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Frequency of severe liver cirrhosis and hepatocellular carcinoma caused by hepatitis B and C.

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ABSTRACT… Objective: Liver cirrhosis is one of the most widespread diseases in underdeveloped countries. **Study Design:** Cross Sectional Study. **Setting:** Nishtar Hospital Multan. **Period:** January 2020 to March 2020. **Material & Methods:** Three hundred and ninety seven of admitted patients were included and patients falling in class C of child Turcotte Pugh classification of liver cirrhosis were determined. Prevalence of hepatocellular carcinoma and cause of cirrhosis in these patients was also determined. Statistical Package for Social Sciences (SPSS 23.0) was used for analysis. **Results:** Out of 397 patients included in the study 25.4 % or 101 had class C cirrhosis, out of these 5.94% or 6 also had hepatocellular carcinoma. With respect to age of initial diagnosis of the illness 25.7% or 26 were in age interval 31-40yrs, 24.8% or 25 in interval 41-50yrs, 20.8% or 21 in interval 51-60 yrs. Hepatitis C (67.3%) comes out to be the commonest of all causes of chronic liver disease, followed by other causes (18.8%), then both hepatitis C and B (7.9%) and hepatitis B alone (5.9%). **Conclusion:** Our study concluded that approximately 1 in every 4 patients admitted in medical wards of a tertiary care hospital have severe liver cirrhosis caused most commonly by hepatitis C with most common age of presentation being 30-60 years. Approximately 6 out of 100 of these patients also had hepatocellular carcinoma.

Key words: Age, Chronic Liver Disease, Hepatitis B and C, Hepatocellular Carcinoma, Tertiary Care Hospital.

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INTRODUCTION

Liver cirrhosis is irreversible liver damage, affecting the functions of liver, caused by the scarring of liver parenchyma over a long period of time. Most common causes of cirrhosis are viral infections of liver, alcohol and nonalcoholic fatty liver disease.[1] As the damage to the liver increases, there is progressive loss of liver functions which is initially compensated by normal parenchyma but later as much of liver is damaged it leads to decompensated liver failure. Patients having compensated cirrhosis, sign and symptoms of liver disease, such as those of hepatic encephalopathy and portal hypertension, hyperbilirubinemia, are not readily apparent while those with decompensated cirrhosis clearly show these signs and symptoms.[2]

Liver diseases are a major concern of today's world. According to a research there are about 2 million people dying each year due to liver diseases, of these deaths about 1 million deaths are claimed by some complication of liver cirrhosis while the rest 1 million deaths are caused by viral hepatitis and hepatocellular carcinoma. Another way to put it is that in the list of the commonest causes of mortality, the cirrhosis is at number 11 and hepatocellular carcinoma is at number 16.[3] It's not only the mortalities that are a cause of concerns, but also the grave impact of Chronic Liver disease on a country's economy[4] and these factors are ever so important in a country like Pakistan as it is one of the countries with the highest prevalence of decompensated liver diseases. It a country where cirrhosis causes recurrent visits to hospitals and is the leading cause of deaths.[5]

Chronic viral hepatitis, excessive alcohol consumption and non-alcoholic fatty liver disease are the commonest causes of chronic liver disease.[6] In Pakistan the most principal etiology of chronic liver disease is viral infections of Liver with 42.68% cases caused by hepatitis C infection and 25.60% caused by hepatitis B infection.[7] The transmission of hepatitis C and B viral infections occurs mostly through medical and surgical interventions such as syringe reuses, infective surgeries, blood transfusions and inadequate sterilizations. So, simple means such as avoiding unregulated blood transfusions, unnecessary injections and proper waste disposals can easily prevent hepatitis infection and thus lower the load of chronic liver disease in the country.[8]

The aim of this is study is to understand that how many of the admitted patients are suffering from severe liver cirrhosis in a tertiary care hospital, how many of these have further developed hepatocellular carcinoma, what is the most common cause of this illness? and in what age group should it be looked for, so that the public can be made aware of the prevalence and severity of this illness and large scale interventions can be motivated.

MATERIAL & METHODS

It is a single center descriptive observational (cross-sectional) study conducted at the four medical units of Nishtar Hospital, Multan. Out of the 551 patients admitted to the medical units of Nishtar hospital Multan, from 26th January 2019 to 21th March 2019, 397 were included in the study with a 2.6 confidence interval at 95% confidence level (as calculated from WHO sample size calculator). After taking consent, histories were taken and examinations were performed for presence and severities of ascites and hepatic encephalopathy. Labs were sent for PT, INR Albumin and bilirubin and by using child Turcotte Pugh classification these patients were divided into those with class C cirrhosis and those without it.

So, the inclusion criterion was the patients admitted in medical units of Nishtar Hospital Multan, having class C liver cirrhosis. and the exclusion criterion was all the rest of the patients in the medical units of the given hospital who were not suffering from class C liver cirrhosis, patients not admitted in the given time period, the patients from other units of the given hospital, patients from any other institute and patients from general population were excluded.

NICE guidelines[9] were followed and serum analysis was then done on the patients with class C cirrhosis to assess the cause of the chronic liver disease and on the basis of etiology patients were divided into four categories:

1. Those suffering from hepatitis C but not suffering from hepatitis B, identified by positive results of anti-HCV antibodies and HCV ELISA (quantitative) tests and negative results of HbsAg, anti-Hbc antibodies and HBV ELISA (quantitative).
2. Those suffering from hepatitis B but not suffering from Hepatitis C, identified by positive results of HbsAg, anti-Hbc antibodies and HBV ELISA (quantitative) but negative results of anti-HBV antibodies and HBV ELISA (quantitative).
3. Those who have positive results of aforementioned tests of both Hepatitis B and C.
4. Those who have negative results of all aforementioned tests.

