



Research Article

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Spectrum of Liver Disorders and Mortality at a Tertiary Hospital; A 7-Year Retrospective Post mortem Study

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Abstract

Introduction: Lifestyle and a variety of factors and conditions as well as genetics can cause damage to the liver, such as viruses and alcohol use which leads to end stage liver disease. Liver disorders be it inherited or due to lifestyle ranges from benign lesions and scarring (cirrhosis) to liver cancer. A retrospective review of post mortem cases with liver disorders in our center will give a clear picture of the trend and spectrum of such disorders to aid in review of clinical prognosis when dealing with patients. **Methods:** Information on cause of death as well as demographics were retrieved from the Autopsy Day Book of the department of pathology, Komfo Anokye Teaching Hospital where the clinical diagnoses, pathological findings and other relevant data were gathered. The data was entered into Microsoft Excel and analyzed using SPSS version 22. **Results:** Findings from the 445 autopsy cases revealed a total of ten (10) different diagnoses with some major disorders as well as complications. Males accounted for the most cases with 324 (72.81%) of cases with 121 (27.19%) for women. Liver cirrhosis accounted for more than half of all diagnoses made with 257 (57.75%) of cases, followed by liver cancer with 97(21.80%) of cases and both hepatic encephalopathy and hepatorenal disease recording a case each (0.22%). The age range is from 8 months to as high as 102 years with the 30-39 years group recording the highest number of cases, 124 (27.86%) and both the extremes of age groups recording the least with 7 (1.57%) each. Most of the cases recorded clustered around the middle age group with particularly high cases for ages 30 to 49. **Conclusion:** Liver cirrhosis is the commonest liver disorder in our center and young men are at more risk for liver diseases. Most of these liver complications are also more frequently overlooked by clinicians since they are usually asymptomatic.

Keywords: Liver, Hepatic failure, Chronic, Post mortem, Cirrhosis, Diagnoses, Hepatitis, Liver cancer, Disorders, Encephalopathy.

INTRODUCTION

The liver is an essential organ in the body and functions in digestion of food and ridding the body of toxic substances. Among all the organs of the human anatomy, the liver is in fact, a strong but quiet organ. Whether it is battling against an infectious agent like a virus or put under stress by scar tissue, the liver remains resolute and just maintains its functions as best as possible. Liver diseases and disorders come with almost imperceptible symptoms [1]. This explains why liver disease can progress for years before it is seen. It is when the liver is overwhelmed by a combination of factors and can no longer perform its functions that its deterioration becomes very obvious. Liver disease refers to a broad description of conditions, disorders, and infections that affect the liver, leading to liver damage or adversely compromises liver function (liver failure). According to the Center for Disease Control and Prevention (CDC), it is estimated that the number of deaths from end-stage liver disease in the United States currently ranges from 30,000 to 40,000 per annum [2]. Such statistics however, are rare or difficult to access in Africa and for that matter, Ghana, although there is a general knowledge of liver diseases, from viral infections to alcohol induced scarring which usually progresses to tumor/or cancers [3].

Lifestyle and a variety of factors and conditions as well as genetic predisposition can cause damage to the liver, such as viruses and alcohol use which can lead to end stage liver disease and eventually to hepatic failure [4]. Microbes in the gut could have an effect on the various forms of liver disease one may encounter in life [5]. Illicit drug use and self-medication as well as excessive alcohol abuse practiced by many people today have serious implications on the liver since these drugs overwhelm the liver and lead to liver damage. Cirrhosis (excessive scarring) is one of the principal causes of death in the US and other parts of the world. Alcoholic liver disease results from prolonged alcohol abuse. The duration of excessive alcohol consumption and the amount consumed has a major impact on the risk of developing alcoholic

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liver disease and related liver complications [6]. Liver cirrhosis is one of the commonest disorders of the liver and has been found to contribute more to liver failure, a fatal condition that usually results in death. Hepatitis infection is also becoming more common and contributing to liver damage and death, according to the WHO. Many people are of the notion that, if they have never been jaundiced, then they do not have liver disease. This is however far from the truth because many people with liver disease never experience jaundice or any of the other symptoms since some of these symptoms are shared with other physiological or disease conditions whilst in others; it may be the first clue that something is wrong. In these scenarios, jaundice may occur as a result of acute hepatitis or as a sign of deteriorating liver disease

It is therefore imperative to establish the various forms of liver disorders that contribute to liver failure and subsequently, death in our center so as to provide a basis for treatment and the need for a review in prognosis as well as preventive/management measures.

