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Research Article

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Liver Disease: A Retrospective Hospital Based Study in Addis Ababa-Ethiopia

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Abstract

Background: Liver disease has caused significant morbidity and mortality worldwide. Its epidemiologic and clinical pattern, however, is not well characterized in sub-Saharan countries.

Objective: This study aimed to describe demographic, clinical characteristics, and patterns of liver disease in a community hospital in Addis Ababa, Ethiopia.

Method: A retrospective hospital-based study was conducted on patients with liver disease admitted at Ras Desta Damtew memorial hospital, in Addis Ababa-Ethiopia, from February 2015 to April 2020.

Result: Of the total 212 patients majority, 78.8% were male, 49.1% of patients were in the age range of 31-50 with a median age of 42. The most common initial clinical presentation was ascites (87.7 %), and more than half of patients (56.6%) had a history of alcohol misuse documented on their medical charts. Chronic liver disease (cirrhosis) was found in 177 (83.5%), and Hepatocellular Cancer accounted for 7.5% of the patients. Alcohol misuse caused 45% of chronic Liver Disease, followed by Hepatitis B virus infection.

Conclusion: Chronic liver disease is the most common form of liver disease, and the most affected were middle-aged men. The common cause of chronic liver disease was alcohol followed by

hepatitis B virus infection.

Introduction

Liver diseases, including chronic HBV and HCV infection, Alcoholic liver disease, Non-alcoholic fatty liver disease, Autoimmune liver disease, Drug-induced liver injury (DILI), and Hepatocellular cancer, affects a large population of individuals. It accounts for nearly 2 million deaths per year worldwide, 1 million due to cirrhosis-related complications and 1 million due to viral hepatitis and hepatocellular carcinoma. [1]

The incidence of liver disease is increasing; for instance, the estimated number of European Union citizens to live with chronic liver disease is half a million. [2]According to National statistics in the United Kingdom, liver diseases have been ranked as the fifth most common cause of death [3], and in the United States, it is the second leading cause of mortality amongst all digestive diseases [4]. In sub-Saharan Africa, cirrhosis-related death has doubled between 1980 to 2010 [5]. During 2001, the estimated worldwide mortality from cirrhosis was 771,000 people, ranking 14th and 10th as the leading cause of death in the world and developed countries, respectively [6].

Alcohol contributes to 4% of liver-related mortality and 5% of disability-adjusted life years (DALY) globally, with the highest impact in Europe, where the mortality and DALY are 7% and 12%, respectively [8]. In the United States, the proportion of alcohol-related liver deaths is still considerably large and comparable in scope to that of HCV [9].

Primary liver cancer is the seventh most frequently occurring cancer worldwide; and the second most common cause of cancer mortality [10]. The highest incidence rates are in Asia and Africa [11]. Its causes include hepatitis B, C, and alcohol and accounted for 47, 23, and 20%, respectively. In the remaining 10%, the underlying etiology was not known [7].

More than 1000 drugs have been associated with drug-induced liver injury (DILI), which can present in all forms of acute and chronic liver disease. The incidence of DILI is estimated to be 14 to 19 cases per 100,000 persons, with jaundice accompanying 30% of cases.[12, 13]

In Ethiopia, liver diseases accounted for 11.4% of all medical admissions. Viral hepatitis, post- hepatic and post necrotic and mixed cirrhosis, and hepatocellular carcinoma were the different patterns of the liver disease reported. Alcoholic cirrhosis was rare. [14]

Despite the hypothesized increase in the prevalence of liver disease in sub-Saharan African countries, factors for the occurrence of liver disease, clinical profiles, and outcomes of patients with liver disease are not well described. In Ethiopia, the same is true where the magnitude of liver disease, its morbidity, and mortality is not known. One reason for the lack of such meaningful data could be poor handling of medical records as an electronic medical recording system for clinical and vital events reporting is absent in most sub-Saharan countries. However, world health organization has been publishing data on burden of liver disease of countries worldwide; based on the latest data, liver disease attributed to 2.7 % of total deaths in Ethiopia in 2018.

Objective

This study aims to describe demographic, clinical characteristics, and patterns of liver disease in a community hospital in Addis Ababa, Ethiopia.

