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EPIDEMIOLOGY OF CHRONIC LIVER DISEASE IN NIGERIA: A REVIEW

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AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Authors ASA, KCO and ECO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author ORI managed the analyses of the study. Author OSO managed the literature searches. All authors read and approved the final manuscript.

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Review Article

ABSTRACT

Chronic liver disease is one of the major health issues which occur throughout the world irrespective of age, sex, region or race. Liver diseases have being ranked the fifth most common cause of death and the second leading cause of mortality amongst all digestive diseases with approximately 2 million deaths per year worldwide. Aimed at determining the relative prevalence of chronic liver diseases in Nigeria, this shows that up to 46% of global diseases and 59% of the mortality is due to chronic liver diseases and almost 35 million people in the world die of chronic diseases with liver disease rate steadily increasing over the years. In Nigeria, (35 million) 2-20% of the population, are infected with hepatitis B and C virus with a prevalence rate of 4.3%-23.3% and 0.5-15% been reported respectively from different part of the country depending on the geographical location. A prevalence rate of 4.3% was reported from Port Harcourt, 5.7% from Ilorin, 11.6% from Maiduguri, and 8.3% from Zaria, 6.78% from Ado-Ekiti among pregnant women, 13.50% from Lagos, 11.50% from Abuja Urban among HIV Patients with a seroprevalence of 23.3% been reported among patients attending all clinics in Kano.

Keywords: Epidemiology; Chronic liver disease (CLD); Nigeria; Hepatitis B and Hepatitis C Prevalence.

ABBREVIATIONS

CLD- :Chronic Liver Disease
LC- :Liver Cirrhosis
MLD- :Metastatic Liver Disease

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DILI- :Drug-induced Liver Injury
HCC- :Hepatocellular Carcinoma
NASH- :Non-Alcoholic Steato-Hepatitis
AKTH- :Aminu Kano Teaching Hospital

1. INTRODUCTION

The liver as a vital organ has a wide range of functions in the body; it is responsible for maintenance of metabolic processes such as plasma protein synthesis, glycogen storage, detoxification of exogenous and endogenous substances such as xenobiotics, drugs and most metabolites. Abdel-Misih SRZ et al. [1]. If these important functions of the liver are impaired, diverse homeostatic mechanisms will be affected with severe consequences. Abdel-Misih SRZ et al. [1] Liver diseases such as cirrhosis, jaundice, tumors, metabolic and degenerative lesions, Vidona WB et al. [2] liver cell necrosis and other hepatic disease have become common not only in Western world but also in developing countries including the Asia-Pacific area without knowing a possible cure [2], and this has been attributed to viral infection, chronic alcohol intake as well as the imbalance between reactive oxygen species production and antioxidant protective mechanism. Vidona WB et al, Kim IH et al. [2-3] Chronic liver disease is one of the major health issues throughout the world irrespective of age, sex, region or race. Vidona WB et al, Kim IH et al. [2-3] and often end in cirrhosis and are characterized by fibrosis and architectural distortion of the liver with the formation of degenerative nodules with varied clinical manifestations and complications [4-5].

According to WHO, [7] up to 46% of global diseases and 59% of the mortality is because of chronic diseases and almost 35 million people in the world die of chronic diseases with liver disease rate steadily increasing over the years. WHO, [7-10] According to National statistics in the UK, liver diseases have being ranked as the fifth most common cause of death. Stanaway JD et al. Murray CJ et al. [10,11] Liver diseases are recognized as the second leading cause of mortality amongst all digestive diseases and accounts for approximately 2 million deaths per year worldwide [12].

The global prevalence of cirrhosis is estimated to be about 4.5% to 9.5% of the general population, [13, 14, 15,16] accounting for more than fifty million people in the world, taking the adult population. Alcohol, Non Alcoholic steato-hepatitis (NASH) and viral hepatitis are currently the most common causative factors [17].

