

Pattern of liver disease admissions in a Nigerian tertiary hospital

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Abstract

Objective: Liver disease is an important cause of morbidity and mortality globally. Its pattern varies in different geographical locations. This study aimed to determine the pattern and risk factors of liver disease in a Nigerian tertiary hospital.

Study Design: Retrospective

Study Site: University of Nigeria teaching hospital Ituku/Ozalla, Enugu state, Nigeria.

Materials and Methods: Case notes of patients admitted with a diagnosis of liver disease were reviewed and information relating to demographics, risk factors for liver disease and results of relevant investigations extracted.

Results: Liver diseases accounted for 7.9% of medical admissions, with primary liver cancer and liver cirrhosis accounting for 44.3% and 20.4%, respectively. The main risk factors were alcohol consumption (52.1%), hepatitis B virus infection (49.4%), ingestion of herbs and roots (45.5%) and cigarette smoking (30.1%).

Conclusion: Liver cirrhosis and primary liver cancer account for two thirds of liver disease in hospitalized patients in a Nigerian tertiary hospital. The major putative risk factors are alcohol consumption, hepatitis B virus infection, use of herbs and roots and smoking.

Key words: Alcohol, hepatitis B virus, liver disease, Nigeria

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Introduction

The liver is a vital organ that plays a major role in human metabolism. Because of its peculiar anatomy and physiology, it is extremely susceptible to the influence of a wide variety of injurious agents including infections and toxins. Liver damage may also result from immunologic and ischaemic processes that characterize various systemic disorders.

Liver disease has a worldwide distribution.^[1] Very often, affected individuals are asymptomatic for a long period of time, making it very difficult to generate accurate incidence and prevalence data in the general population. The pattern of liver disease varies in different geographical locations. In the United States, cirrhosis is the twelfth leading cause of hospitalization and death.^[2] The prevalence of major causes of chronic liver disease (CLD) remained stable in the

United States between 1988 and 2008, except non-alcoholic fatty liver disease (NAFLD), which increased steadily and is expected to continue to contribute substantially to the burden of CLD because of increasing rates of obesity.^[3]

Viral hepatitis remains a leading cause of morbidity and mortality affecting millions of individuals worldwide. According to the World Health Organization (WHO), 2 billion people have been infected with the hepatitis B virus (HBV), and more than 350 million have chronic HBV infection.^[4] In addition, it has been estimated that up to 3% of the world's population have been infected with hepatitis C virus (HCV) of which 170 million people are chronically infected.^[5]

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Hepatocellular carcinoma (HCC) is a major cause of death by cancer worldwide, accounting for over half a million deaths per year.^[6,7] In men, HCC is the fifth most frequently diagnosed cancer worldwide, and is also the second leading cause of cancer-related death in the world.^[8]

In most of Africa, and indeed Nigeria, there is paucity of reliable statistics regarding liver-related morbidity and mortality. Knowledge of the pattern of liver disease is useful, not only in formulating health policies and prioritizing health interventions and research, but may also aid in planning the structure and activities of gastroenterology units for provision of better and effective patient care.

The main objective of this study was to determine the relative frequencies of liver diseases and their putative aetiological factors in patients admitted to the medical wards of the University of Nigeria Teaching Hospital (UNTH) Ituku/Ozalla, Enugu State of Nigeria.

Materials and Methods

This was a retrospective analysis of patients admitted to the medical wards of the University of Nigeria Teaching Hospital Ituku/Ozalla, Enugu State of Nigeria from January 1, 2005 to December 31, 2010. Case notes of patients with a diagnosis of liver disease during the period under review were retrieved and relevant information extracted from them, including demographic data, results of laboratory tests and final diagnosis. Liver disease was diagnosed with typical clinical features, abdominal ultrasonography, computerized tomography scans, biochemical tests of liver function, serological tests for viral hepatitis, coagulation studies, liver biopsy and viral molecular tests in varying combinations depending on the clinical context.