Materials and Methods

This retrospective hospital-based study was conducted on patients with liver disease admitted to Ras Desta Damtew memorial hospital (RDDMH) in Addis Ababa-Ethiopia from February 2015 to April 2020. The hospital has a total of 166 beds with six inpatient wards and 19 outpatient departments. It provides medical services for an estimated 4 million people.

Patients below 18 years old, with incomplete medical records and inadequate investigations, were excluded from the study. From a total of 344 patients with liver disease, only 212 left for final analysis after exclusion.

General practitioners were trained on the study

objectives, and purposes including data collecting techniques. We used a pretested data-collecting tool to abstract data from the medical notes of the patients. The data collection process has been closely monitored by the principal investigator (S.E.). Data were collected to assess demographic variables (age, sex, and address), clinical presentations, and patterns of liver disease.

Ethical approval was obtained from the RDDMH ethics committee. Written permission to conduct the study was granted from the hospital. Patient informed consent was not required as only anonymous and operational monitoring data were collected and analyzed.

Data Analysis

Data entered into SPSS Version 23 statistical package software (IBM Corp., Armonk, NY). According to the study objectives, we used frequencies and proportions to describe the subjects in relation to the studied variables; the results are presented with tables.

Result

During the specified study period, a total of 344 patients were documented to have liver disease on the health management information system (HMIS) logbooks and accounted for 3.81% of hospital admission. Of these 344 patients, only 212 had fulfilled the inclusion criteria with complete medical records for analysis. Among the 212 patients majority were male (78.8%), and 49.1% were in the age group of 31-50 with a median age of 42.

The most common first clinical presentation was ascites (87.7 %) (Table 1) and more than half of patients (56.6%) had a history of alcohol misuse documented in the patient's medical charts. We found no documentation of parotid enlargement, spider naevi, and Dupuytren's contracture in all of the cases.

More than 90% of these cases were labeled to have chronic liver disease (Table 1). Alcohol misuse has caused 45% of chronic liver disease, and the second common cause was hepatitis B virus infection (Table 2).

Of the 11 patients who had a drug-induced liver injury (DILI), the culprit agents in 8 of the cases were anti-tuberculosis medications, and in the rest, the cause was the use of herbal medicines.

While hematologic abnormality was documented in 73.1% of cases, hepatic encephalopathy was observed in only 42% of the patients, and 25% of the patients had spontaneous bacterial peritonitis.

Although upper gastrointestinal bleeding was documented in 24.1 % of the patients, only 7.5% of these patients had undergone upper gastrointestinal endoscopy.

While admitted to the hospital, 21.2% of the patients died.

Discussion

This hospital-based retrospective study has characterized the patterns of liver disease, clinical pictures, and hospital mortality rate of patients. Here we compare our findings with available studies.

From this study, we observed that the most commonly affected age group is 31-50 years of age and the majority of cases are males. This finding is similar to studies done in different parts of the country. [15, 16] If these observations are going to be repeated in future studies, the same age group could be a target for preventive measures.

The most common pattern of liver disease found in this study was chronic liver disease (CLD), which accounts for 90.1% of all liver diseases. The global prevalence of cirrhosis from autopsy studies ranges from 4.5% to 9.5% of the general population [17, 18, and 19]. In Nigeria, there is also a high incidence of CLD with varying degrees of prevalence reported in different geopolitical areas across the country. [21] Our finding, however, is higher than a report from a study done two decades ago in 334 hospitalized adult Ethiopian patients with a liver disease where cirrhosis comprises only 62.3% of all cases. [20] One reason for this difference could be a demographic change of the country for the last few

Table 1. Demographic and clinical patterns of liver disease admitted at Ras Desta Damtew Memorial hospital, Addis Ababa-Ethiopia from February 2015 to April 2020