The estimated worldwide mortality from cirrhosis was over 771,000 people, Sarin SK et al. [13] ranking liver cirrhosis as the 14th and 10th as the leading cause of death in the world and in developed countries respectively. Sarin SK et al. [13,16] Deaths from cirrhosis have been estimated to increase and making it the 12th leading cause of death in 2020. Sarin SK et al. [13, 16] Alcohol consumption accounts for 3.8% of the global mortality. Sarin SK et al. [13, 16] Alcohol is the main cause of liver-related death in Europe with highest mortality rates reported from France and Spain (approximately 30 deaths per 100,000 per year).Today, even in Asian countries like India, alcohol is emerging as the commonest cause of chronic liver disease. Garg V et al. [18-19] Global prevalence of Non-Alcoholic Steato-Hepatitis (NASH) ranges from 6% to 35% with a median of 20%. Basharo WM et al. [9] Liver cirrhosis causes between 53,000 – 103,000 deaths per year in Africa,[12] with more than 50 million people chronically infected with hepatitis and mortality risk at about 25%. The carrier rates of the virus in Sub-Sahara Africa range from 9% - 20%. European association [12, 20] According to Maisanda and Manfred 2018,[20] in the European Union approximately 29 million [20] persons suffer from a chronic liver condition with chronic hepatitis B affecting 0.5-0.7% [20] of the population and chronic hepatitis C 0.13-3.26%.[20] There is high prevalence of hepatitis B in the WHO Western Pacific Region and African Region with 6.2% and 6.1% of the adult population infected respectively, WHO [7] In the WHO Eastern Mediterranean Region, the South-East Asia Region, the European Region, and the Region of the Americas, an estimated 3.3%, 2.0%, 1.6% and 0.7% of the general population is infected, respectively, WHO [7] However, in Nigeria due to lack of computerize documentation of patients with chronic liver disease information, there tend to be paucity of information and gaps in the prevalence of chronic liver disease data. Therefore, the main objective of this work is to determine the relative prevalence of chronic liver diseases in Nigeria as it is useful in formulating policies to scale up screening, care and treatment services, prevent transmission, increase health equities within the hepatitis response, and formulate evidence-based policy and data for action to support countries in achieving the global hepatitis elimination targets under the Sustainable Development Agenda 2030.

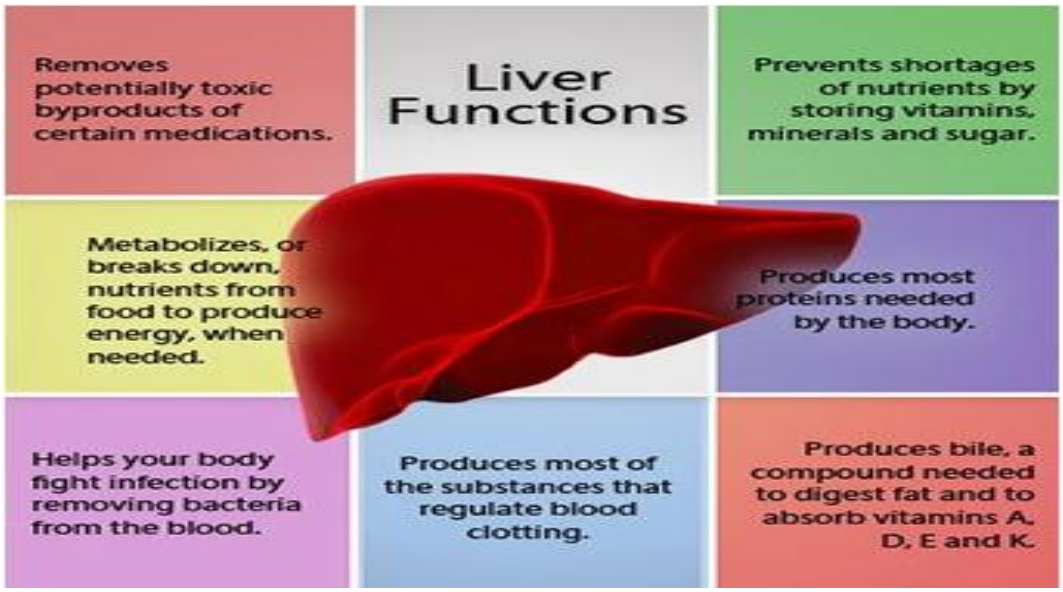

Fig. 1. Picture of the functions of the liver [6]

2. METHODOLOGY

The literatures search were done from scientific literature databases such as PubMed, Medline, Embase and search engines such as Sci-Hub and Research gate using "chronic liver disease, prevalence of hepatitis B, C, in Nigeria as the search term" in different combinations from the period of January 2000 to March 2020. Also, online search of scientific published studies on chronic liver diseases published between 2000 and 2020 which meets the CONSORT WHO [7, 12] statement guidelines and standards on how to report the design, conduct, analysis, and interpretation of such studies were selected. Medical sites such as World Health Organization, West African Infectious Diseases Institute, Nigerian Institute of Medical Research websites were searched for recent updates on chronic liver diseases and prevalence. After careful examinations, 72 publications were included and read in detail and are analyzed to determine prevalence according to sex, age and regions. A total of 17 publications were left out due to year of publications and after reading the abstracts. A total of 15 publications were excluded after reading the full text due to poor presentation and less subjects used. Data on study year, context and setting, population characteristics, sample size, and prevalence of chronic liver disease were analyzed and tabulated in percentage (%) to enhance easy visualization and context clarification.

