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ORIGINAL ARTICLE

Proportion of Nonalcoholic Steatohepatitis in Patients with Chronic Liver Disease

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ABSTRACT

Aim: To determine the frequency of nonalcoholic steatohepatitis in patients with liver cirrhosis.

Study Design: Retrospective/observational

Place and Duration of Study: Department of Medicine, Chandka Medical College Hospital, Larkana from 1st July 2020 to 31st March 2021.

Methodology: One hundred and twenty patients of both genders presented with liver cirrhosis were enrolled in this study. Patient's detailed demographics including age, sex, body mass index, smoking status, alcohol consumption and family history of liver disease were recorded after taking written informed consent. Laboratory examination was done to examine the proportion of hepatitis B virus, hepatitis C virus and nonalcoholic steatohepatitis.

Results: There were 68 (56.67%) males and 52 (43.33%) were females with mean age 45.74±10.54 years. Among all the patients hepatitis C virus was found in 62 (51.67%) patients, 15 (12.5%) had hepatitis B virus, 17 (14.17%) had hepatitis B virus + hepatitis C virus and nonalcoholic steatohepatitis was found in 26 (21.67%) patients.

Conclusion: Nonalcoholic steatohepatitis was the major cause of liver cirrhosis in Pakistani population. The proportion of NASH in liver cirrhosis patients was 21.67%.

Keywords: Nonalcoholic steatohepatitis (NASH), Liver Cirrhosis, Hepatitis B virus, Hepatitis C virus

INTRODUCTION

The progressive type of nonalcoholic fatty liver disease (NAFLD), mostly non-alcoholic steatohepatitis (NASH), quickly becomes an important indication of liver transplantation in the United States.[1] There are a lot of reasons why NAFLD and NASH are growing rapidly. The first is the burden of the obesity epidemic, type 2 diabetes mellitus (DM) and other components of metabolic syndrome.[2] In fact, the global prevalence of NAFLD is estimated to be around 25%[3] and as high as 60% to 70% in DM patients.[4,5] Besides its high incidence, NAFLD and NASH have been associated to increased mortality and the risk for death in NAFLD increases as the number of components of metabolic syndrome increases.[6]

Nonalcoholic steatohepatitis is defined as >5% liver steatosis with fibrosis inflammation.[7] Nonalcoholic steatohepatitis is a major cause for liver cirrhosis due to significant lifestyle changes and geographical inequalities worldwide.[8] Cirrhosis can occur in about 20–50 percent of NASH patients within 10 years.[9] In the last three decades, the frequency of NASH-caused liver cirrhosis among countries varied substantially and NASH has affected a total of 90 million people. All of these results showed the need to have healthy lifestyles and appropriate action in the coming decades.[10]

Furthermore, NAFLD and NASH are the increased prevalence of hepatocellular carcinoma (HCC)[11] as well as the increased risk of morbidity and mortality. In one Korean investigation, NAFLD with or without fibrosis was strongly associated with the incidence of HCC after demographic Accvariables had been checked.[12] Another study in UK has shown that NAFLD is the primary cause of HCC.[13] In addition, a French study found that NAFLD prevalence rose in HCC patients from 2.6% (1995) to 19.5%.[14] The present study was conducted aimed to determine the incidence of NASH in patients with liver cirrhosis.

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MATERIALS AND METHODS

This retrospective study was conducted at Department of Medicine, Chandka Medical College Hospital, Larkana from 1st July 2020 to 31st March 2021. A total of 120 patients of either gender with ages 20 to 70 years presented with liver cirrhosis were enrolled in this study. Patient's detailed demographics including age, sex, body mass index (BMI), smoking status, alcohol consumption and family history of liver disease were recorded after taking written informed consent. Patients with liver transplant, pregnant women and those with no consent were excluded. All patients underwent Real time PCR for diagnosing HBV and HCV. Small tissue from liver was obtain from each patient and sent to laboratory for examination of nonalcoholic steatohepatitis. Complete blood picture was obtained and recorded. All the data was analyzed by SPSS 24.