On the basis of the final diagnosis, the following categories of liver disease were identified: Acute hepatitis, chronic hepatitis, liver cirrhosis, primary liver cancer (PLC), secondary liver cancer, liver abscess and unclassified group. Similarly, based on results of relevant investigations, aetiological factors identified were hepatitis B virus (HBV), hepatitis C virus (HCV), alcohol, smoking and cryptogenic.

The results were expressed as means and proportions for continuous and discrete variables, respectively.

Results

Of the 8,211 patients admitted to the medical wards during the 6-year period, 652 (7.9%) had various forms of liver disease. They consisted of 443 males (67.9%) and 209 females (32.1%). The mean age of the patients with liver disease was 46.4 ± 18.0 years. The commonest liver diseases were PLC (44.3%) and liver cirrhosis (20.4%). Unclassified liver disease accounted for 12.7% of the cases [Table 1].

Putative aetiological and risk factors [Table 2] were evidence of previous hepatitis B virus (HBV) infection (49.4%), evidence of previous hepatitis C virus (HCV) infection (8.4%), alcohol consumption (52.1%), cigarette smoking (30.1%) use of native herbs and roots (45.5%), and family history of liver disease (10.6%).

Hepatitis B surface antigen (HBsAg) in blood was present in 61.4% of patients with PLC and 45.9% of patients with liver cirrhosis. Anti-HCV was present in 10.9% of patients with primary liver cancer and 5.4% of patients with liver cirrhosis.

Discussion

Liver diseases accounted for 7.9% of adult medical admissions during the study period. This proportion is comparable to the results obtained from other centers across Nigeria^[9-11] although those studies dealt with causes of death rather than reasons for hospitalization. The total number of medical admissions during the period seems low for a tertiary hospital with about 600 beds. One major reason for the observation is that the hospital relocated to its permanent site during the study period and that significantly affected patient attendance for some time.

Table 1: Pattern of liver disease in hospitalized patients

Liver disease	Number of patients	Percentage
Primary liver cancer	289	44.3
Liver cirrhosis	133	20.4
Acute hepatitis	41	6.3
Metastatic liver disease	32	4.9
Liver abscess	25	3.8
Obstructive jaundice	22	3.4
Chronic hepatitis	14	2.1
Hepatic encephalopathy	5	0.8
Fulminant hepatic failure	5	0.8
Septicemia	3	0.5
Unclassified	83	12.7
Total	652	100

Table 2: Risk factors for liver disease

Risk factor	Number of patients	Percentage
Alcohol consumption (n=557)	290	52.1
Hepatitis B surface antigen seropositivity (n=257)	127	49.4
Use of herbs and roots (n=365)	166	45.5
Cigarette smoking (n=512)	154	30.1
Family history of liver disease (n=301)	32	10.6
Anti-HCV seropositivity (n=143)	12	8.4

Liver cancer and liver cirrhosis accounted for nearly two thirds of liver-related admissions while acute hepatitis and chronic hepatitis accounted for very few. The reasons for this are not far fetched. In a hospital-based study such as this, it is expected that only the severe forms of a disease, often in its terminal stages are seen in the tertiary centers. Furthermore, evidence for hepatitis B virus infection is found in about 60% of chronic liver disease in Nigeria.^[12-15] The epidemiologic pattern of HBV infection in most high prevalence areas like Nigeria is that infection occurs very early in life. Such infections are usually anicteric with attendant high risk of chronicity. Even the chronic phase of the disease is often asymptomatic. Most patients get to know about their HBV status when they come down with decompensated liver cirrhosis or PLC. There is a large pool of asymptomatic HBV infection in the community that can only be detected by mass screening.

The patients whose liver disease could not be classified are a very important group. The reasons for not classifying them include very late presentation with little or no time to conclude investigations before death and lack of adequate laboratory support to make the correct diagnosis.