	Number of patients	Percent %	All patients (n=212)
Age			
18-30	45	21.2	
31-50	104	49.1	
51-65	45	21.2	
>65	18	8.5	
Sex			
Male	167	78.8	
Female	45	21.2	
Residence			
Addis Ababa	187	88.2	
Oromia	20	9.4	
Other	5	2.4	
Clinical presentation			
Ascites	186	87.7	
Abdominal pain	172	81.1	
Anorexia	170	80.2	
Jaundice	141	66.5	
Hepatic encephalopathy	89	41.2	
Fever	59	27.8	
Spontaneous bacterial peritonitis	53	25	
Upper Gastrointestinal bleeding	51	24	
Abdominal Mass	15	7.1	
Pruritus	2	0.9	
Hematologic profile			
Normal	57	26.9	
Anemia	53	25	
Thrombocytopenia	39	18.4	
Anemia + Thrombocytopenia	39	18.4	
Leukocytosis	15	7.1	
Pancytopenia	5	2.4	
Thrombocytosis	4	1.9	
Liver function test			
Normal	35	16.5	
Deranged	172	81.1	
Type of Liver disease			
Chronic liver disease	177	83.5	
Hepatocellular carcinoma	16	7.5	
Drug induced liver injury	11	5.2	
Alcoholic hepatitis	5	2.4	
Liver hemangioma	2	0.9	
Hepatitis B carrier	1	0.5	

Table 2. Causes of chronic liver disease in admitted patients at Ras Desta Memorial hospital from Addis Ababa, Ethiopia from February 2015 t0 April 2020

NO	Causes of Chronic Liver Disease	Number of patients	Percent %
1	Alcohol	86	45
2	Hepatitis B	39	20.4
3	Hepatitis C	22	11.5
4	Unclassified	25	13.1
5	Hepatitis C + Alcohol	10	5.2
6	Hepatitis B + Alcohol	8	4.2
7	Hepatitis B + Hepatitis C	1	0.5

decades.

In Ethiopia, the estimated seroprevalence of hepatitis B surface antigen (HBsAg) is 6.0% [22], and HCV-antibody (anti-HCV) is 3.1% [23]. Our finding, however, showed Alcohol misuse as the common cause of CLD. This finding is also contrary to other findings where viral hepatitis infections were strongly associated with chronic liver disease [15, 24] . In eastern Ethiopia, the predominant etiology of CLD was a toxic liver injury from the usage of Khat[16]. Though this difference needs further investigation, an observed increase in the misuse of alcohol in sub-Saharan countries could explain why alcohol is increasingly causing CLD[25]. Alcohol consumption is directly linked to life threatening liver diseases which may ultimately lead to death [29].

Most of our patients come to the hospital with ascites, abdominal pain, jaundice, and anorexia for the first time. Clinical findings such as; Dupuytren's contracture, parotid gland enlargement, and superficial vascular abnormalities were rarely documented. Other studies in Ethiopia also reported the absence of those symptoms[14, 16]. These findings need further evaluation to conclude the clinical significance and utility of these symptoms in CLD patients in our setup.

Spontaneous bacterial peritonitis occurs in up to 10% of adult CLD patients [30]. In our study, however, the rate is higher. It is likely because of the low threshold and simplicity of using ascitic fluid analysis to diagnose spontaneous bacterial peritonitis.

Antibiotics like amoxicillin-clavulanic acid and acetaminophen are common causes of drug-induced liver injury [26]. Among 11 cases of DILI in our sample, eight were attributed for anti-tuberculosis medications, and the rest are a result of herbal medicines.

Dual infection from HBV and HCV is a frequent occurrence in highly endemic areas; and among subjects with a high risk of parenteral infections [27]. We found only one case where there is a dual infection of both HBV and HCV.

In this study, 7.5 % of patients had hepatocellular cancer (HCC). Five out of eight patients had hepatitis B, and 4 of them were positive for Hepatitis C Virus. Another study in Ethiopia also reported hepatitis B and C viruses as a cause of HCC in 48% of the cases [28].

Limitation

We have excluded a significant percentage of patients from the study because of the poor handling of medical records. A missed data could have introduced random error, and patients missing data might systematically differ from those with complete data. Nevertheless, this study has described the clinical nature of patients with liver disease at a community hospital. The findings could help identify the gaps in the care of patients with liver disease in hospitals in Ethiopia.

Conclusion

All forms of liver disease were observed in this hospital-based study; chronic liver disease from different etiologies is the most common form of liver disease. Alcohol has caused the majority of cases, followed by hepatitis B infection. Except for a few peripheral stigmata of chronic liver disease, most were observed. Despite a higher rate of upper gastrointestinal bleeding, there is limited access to upper gastrointestinal endoscopy. This has hindered the proper characterization of those patients with upper gastrointestinal bleeding. The majority of patients affected are productive age groups of the society; this warrants a preventive strategy towards the occurrence of liver diseases.

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Availability of Data and Material

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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