3. RESULT

Nigeria as the most populous Africa country, the current prevalence of chronic liver disease is high with HBV associated prevalence rate of 35 million (2-20%) of the population, Basharo WM et al. [9,14] and HCV associated prevalence rate at 0.5-15% Basharo WM et al. [9] depending on the geographical location. Infectious liver is a serious health problem worldwide as once chronic infection is established it may persist in the liver for lifetime. According to Berinyuy *et al.*, 2019, Basharo WM et al. [20] about 18 million Nigerians are infected with hepatitis B virus with a prevalence rate of 4.3%-23.3% been reported from different part of the country.

A prevalence rate of 4.3% was reported from Port Harcourt, Garg V et al. [18-21] 5.7% from Ilorin, 11.6% from Maiduguri, [20] and 8.3% from Zaria, [20] 6.78% from Ado-Ekiti among pregnant women, [22] 13.50% from Lagos, [22] 11.50% from Abuja Urban among HIV Patients, [23] with a seroprevalence of 23.3% been reported among patients attending all clinics at the Aminu Kano Teaching Hospital (AKTH) [20,21,24]. This is attributed to low vaccination rate against hepatitis B in Nigeria compare to many sub Saharan African countries. Berinyuy BE et al. [21] Also, there is limited or no national program for prevention of chronic liver disease in Nigeria. It has been reported that hepatitis B is the most common cause of liver disease in Nigeria [21]. According to the latest WHO data published in 2018, [23] liver disease deaths in Nigeria reached 60,044 or 3.10% of the total deaths making Nigeria #2 in the world with age adjusted death rate of 64.44 per 100,000 of population. [7, 23] Also, according to Olusegun et al., 2020,[25] in a 5-year study conducted in the Southwest zone of Nigeria to study the pattern of liver disease admission

of 5,155 patients admitted; liver diseases accounted for 324 (6.3%) of medical admissions within the period, with Hepatocellular Carcinoma (HCC) accounting for 52.8%, Liver Cirrhosis (LC) – 27.2%, Acute Hepatitis – 10.38%, [26] Metastatic Liver Disease – 4.1%, Autoimmune Hepatitis – 1.7%, Drug-induced Liver Injury (DILI) – 0.7%, Liver Abscess – 1%, Abdominal Tuberculosis – 1.4%, and Unclassified Etiology – 1.76%. All attributed to HBsAg, Alcohol intake, herbs intake and self-prescribed medications, with male to female ratio of 75 (70.8%) males and 31 (29.2%) females [26, 27].

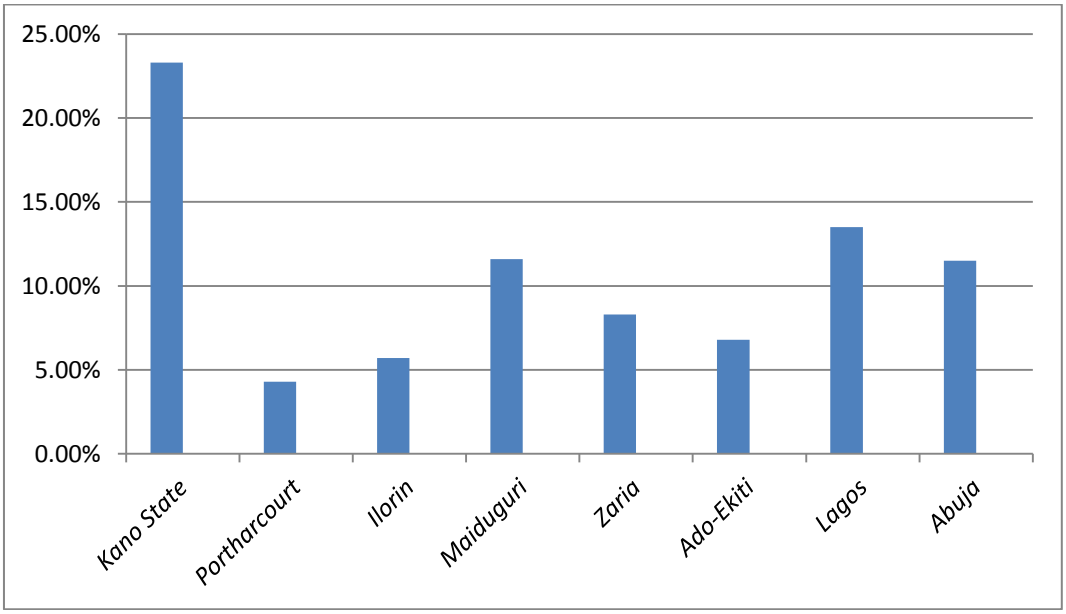

Fig. 2. Prevalence rate of Hepatitis B associated Chronic liver disease in Nigera (2-20%)

