Hepatitis C Virus Infection In Nigerians With Chronic Liver Disease

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Citation

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Abstract

BackgroundHepatitis C virus is becoming a significant causative factor in the aetiology of chronic liver disease worldwide. However, information on the prevalence of Hepatitis C virus infection in chronic liver disease in Nigeria is sparse especially from the Northern region. We, therefore, evaluated the prevalence of Hepatitis C virus infection in Nigerians with chronic liver disease.ObjectiveTo determine the prevalence of Hepatitis C virus infection in Nigerians with chronic liver disease.DesignHospital-based case-control studyPlace and durationGastroenterology clinic of University of Maiduguri Teaching Hospital, Maiduguri, Nigeria. From August 2006 to May 2007.Patients and MethodsNinety consecutively recruited patients with chronic liver disease and 85 age and sex-matched controls without liver disease were tested for Hepatitis C virus antibodies using rapid test ELISA kits (Acon Laboratories, USA) to detect antibodies to hepatitis C virus (anti-HCV). ResultsA total of 90 patients with clinical, biochemical and sonographic evidence of chronic liver disease were studied. Histological confirmation by aspiration/ percutaneous liver biopsy was obtained in 56 patients. The age of the patients ranged between 18 and 75 years with an average of 33.3 years. Anti-HCV antibodies was detected in 14.4% and 2.4% of patients and controls respectively (p<.05)ConclusionThe prevalence of HCV infection is significantly higher in patients with chronic liver disease compared with controls.

INTRODUCTION

Chronic liver disease (CLD) is a disease of the liver resulting from an inflammatory, infiltrative, immunologic, mechanical or metabolic injury to the liver, which has persisted for six or more months without complete resolution.[1] Hepatitis C virus (HCV) has become a leading cause of CLD worldwide.[2] Approximately 3% of the world population, 170 million people, are chronically infected by HCV. The prevalence of chronic HCV ranges from 0.1 to 5% in different countries.[3,4,5] In industrialized countries, HCV accounts for 20% of cases of acute hepatitis, 70% of cases of chronic hepatitis, 40% of cases of end-stage cirrhosis, 60% of cases of hepatocellular carcinoma (HCC) and 30% of cases of liver transplants.[6,7] Other causes of CLD are viral hepatitis (hepatitis B and D, cytomegalovirus, Epstein Barr virus), toxoplasmosis, schistosomiasis, inherited and metabolic disorders, drugs and toxins etc.[8]

Information on the prevalence of HCV infection in CLD is scanty in Nigeria especially from the North-eastern region. We, therefore, determined the prevalence of HCV infection in Nigerians with CLD.

PATIENTS AND METHODS

The study was carried out at the Gastroenterology unit of the department of Medicine of the University of Maiduguri Teaching Hospital (UMTH), Maiduguri, Nigeria from August 2006 to May 2007. Approval for the study was obtained from the Ethics and Research committee of the UMTH. A total of 90 patients with an initial diagnosis of CLD that were referred to the Gastroenterology clinic were recruited. The 85 controls were patients with non-hepatic disease and healthy volunteers during the same period. Controls with past history of blood transfusion, jaundice, traditional surgical procedure, intravenous drug use were excluded. The cases and controls were matched according to age and gender.

Their biodata was obtained. Written informed consent was obtained from each patient. Serum samples of all enrolees were screened for HCV using rapid test ELISA kits (Acon Laboratories, USA) to detect antibodies to hepatitis C virus (anti-HCV).

ANALYSIS

The data obtained were analysed using Epi-info version 6 statistical software. Chi-squared was used to test association between discrete variables. The level of statistical significance was set at p is equal to or less than 0.05.

RESULTS

A total of 90 patients with clinical, biochemical and sonographic evidence of chronic liver disease were studied. Histological confirmation of CLD was done by aspiration/ percutaneous liver biopsy in 56 patients.

AGE

The age of the patients ranged between 18 and 75 years with an average of 33.3 and 36.3years for the cases and controls respectively.

SEX

The study group comprised 59(65.6%) males and 31(34.4%) females. The control group comprised 57(67.1%) males and 28(32.9%) females. There was no statistical difference between the study group and controls in terms of gender (p>0.05).

PREVALENCE OF ANTI-HCV IN PATIENTS WITH CLD AND CONTROL

The prevalence of anti-HCV in the study group was 13/90 (14.4%) while that in the controls was 2/85 (2.4%). The prevalence of anti-HCV was significantly higher in patients with CLD than in the controls (p<0.05).