METHOD

The study was carried out at the Komfo Anokye Teaching Hospital (KATH), Kumasi. It is a retrospective study. Information on clinical diagnosis and cause of death were retrieved from the Autopsy day book of the Department of Pathology, KATH, which is a 1000-bed hospital located at the middle belt of Ghana. It is the major tertiary referral hospital that serves the Ashanti, Western, Brong Ahafo and to some extent, the Northern part of the country. Data on demographics, clinical diagnoses and pathological findings from 2008 to 2016 were recorded. The autopsy findings and complications leading to death were classified according to the criteria of the WHO's International

Classification of Diseases version 10 (ICD-10) [10]. The clinical records of the patients were further investigated by accessing their clinical reports from the data book to establish that a liver disorder was the primary clinical diagnosis.

Approval for this study was given by the Committee on Human Research Publication and Ethics, School of Medical Sciences, Kwame Nkrumah University of Science and Technology (KNUST), and Komfo Anokye Teaching Hospital, Kumasi. Information on patients was kept secret throughout the study as well as excluding patients' names.

Data on patients' diagnoses and post mortem findings were compiled into Excel, secured and then analyzed using the statistical analysis software, SPSS (SPSS v22) for frequency distribution and descriptive statistics.

RESULTS

i) A total of 445 cases of liver disorders from post mortem findings were diagnosed and extracted for the study including cases of hepatorenal syndrome.

ii) Age Distribution

The age range is from 8 months to as high as 102 years with the 30-39 years group recording the highest number of cases, 124 (27.86%) and both the extremes of age groups (0-9 and 80&above recording the least with 7 (1.57%) each. Most of the cases recorded clustered around the middle age group with particularly high cases for ages 30 to 49.

Table 1: Age Distribution for the Various Diagnoses

DIAGNOSIS	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80&above	TOTAL
Liver Cirrhosis	3	8	20	79	66	42	29	7	3	257
Cancer	0	6	8	31	22	13	11	3	3	97
Fatty liver	0	0	5	9	8	1	8	2	0	33
Chronic liver disease	0	0	3	1	7	2	1	1	1	16
Hepatic abscess	0	0	0	0	4	0	3	0	0	7
Acute hepatic failure	0	3	2	0	2	0	2	0	0	9
Hepatorenal syndrome	0	0	0	0	1	0	0	0	0	1
Hepatomegaly	4	2	4	1	1	1	5	0	0	18
Hepatic encephalopathy	0	0	0	0	1	0	0	0	0	1
Fulminant hepatitis	0	1	1	3	0	1	0	0	0	6
TOTAL	7	20	43	124	112	60	59	13	7	445

iii) Sex Distribution

Males accounted for the most cases with 324 (72.81%) of cases with 121 (27.19%) for women as shown in Table 2 below.

Table 2: Sex Distribution for the Various Diagnoses

Diagnosis	Male	Female	Total	Percentage
Liver Cirrhosis	204	53	257	57.75%
Fatty liver	19	14	33	7.42%
Cancer	67	30	97	21.80%
Chronic liver disease	12	4	16	3.60%
Hepatic abscess	3	4	7	1.57%
Acute hepatic failure	6	3	9	2.02%

Hepatomegaly	11	7	18	4.04%
Hepatic encephalopathy	1	0	1	0.22%
Hepatorenal syndrome	1	0	1	0.22%
Fulminant hepatitis	0	6	6	1.35%
Total	324	121	445	100.00%

iv) Pathological Findings

A total of ten (10) different diagnoses were established with some major disorders as well as complications. Liver cirrhosis accounted for more than half of all diagnoses made with 257 (57.75%) of cases, followed by liver cancer with 97(21.80%) of cases and both hepatic encephalopathy and hepatorenal syndrome recording a case each (0.22%). The variety of diagnoses made are shown in the diagram below as well as the tables above

