

Prevalence of Hepatitis C in Makurdi, North Central Nigeria

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Abstract: Background: This was a study to determine hepatitis C sero-prevalence rate and create awareness on hepatitis C.

Methods: The study was a descriptive cross-sectional survey of attendees at the 2012, World Hepatitis Day ceremony at the Benue State University Teaching Hospital in Makurdi, Nigeria. Interviewer-administered questionnaires were used to obtain information from consenting participants. All respondents were screened for hepatitis C using the Hepatitis C antibody (Anti HCV) test.

Results: Hepatitis C sero-prevalence rate was 2.8%. Most of the respondents were: aged 40 years or less (85%), males (51.5%), had 6-10 persons in their household (51.7%). Only 6.4% had ever been transfused with blood, 4.3% had a history of jaundice, and 15.2% had a family member with hepatitis. Majority (85.1%) had poor knowledge regarding hepatitis C and only 27.4% had previously screened for it. There was no significant association between hepatitis C sero-positive status with demographic, risk factors for hepatitis C or knowledge about hepatitis C

Conclusions: Hepatitis C infection is a health challenge in Nigeria in the setting of poor knowledge and inadequate screening facilities. All stakeholders should work towards improved awareness and testing for hepatitis C.

Key words: prevalence, hepatitis C Virus, Makurdi

I. Introduction

Hepatitis C virus (HCV), a relatively new virus discovered about 25 years ago has become a major cause of Chronic liver disease worldwide and the main reason for liver transplantation in the western world.¹ In 2010, the member states of the World Health Organisation (WHO) at the Sixty-third World Health Assembly recognised Hepatitis C virus (HCV) as a growing public health threat.² WHO estimates that 130–200 million people, or ~3% of the world's population, are living with chronic hepatitis C.^{2,3,4} These WHO's estimates are based on weighted averages for regions rather than individual countries since many countries lack data on HCV prevalence. The distribution of HCV infection varies in different parts of the world. The prevalence of HCV is less than 0.5% in the Scandinavia, 3.2% in China, 4.8% in Pakistan and 22% in Egypt.^{2,5} The high prevalence of HCV in Egypt is linked to the use of improperly sterilized glass syringes in a now-discontinued mass-treatment campaign for schistosomiasis.⁶

While there are no country wide surveys on the epidemiology of HCV In Nigeria, HCV prevalence appears to be increasing.⁷ Studies of HCV rates among blood donors in Nigeria show prevalence ranging from 5.4% in Makurdi,⁸ 8.4% in Lagos⁹ to 12.3% in Benin city.¹⁰ HCV rates among pregnant women in Nigeria appear to be lower ranging from 1.8 -3.6% in Benin city,^{11,12} 4.3% in portharcourt,¹³ 4.5% in Kaduna¹⁴ to 4.7% in Enugu¹⁵.

A rising prevalence of HCV presents a peculiar challenge for the patient, the caregiver, the Government and the general public because the economic costs of hepatitis C have remained significantly high for the individual and the society and often beyond the reach of most people. In many countries, people are unable to afford treatment with antiviral drugs as they either lack insurance coverage or the insurance they have will not pay for antiviral drugs.¹⁶ Currently, HCV treatment is a combination of two expensive drugs, pegylated interferon and ribavirin. In recent times, highly expensive Directly Acting Antiviral agents (DAAs) have been licensed for use in the treatment of HCV genotype 1 which improves the chance of cure in these patients. For people who develop chronic forms of the disease, treatment is currently not readily available in the public healthcare system and unaffordable in the private sector. In Nigeria the cost of HCV treatment using pegylated interferon and Ribavirin is about two to three million naira. Adding a DAA would increase the cost a hundred fold. The persistently high cost of treatment for hepatitis C is generally attributed to the lack of political will to treat HCV among policymakers. Indeed, the absence of prevention efforts and the lack of political will among

policymakers have remained two main obstacles to an effective HCV response in Nigeria and other parts of Africa.

WHO has been working in collaboration with other stakeholders towards raising awareness, promoting partnerships and mobilizing resources; providing evidence-based policy and data for action; prevention of transmission; and screening, care and treatment in an effort to prevent and control viral hepatitis. WHO has dedicated 28 July every year as World Hepatitis Day to increase awareness and understanding of viral hepatitis.

This study was carried out as part of activities marking the 2012 World Hepatitis Day in Makurdi with the aim of determining the prevalence of HCV and creating awareness on hepatitis C among participants in Benue State.

II. Methods

Study design and scope

The study was a descriptive cross-sectional survey of persons attending the 2012 World Hepatitis Day ceremony which held on the 28th of July 2012, at the Benue State University Teaching Hospital, Makurdi, Nigeria. A convenience sampling technique was used to recruit participants into the study after obtaining informed verbal consent.