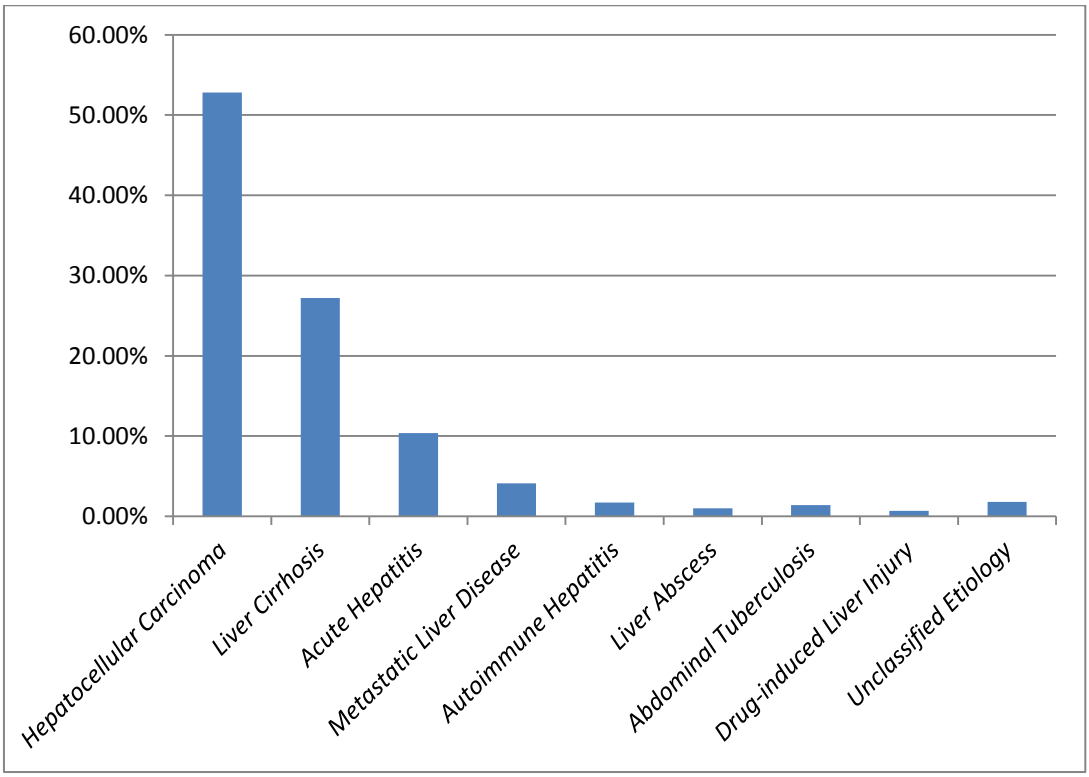

Fig. 3. Graphical presentation of chronic liver disease pattern in Southwest zone of Nigeria (%) [26-27]

Another study from the South–South zone (Calabar) of Nigeria showed high prevalence rate of chronic liver disease with hepatitis B and C associated prevalence at 62.3% and 12.3%, respectively [28]. There is also high incidence of chronic liver disease among children in Nigeria and have been attributed to inflammatory disorders and tumors (33.3% respectively), cirrhosis/ fibrosis (28.6%) and metabolic (storage diseases) diseases (4.8%) as well as neonatal hepatitis followed by giant cell hepatitis and viral hepatitis (33.3%), [22, 28, 29, 30].

4. CONCLUSION

This study shows that the burden of chronic liver disease is a major health concern globally due to its high prevalence both in the developed and low and middle income countries with increasing mortality rate of 59%. In Nigeria, there is high incidence of chronic liver disease with varying degree of prevalence reported in different geopolitical areas across the country. These have been attributed to low vaccination rate, and lack of effective national policy on chronic liver disease treatment and prevention. Though there are implantations of HBV vaccination programme worldwide, however the intervention needs to be assess to actively involve vaccination of pregnant women and newborns, since mother- to-child transmission accounts for almost all cases of CHB in Africa and Asia, alongside national programmes on hepatitis C should be instituted as programme have been developed in some countries but do not exist in most, including regions with the highest prevalence. Early diagnosis would certainly be cost- effective, as it will create room for management and administration of available drugs as this will prevent cirrhosis and carcinomas from setting in. Therefore, these approaches, as well as incorporation of laboratory diagnosis of liver diseases into routine laboratory diagnosis across the country will enhance early diagnosis will greatly reduce the burden of chronic liver diseases not only in Nigeria but globally.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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