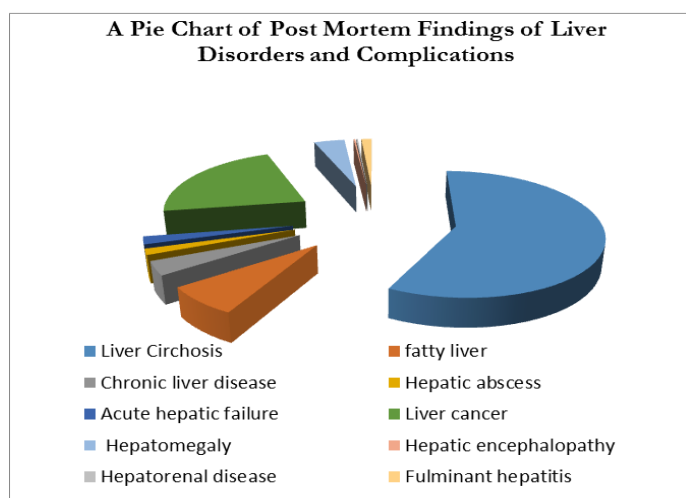


Figure 1: A pie chart showing post mortem findings of liver disorders and complications

DISCUSSION

A total of 445 cases of liver disorders and complications from post mortem findings were extracted for the study including cases of hepatorenal syndrome. Males accounted for the most cases with a whopping 324 (72.81%) of cases with 121 (27.19%) for women. The age ranges from as low as 8 months to 102 years with the 30-39 years group recording the highest number of cases, 124 (27.86%) and both the extremes of age groups (0-9 and 80 & above) recording the least with 7 (1.57%) each. Most of the cases recorded clustered around the middle age group with particularly high cases for ages 30 to 49.

A variety of different diagnoses of liver disorders as well as complications were established. Liver cirrhosis accounted for more than half of all diagnoses made with 257 (57.75%) of cases. This is an expected result according to Benjet *et al.*, [7] as men are engaged in activities and lifestyle practices that pose danger to the liver and lead to scarring of the liver. Men in particular take in more alcohol than women and alcohol abuse together with other drugs leads to scarring (cirrhosis) of the liver [8, 9] which can progress to hepatic failure, a fatal condition, where the liver stops functioning altogether as a result of accumulated damage (chronic) or rapid, severe damage (acute). Cirrhosis may also develop in children as a result of α 1- antitrypsin deficiency or Wilson's disease whereas in adults, it may also develop secondary to haemochromatosis which is characterized by the deposition of iron in the hepatocytes and other tissues. Liver cancer also accounted for 97(21.80%) of cases and both hepatic encephalopathy and hepatorenal disease recording a case each (0.22%). The variety of diagnoses made establishes the fact that liver

disorders and diseases is on the increase due to lifestyle changes especially in young people as most of the disorders fall in that age range. Cancer of the liver is either a primary cancer of the liver cells or metastatic cancer from another organ (primary site). Metastatic cancer has similar name and type of cancer cells to the original cancer. The commonest metastasis to the liver comes from cancers that affect the breast, colon, kidney, ovary, pancreas, stomach, lungs and the uterus among others [10]. It is worth noting that malignancies of the liver are most commonly metastases from tumors of other primary origin in the body. Infections can also lead to liver damage if left untreated. Viral hepatitis may be associated with viral infections such as Epstein Barr virus, rubella and cytomegalovirus. Clinically, viral hepatitis is usually associated with infection by the hepatitis viruses. The viruses that cause liver damage can be spread hematogenously or through semen, contaminated food or water, or through close contact with an infected person. The most common types of liver infections are hepatitis viruses, including hepatitis A, B and C. Alcoholic hepatitis may also result from extensive alcohol abuse that cause inflammation of the liver leading to damage [11]. It is usually characterized by elevated MCV, hypertriglyceridemia, hyperuricemia, elevated GGT as well as moderate increases in aminotransferases and bilirubin. Acute liver failure results when the damage to the liver is rapid and severe and leads to the emergence of severe complications quickly after the initial manifestation of liver disease and shows that the liver has sustained serious damage as seen with hepatic encephalopathy. According to Sarin *et al.* [12], the capacity of the liver to withstand toxic insults is impaired if there is an underlying liver damage due to alcohol, drugs or any other chronic disease. Since the liver is central to one's survival by the many important roles it plays in our bodies, any disorder or complication should be treated as an emergency and immediate action taken to intervene and treat the complication to prevent the fatal condition of liver failure.

CONCLUSION

Liver cirrhosis is the commonest liver disorder in our center and young men are at more risk for liver diseases. Most of these liver complications and disorders have no clear symptoms until it manifests as end stage liver failure. This requires that routine liver tests be done by both clinicians handling patients and individuals.

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