Figure 1

TABLE 1. AGE GROUPS OF CASES AND CONTROLS

Age groups (Years)	Cases (n) (%)	Controls (n) (%)
<20	1 (1.1)	2 (2.4)
20-29	18(20.0)	19 (22.4)
30-39	20 (22.2)	23 (27.1)
40-49	26 (28.9)	21 (24.7)
50-59	11(12.2)	10 (11.8)
60-69	8 (8.9)	6 (7.1)
>70	6 (6.7)	4 (4.7)
Total	90(100.0)	85 (100.0)

Figure 2

TABLE 2. SEX DISTRIBUTION AND HCV INFECTION IN CHRONIC LIVER DISEASE

Age groups (Years)	Males (n=59)	Females (n=31)	Anti-HCV (n)
>20	1	-	1
20-29	13	5	1
30-39	12	8	3
40-49	17	9	4
50-59	9	2	1
60-69	4	4	3
>70	3	3	-
Total	59	31	13

Figure 3

TABLE 3. ANTI-HCV ANTIBODIES ACCORDING TO CLINICAL/HISTOLOGICAL TYPE OF CHRONIC LIVER DISEASE

Chronic liver disease	Frequency (n)	Anti-HCV positive (n) (%)
Hepatocellular Carcinoma	39	8 (20.5)
Liver cirrhosis	33	4 (12.1)
Chronic hepatitis	18	1 (5.6)
Total	90	13 (14.4)

DISCUSSION

Chronic liver disease comprises of a spectrum of diseases such as chronic hepatitis, liver cirrhosis and HCC. Hepatitis C virus has become a leading cause of CLD worldwide[2]. From our study, the prevalence of HCV infection in patients with CLD was significantly higher than in controls without liver disease (14.4% vs 2.4%, p<0.05). Looking at HCV infection according to the specific type of CLD, HCV infection was present in 5.6% of patients with Chronic hepatitis; 12.1% of patients with Liver cirrhosis; and 20.5% of patients with HCC. There are only a few studies locally with which to compare as most studies looked at the prevalence of HCV infection in selected populations such as blood donors, sickle cell disease, pregnant women etc. A study by Lesi et al[9] in Lagos, South-Western, Nigeria found a HCV infection rate of 12.2% in a cohort of patients with histologically confirmed CLD compared with 1.4% in controls without liver disease. Similarly, Ola et al[10] in Ibadan, South-Western, Nigeria found HCV infection in 20% of their patients with liver cirrhosis, and 14% of their

patients with HCC. In another study, in Ibadan, Olubuyide et al[11] found HCV infection in 18.7% of their patients with HCC. Furthermore, Shehu[12] in his study in Jos, North-Central Nigeria found that 11.8% of their patients with CLD had evidence of HCV infection. Other studies outside Nigeria by Kirk et al[13] in Gambia, West Africa found that 19% of patients with HCC had HCV infection compared with only 3% of their controls. Kew[14] in his study among blacks in Southern Africa found 13.2% of patients with HCC were infected with HCV infection using the presence of HCV RNA in serum whereas anti-HCV antibodies was detected in 19.5% of the same patients with HCC. Another study in Western Sudan by Elfaki[15] found HCV infection rate of 1.5% among patients with liver cirrhosis. From the foregoing, HCV infection in patients with CLD was found to range from 1.5% to 20%. However, studies from outside the African continent, revealed a different picture. Chen[16] in his study among natives in Taiwan, found that 70-80% of his patients with HCC had evidence of HCV infection using the presence of anti-HCV antibodies compared with 0.5-1.0% of healthy controls. Similarly, Tanaka et al[17] found that 78% of Japanese patients with HCC had evidence of HCV infection. Our study looked at HCV infection in CLD and also in the various subtypes of CLD (ie Chronic hepatitis, Liver cirrhosis and HCC) while those of Lesi et al[9], and Shehu[12] looked at HCV infection in CLD whereas those of Ola et al[10] ,Olubuyide et al[11], and the other studies outside Nigeria looked at HCV infection in patients with Liver cirrhosis, and HCC. This may account for the disparity in the infection rate of HCV found in the patients studied. However, comparing the prevalence of HCV infection in patients with HCC from Africa, our study (20.5%); Ola et al[10] (14.0%); Olubuyide[11] (18.7%); Kirk et al[13] (19%); and Kew[14] (13.2%) with patients with HCC from Asia, Chen[16] (70-80%) and Tanaka[17] (70%) there appears to be a dichotomy that cannot be explained by differences in sample sizes, environmental factors, socio-cultural practices, high risk behaviour, and geographical variation. There appears to be a low rate of HCV infection in Africans with HCC compared with Asians. This may also underscore the regional variation in the burden of HCV infection. Perhaps there are yet unidentified factors in play.

Larger, multi-centered studies are advocated to unravel this mystery.

In conclusion, even though the prevalence of HCV infection is significantly higher in patients with chronic liver disease compared with controls, there is still a low rate of HCV infection among Nigerian patients with CLD.

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