Measures

A concise, interviewer-administered questionnaire was used to obtain information on: (1) Respondents' socio-demographic characteristics including age, gender, current employment status and number of persons per household. (2) Respondents' awareness of hepatitis C including a previous screening test. (3) Risk factors for hepatitis C infection including a history of blood transfusion and jaundice, and whether a family member was infected or not. (4) Respondents' knowledge of the modes of transmission of hepatitis C.

Knowledge of the modes of transmission of hepatitis C was assessed on a four-item, three-point Likert scale. The four items were: (1) hepatitis C can be spread through blood; (2) hepatitis C can be spread through needle prick and sharp objects; (3) hepatitis C can be spread through sexual intercourse; and (4) hepatitis C can be passed from mother-to-child. The Likert scale 3-point response categories were: "agree", "don't know", and "disagree", corresponding to scores of 3, 2 and 1, respectively. The total knowledge score for each respondent was calculated by summing up his/her scores for the four items. The possible range of total knowledge scores were 12 (high), 8 (mid-point) and 4 (low). Since the mid-point was "don't know", the Likert scale was dichotomized to represent "good knowledge" and "poor knowledge" corresponding to scores of 12 and less than 12, respectively.

All consenting participants were also screened for hepatitis C using the Hepatitis C antibody (Anti HCV) MICROPOINT Rapid Diagnostics tests kit and the results were privately disclosed to them. Those who tested positive were linked with the health care system for further management.

Data analysis

Data were entered into Microsoft Excel programme and imported into SPSS version 16 for analysis. The outcome variable was hepatitis C sero-status while the independent variables were socio-demographic characteristics, risk factors for hepatitis C, and knowledge of hepatitis C. Descriptive statistics were generated for each variable, including frequencies and percentages for categorical variables. Associations between variables were tested with chi-square; and multiple logistic regression was performed to identify factors predicting hepatitis C infection. Only variables associated with a *P* value <.10 in bivariate analyses were considered eligible for inclusion in multiple logistic regression analysis. Level of statistical significance was set at *P* <.05. Cases were excluded if they were missing data required for specific analyses.

III. Results

Socio-demographic characteristics

Four hundred and fifteen people attended the 2012 World Hepatitis Day ceremonies in Makurdi. Out of these, 388 (93.5%) consented to participate in the study. Within this study population, 11 respondents tested positive for hepatitis C antibodies, giving a sero-prevalence rate of 2.8%. About three quarters (75.8%) were aged 15-49 years, 75 (19.3%) were <15years of age and 19 (4.9%) were ≥50years old. Two hundred (51.5%) of the participants were males. One hundred and eighty three (47.3%) of those tested were Civil servants, 148 (38.2%) were students, 10 (2.6%) were farmers, 20 (5.2%) were traders and 26 (6.7%) were unemployed. One hundred and seventy nine (46.5%) of the participants were from households of 1-5 members, 199 (51.7%) came from households with 6-10 members and 7 (1.8%) did not know the number of persons in their households. (Table 1)

Table 1: Socio-demographic characteristics

Socio-demographic characteristics	Frequency	Percentage
Age (years)		
< 15	75	19.3
15-49	294	75.8
≥50	19	4.9
Gender		
Male	200	51.5
Female	188	48.5
Occupation		
Civil servant	183	47.3
Student	148	38.2
Farmer	10	2.6
Trader	20	5.2
Unemployed	26	6.7
Number of persons in house		
1-5	179	46.5
6-10	199	51.7
Don't know	7	1.8

Risk factors for and knowledge about hepatitis C infection

Only 25 (6.4%) respondents had a previous history of blood transfusion; 17 (4.3%) reported a history of jaundice, while 59 (15.2%) knew a family member who was infected with hepatitis. Majority (85.1%) of the respondents had poor knowledge of the modes of transmission of hepatitis C and only about a quarter (27.4%) had previously screened for it (Table 1).

Associations between outcome and independent variables

On bivariate analysis, a higher proportion of persons aged 40 years and above (3.4%) were found to be hepatitis C positive compared to persons aged 40 years and below (2.7%), however, this was not statistically significant ($P = 1.000$). More males (4.0%) tested positive for hepatitis C compared to females (1.6%) but the association was not statistically significant ($P = 0.154$). A higher proportion (4.2%) of those employed tested positive for hepatitis C compared to the unemployed (1.1%) but the association was not statistically significant ($P = 0.133$). A larger proportion of participants (3.9%) who lived in a household of 1-5 persons tested positive for hepatitis C compared to household of 6-10 persons (2.0%) but the association was not statistically significant ($P = 0.488$) (Table 2).

