southeastern Nigeria over the period 15 June- 15 November, 2010.

A structured pre-tested questionnaire administered by research assistants was used to collect and record data on the medical and sociodemographic characteristics of the subjects. Blood samples were collected from the consenting antenatal clinic attendees and tested for Hepatitis C Virus (HCV) antibodies using rapid test Elisa kits (Acon laboratories, USA).

Data analysis included descriptive statistics for demographic data and calculation of the seroprevalence of HCV in the pregnant women. Association of HCV seropositivity with potential risk factors was assessed. Statistical analyses were performed using Epi-info version 6 statistical package. $P < 0.05$ was considered significant. Ethical approval was obtained from the research and ethical committee of Abia State University Teaching Hospital, Aba.

Results

Table 1 shows the sociodemographic characteristics of the antenatal clinic attendees studied. Twelve (1.5%) of the 820 antenatal clinic attendees were found to be HCV positive and asymptomatic.

Table 2 shows the relationship between maternal variables and maternal Hepatitis C seropositivity. History of having received blood transfusion in the past was associated with HCV positivity ($p < 0.05$). Maternal age, parity, educational level attained, marital status, intravenous drug use, tattooing or jaundice in the past and Human Immunodeficiency Virus (HIV) positivity did not show any association with HCV seropositivity.

Table 1: Socio-demographic characteristics of participants (N=820)

Demographic characteristics	No.	(%)
Maternal age		
≤ 19	5	0.6
20-29	434	52.9
≥ 30	381	46.5
Parity		
Nullipara	297	36.2
Primipara	181	22.0
Multipara	342	41.7
Ethnicity		
Igbo	810	98.8
Others	10	1.2
Maternal education		
None		
Primary	7	0.9
Secondary	311	37.9
Tertiary	502	61.2
Marital status		
Married	820	100
Single/ Divorced/ Widowed		
Undergoing STI treatment other than HIV/AIDS		
Yes	28	3.4
No	780	96.6
Self and partner intravenous drug use		
Yes	0	0
No	820	100
Ever received blood transfusion		
Yes	54	6.6
No	766	93.4
Ever been jaundiced in the past?		
Yes	12	1.5
No	808	98.5
HIV Screening test result		
Positive	8	0.9
Negative	812	99.0

Table 2: Maternal socio-demographic characteristics in relation to maternal Hepatitis C positivity

Variables	Hepatitis C Negative No. =808	(%)	Hepatitis C Positive No.=12	(%)
Maternal age				
≤ 19	5	100	0	0
20-29	427	98.4	7	1.6
≥ 30	376	98.7	5	1.3
		$\chi^2 = 0.2; P>0.05$		
Parity				
Nullipara	292	98.3	5	1.7
Primipara	178	98.3	3	1.7
Multipara	338	98.8	4	1.1
		$\chi^2 = 0.35; P>0.05$		
Maternal education				
Primary	7	100	0	0
Secondary	308	99	3	0.9
Tertiary	493	98.2	9	1.8
		$\chi^2 = 1.02; p>0.05$		
Undergoing STI treatment other than HIV/AIDS				
Yes	28	100	0	0
No	780	98.5	12	1.5
		$\chi^2 = 0.02; p>0.05$		
Ever received blood transfusion?				
Yes	51	94.4	3	5.6
No	757	98.8	9	1.1
		$\chi^2 = 4.02; p<0.05$		
Ever been jaundiced in the past?				
Yes	12	100	0	0
No	796	98.5	12	1.5
		$\chi^2 = 0.62; p>0.05$		
HIV screening test result				
Positive	8	100	0	0
Negative	812	98.5	12	1.5
		$\chi^2 = 1.31; p>0.05$		

The prevalence of maternal Hepatitis C positivity = 1.5%

Discussion

The seroprevalence of HCV in the antenatal clinic attendees in this study was 1.5%. This is similar to that in a neighbouring African country Cameroon (1.9%) (6) and the lowest estimated prevalence of 1.6% in Southern and East Africa but lower than the highest estimated prevalence of 6% and 2.4% in the Central and West African regions respectively (7). HCV seroprevalence of 0.6-6.6% have been reported in study cohorts of pregnant women worldwide (8). HCV seropositivity in this study showed no association with the selected medical and sociodemographic characteristics examined except with a history of having received blood transfusion in the past. The principal risk factor for HCV transmission have been transfusion of blood products – which is confirmed in this study, and use of intravenous illegal drugs – which

was not identified in our study population. It is pertinent to note that blood for transfusion in our setting is routinely screened for Human Immunodeficiency Virus (HIV) and Hepatitis B virus (HBV) but not for HCV. Hence, it is possible that unscreened blood for HCV is an important source of HCV infection in our community.

Findings from our study showed that only one of the medical and sociodemographic characteristics examined (history of having received blood transfusion in the past) showed any association with HCV infection (HIV infection, injection of illegal drugs, evidence of liver disease and other sociodemographic characteristics) were identified as risk factors for HCV infection by other investigators in Ghana and Sudan (4,9). Further, all the HCV seropositive pregnant women in our study were asymptomatic and unaware of their infection. Thus, selective prenatal screening

for HCV based on risk factors alone as recommended in parts of Europe and the Americas (1,10) may not be justified in our setting. Based on the findings of our study, routine prenatal testing is needed in our setting to help identify babies at risk of acquiring HCV and to detect infected and asymptomatic pregnant women at an early stage, who would benefit from health education and treatment.

Strengths of our study include the fairly large sample size. Limitations include possible selection bias as the participants were volunteers and not selected randomly.

In conclusion, the study showed that HCV seropositive pregnant women were asymptomatic and showed an association only with a history of having received blood transfusion in the past. This strengthens the case for routine HCV screening in pregnancy in our setting. Studies with much larger sample sizes in Aba and other communities in Nigeria and the rest of Africa are warranted to confirm our findings. There is a need for a national HCV screening programme in pregnancy.

Conflict of interest statement

We declare that we have no conflict of interest.

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