This study also highlighted the leading role of HBV in the causation of liver disease in Nigeria. This finding has been reported by previous researchers on this subject.^[12-15]

It is noteworthy that close to a third of patients with liver disease gave a history of cigarette smoking. Though the quantity smoked could not be ascertained because of the retrospective nature of the study, the finding suggests that there may be an association between cigarette smoking and liver disease. Smoking yields toxins, which induce inflammation and increase the severity of hepatic fibrosis and activity scores when associated with HCV^[16] or HBV.^[17] Cigarette smoking increases the risk of developing HCC among CLD patients.^[18] Association of smoking with HCC irrespective of HBV status has been reported.^[19,20] A meta-analysis of epidemiologic studies on cigarette smoking and liver cancer showed that tobacco smoking is associated with liver cancer development^[21]; a finding with an important public health message for areas with high liver cancer incidence. A case-control study carried out in Ibadan, South-West Nigeria about 22 years ago showed that the relative risk of cigarette smoking in HCC was not found to be statistically significant.^[22] Disease transition consequent upon changing lifestyles may account for the disparate results. This calls for well-designed studies to determine the current magnitude of this risk factor in a place like Nigeria where liver disease burden is substantial.

History of alcohol consumption was obtained from over half of the liver disease patients. Though there is no data on the quantity consumed and duration of consumption, other factors that may accelerate alcohol-induced liver

damage include pattern of drinking, gender, coexisting viral hepatitis infection, genetic factors, iron overload and diet.^[23] Since most of these factors are rife in Nigeria, it is very likely that alcohol acts in concert with other factors to produce liver disease even when the level of consumption does not exceed the generally accepted safe limit.^[24] A study from South-West Nigeria showed that liver cancer has a stronger association with alcohol consumption than other chronic liver diseases.^[25]

Hepatitis C virus infection was a risk factor for liver cancer in 10.9% of patients. This is comparable to the results obtained in earlier studies from Lagos, South West Nigeria^[26] and Ilorin, North Central Nigeria.^[27,28] where the seroprevalence was 12.2% and 14.4%, respectively. The contribution of HCV to liver disease in Nigeria is significantly less than that of HBV. This is the reverse of the situation in Western Europe and North America where HCV is a leading cause of chronic liver disease.^[29]

This study also highlighted a possible association between consumption of herbs/roots and liver disease. Complementary and alternative therapies including herbal products have become increasingly popular in the general population and among patients and physicians. Patients perceive these products as natural and therefore safe. However, the literature is replete with reports of hepatotoxicity.^[30-32] In some instances; these herbs are prepared in very unhygienic conditions using alcohol, among other additives, thereby exposing the consumers to multiple hepatotoxins. Regulations regarding herbs are still incomplete, and need to be improved.

Family history of liver disease was obtained from 10.6% of patients with liver disease. Hepatitis B virus is a leading cause of liver disease.^[12-15] Familial clustering of HBV infection has been described in many studies.^[33,34] In endemic regions of the world such as South-East Asia and Africa, vertical transmission from mother to newborn and horizontal transmission among children play an important role in intra-familial transmission of HBV. Hepatitis B virus infection was found in a study to be the likely reason for the familial aggregation of liver cancer in Southern China.^[35]

The limitations of this study include its retrospective design, lack of adequate investigative capacity for liver diseases, diagnostic nihilism on the part of attending physicians and poor record keeping. Management of viral hepatitis in resource- poor countries like Nigeria is currently facing enormous challenges, which border on lack of proper knowledge of the disease by the populace, as well as health care workers, paucity of skilled personnel, lack of laboratory support, especially molecular diagnostic techniques and emerging issues of co-infection with other viruses.^[36] Another limitation is the fact that the hospital record system is yet to be computerized. Some case notes could not be

located and even when the case notes were available; some of the results of investigations were missing.

In conclusion, liver disease is an important cause of morbidity in Nigerians. Cirrhosis and primary liver cancer account for two-thirds of liver disease-related admissions in our hospital. The major putative risk factors are hepatitis B virus infection, alcohol consumption, use of herbs and roots, cigarette smoking, family history of liver disease and hepatitis C virus infection.

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