RESULTS

Sixty eight (56.67%) were males and 52 (43.33%) were females with mean age was 45.74±10.54 years. Mean BMI of all the patients was 26.25±2.48 kg/m^2. Fifty (41.67%)

patients were smokers. Alcohol abuse was found in 18 (15%) patients. Sixteen (13.33%) patients had family history of chronic liver disease (Table 1). Sixty four (53.4%) patients had diabetes mellitus, 411 (34.1%) patients had hypertension and 15 (12.5%) patients had cardiovascular disease (Table 2). Hepatitis C virus was found in 62 (51.7%) patients, 15 (12.5%) had hepatitis B virus, 17 (14.2%) had HBV+HCV and NASH was found in 26 (21.6%) patients (Table 3).

Table 1: Baseline details of all the patients (n=120)

Variable	No.	%
Mean age (years)	45.74±10.54	
Mean BMI (kg/m^2)	26.25±2.48	
Gender		
Male	68	56.67
Female	52	43.33
Smokers		
Yes	50	41.67
No	70	58.33
Alcohol abuse		
Yes	18	15.0
No	102	85.0
Family history of CLD		
Yes	16	13.33
No	104	86.67

Table 2: Co-morbidities among all the patients (n=120)

Co-morbidity	No.	%
Diabetes mellitus	64	53.4
Hypertension	41	34.1
CVD	15	12.5

Table 3: Frequency of causes of liver cirrhosis (n=120)

Cause of liver cirrhosis	No.	%
HCV	62	51.7
HBV	15	12.5
HBV+HCV	17	14.2
NASH	26	21.6

DISCUSSION

The global prevalence of NAFLD is estimated at 25.2%, and the general population estimation of the prevalence of NASH is 1.5-6.45%.[15] Patients with NASH are more likely to move to advanced liver disease, die of hepatic illness and are at risk of cardiovascular disease in all NAFLD patients irrespective of underlying liver pathology.[15,16] Nonalcoholic fatty liver disease and NASH are associated with significant health care use in addition to clinical burden.[17] In the present study, 68 (56.67%) were males and 52(43.33%) were females with mean age was 45.74±10.54 years. Mean BMI of all the patients was 26.25±2.48 kg/m^2. Many of previous studies demonstrated that male patients were high in numbers whom had chronic liver disease and the average age of patients was 40 years.[18,19]

In the current study, 50(41.67%) patients were smokers. Alcohol abuse was found in 18 (15%) patients. Sixteen (13.33%) patients had family history of chronic liver disease. A study conducted by Khan et al[20] reported that among 115 patients of chronic liver disease 4.7% patients were alcohol abusers. Some other studies reported that smoking and obesity were the leading factors of chronic liver disease.

In our study, 64 (53.4%) patients had diabetes mellitus, 41 (34.1%) patients had hypertension and 15 (12.5%) patients had cardiovascular disease. In Pakistan, chronic liver disease risks differ from those in the rest of the globe and include viral hepatitis (hepatitis B and C), nonalcoholic steatohepatitis, diabetes mellitus and obesity, herbal and dietary supplements, and auto-immune hepatitis, Wilson disease, haemochromatosis and alcoholism.[21]

This study showed that HCV was the major cause of liver cirrhosis found in 51.67% patients followed by NASH in 21.67% patients and HBV+HCV were found in 14.17% patients. Majority of studies reported that HCV was the leading cause of chronic liver diseases.[22,23] A study by Alexander et al[24] reported that out of 18,782281 adult chronic liver disease patients, 136703 patients had NASH and the percentage was 0.73%.

In Pakistan, hepatitis as the main cause of cirrhosis with Hepatitis C Virus (HCV) accounted for 41%-52%, followed by hepatitis B Virus (HBV) for 30% of cases.[25] The prevalence has progressively increased in recent years with the improvement of diagnostic technology and improved understanding of NASH.[26] In addition to improving medical treatment, population expansion could also be one of the reasons why NASH-related liver cirrhosis is increasing. In addition, immigration could possibly lead to an increasing trend. The nutrition and living habits of immigrants could be different from those of local locals, which could be associated with the incidence. Previous investigations have shown that NASH and NASH-related cirrhosis have risen with age.[27,28] This study showed that the incidence was also higher in middle-aged people, in particular women. This may be associated with the increased incidence of metabolism and heavy cirrhosis and liver cancer in these patients.[29]

CONCLUSION

Chronic liver disease is one of the most common diseases found all over the world and associated with high rate of mortality and morbidity. Many of risk factors contributed to this life threatening disorder in which HCV was the major risk factor. Nonalcoholic steatohepatitis was also the common cause of liver cirrhosis in Pakistani population. This study concluded that the proportion of NASH in liver cirrhosis patients was 21.67%.

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