Table 2: Association between socio-demographic characteristics and hepatitis C sero-status

Socio-demographic characteristics	Hepatitis C sero-status		Test statistic	P-value
	Positive n (%)	Negative n (%)		
Age (Years)				
≤40	9 (2.7)	321 (97.3)	Yate's continuity correction = 0.000	1.000
>40	2 (3.4)	56 (96.6)		
Gender			$\chi^2 = 2.034$	0.154
Male	8 (4.0)	192 (96.0)		
Female	3 (1.6)	185 (98.4)		
Occupation			Yate's continuity correction = 2.262	0.133
Employed	9 (4.2)	204 (95.8)		
Unemployed	2 (1.1)	172 (98.9)		
Number of persons in household			$\chi^2 = 1.436$	0.488
1-5 persons	7 (3.9)	172 (96.1)		
6-10 persons	4 (2.0)	195 (98.0)		
Don't know	0 (0.0)	7 (100.0)		

Associations between risk factors for and knowledge about hepatitis C infection and hepatitis C sero-status

There was no statistically significant association between hepatitis C sero-positivity with previous blood transfusion (P=1.000), previous jaundice (P=1.000), family member with hepatitis C (P=0.318), knowledge of hepatitis transmission (P=0.901) or prior hepatitis C screening (P=0.738). (Table 3)

Table 3: Association between risk factors for and knowledge about hepatitis C infection and hepatitis C sero-status

<i>Risk factors for hepatitis C</i>	Hepatitis C sero-status		Test statistic	P-value
	Positive n (%)	Negative n (%)		
History of blood transfusion				
Yes	1 (4.0)	24 (96.0)	Yate's continuity correction = <0.001	1.000
No	10 (2.7)	354 (97.3)		
History of jaundice				
Yes	0 (0.0)	17 (100.0)	Yate's continuity correction = <0.001	1.000
No	11 (3.0)	361 (97.0)		
Family member with hepatitis C				
Yes	0 (0.0)	59 (100.0)	Yate's continuity correction = 0.998	0.318
No	11 (3.3)	318 (96.7)		
Knowledge about hepatitis C				
Knowledge of hepatitis transmission				
Correct knowledge	1 (1.7)	57 (98.3)	Yate's continuity correction = 0.015	0.901
Incorrect knowledge	10 (3.0)	320 (97.0)		
Prior hepatitis C screening				
Yes	4 (3.8)	102 (96.2)	Yate's continuity correction = 0.112	0.738
No	7 (2.5)	274 (97.5)		

IV. Discussion

Prevalence and Socio-demographic characteristics

The HCV sero-prevalence rate of 2.8% seen in this study is lower when compared to the 5.4% reported in an earlier study by Alao et al⁸ among blood donors in Makurdi. This varying reports from Makurdi are similar to the reports from Benin City where Onakewhor et al¹¹ and Ugbebor et al¹² working independently, documented low HCV prevalence of 1.8% and 3.6% respectively among pregnant women in Benin City while Halim et al¹⁰ reported a high prevalence of 12.3% among blood donors in the same Benin city. Our findings suggest that the prevalence of HCV may vary even in the same geographical location however; the reasons for such variation may only be identified through further studies. The prevalence of HCV in our study was higher than the 0.4% reported by Mbotto et al¹⁷ among pregnant women in Calabar. The low prevalence recorded in their study may be because their study subjects were exclusively females as it has been documented in several Nigerian cohorts that HCV prevalence among pregnant women appear lower compared to that of blood donors.¹¹⁻¹⁵

Risk factors for and knowledge about hepatitis C infection

Majority of the respondents in this study had poor knowledge of the modes of transmission of hepatitis C. Our finding is similar to that of Kabir et al¹⁸ who reported poor knowledge about hepatitis C in Iran. Only about a quarter of the participants had previously screened for hepatitis C implying that majority of Nigerians do not know their hepatitis C status further emphasizing the poor knowledge on hepatitis. This observation is particularly worrisome considering that screening of blood for HCV before transfusion is not always available especially for rural health facilities in Nigeria. Few of the respondents had previous history of blood transfusion and history of jaundice respectively; however, this was not significantly associated with HCV positivity. Finally, knowing a family member who was infected with hepatitis C was not significantly associated with HCV positivity.

Associations between outcome and independent variables

There was no significant association of HCV antibody sero-positivity with age, sex, family member with hepatitis C and a prior hepatitis C screening test. This finding is similar to that of Obienu et al¹⁵ and Mbotto et al¹⁷ who did not identify significant risk factors to HCV in two independent Nigerian studies.

V. Conclusion

Hepatitis C infection is a growing health challenge in Nigeria in the setting of poor knowledge, inadequate screening facilities, and expensive treatment. All stakeholders should work towards improved awareness, testing for hepatitis C and advocacy for affordable care.

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