   Alpha fetoprotein levels were then used to determine whether these patients were suffering from hepatocellular carcinoma or not and diagnosis was further confirmed on liver biopsy which is the most accurate test according to NICE guidelines.[9] All the data collected was then put in SPSS (23.0) to get results.

After that age at which the patient was first diagnosed with some liver illness was also determined through given histories, previous labs and physician visits.

RESULTS

397 patients participated in the study, 101 (25.4%) patients were diagnosed with class C liver cirrhosis (Shown in Figure-1), with 65 (64.4%) males and 36 (35.6%) females.

These 101 cases majority were suffering from hepatitis C only (67.3%), followed by cases suffering from other diseases (18.8%) and then those suffering from both B and C (7.9%) and those suffering from hepatitis B only (5.9%). The distribution is depicted in Figure-2.

101 patients with class C liver cirrhosis Chronic Liver disease, 6 (5.94%) patients were also suffering from hepatocellular carcinoma.

On the basis of age of initial diagnosis, most of the patients were diagnosed between 30-60 years of their ages, 26 (25.7%) patients were diagnosed in age interval 31-40, 25 (24.8) in age interval 41-50 and 21 (20.8%) in age interval 51-60. Distribution is depicted in Table-I.

Age Interval (years)	Frequency (%)
11-20	02 (2.0%)
21-30	10 (9.9%)
31-40	26 (25.7%)
41-50	25 (24.8%)
51-60	21 (20.8%)
61-70	11 (10.9%)
71-80	06 (5.9%)

Table-I. Age of initial diagnosis.

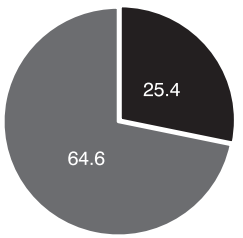

Figure-1. Frequency of patients with class C cirrhosis n=101

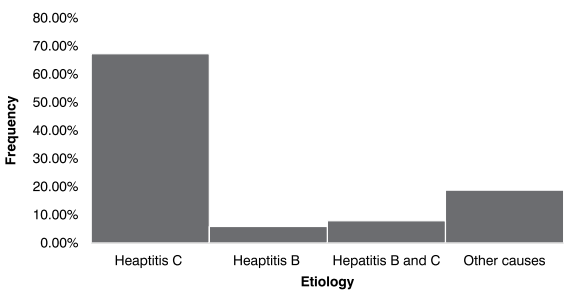

FIgure-2. Distribution on the basis of etiology n= 101

DISCUSSION

Our study shows quite a prevalence of liver cirrhosis among admitted patients. Out of 397 participants included in the study 101 or 25.4% were diagnosed with decompensated liver cirrhosis, of these 65 (64.4%) were males and 36 (35.6%) were females. This study showed more prevalence of decompensated cirrhosis as compared to a similar study conducted by students of Holy family hospital in Rawalpindi, which showed a prevalence of decompensated chronic liver disease in ward patients to be 18.26%[10] and a study in Uganda in Africa where the Prevalence of decompensated cirrhosis patients in the gastroenterology unit of Mulago Hospital was 17.6%.[11] The admission rates for liver cirrhosis in these Eastern regions were significantly high. In the Western regions the percentages of liver cirrhosis patients admitted in the wards were significantly low as shown by a study in Australia which showed that cirrhosis admissions in 2006 were 0.11% of all admissions i.e., 11 per 10,000.[12] While another study in a tertiary care hospital in England showed even lower rate of liver cirrhosis hospital admission with a mere 0.04% i.e., 42.4 per 100,000 admissions in 2002/2003.[13] Such high rates of hospital admissions due to liver cirrhosis in the East as compared to the West can be explained by the higher rate of occurrence of hepatitis C in Pakistan as Pakistan ranks second after Egypt having highest hepatitis rate which in turn can be explained by unhygienic practices especially in the medical care but also in the communities.[14] So, in eastern regions of the world there is a high prevalence of the liver cirrhosis as compared to the western regions and therefore cirrhosis related death is especially important in eastern regions and people should be made aware of the problem and proper measures should be taken to control the problem.

Coming on to the cause of liver cirrhosis, our study shows that hepatitis C is the most common etiological factor in producing decompensated cirrhosis by occupying 67.3% of cases with only hepatitis C infection and further 7.9% with both Hepatitis B and C infections while just 5.9% of cases were suffering from hepatitis B while 18.8% were suffering from other diseases and mere 5.9%

from hepatitis B. Another study in Ayub Medical College in Abbottabad showed similar results with Hepatitis C being the major culprit in causing chronic liver disease occupying 40.8% of cases.[15] While hepatitis C is commonest cause of hepatic cirrhosis in Pakistan, another significant cause of cirrhosis is excessive alcohol consumption in countries where alcohol consumption is legal and common among the population such as in India where a research showed that the cause of cirrhosis in 35.53% of the participants was alcohol consumption while hepatitis B and C are the causes of cirrhosis in 11.53% and 5.26% of the participants, respectively.[16] So, in a country like Pakistan, in order to control the disease proper measures should be taken to minimize spread of hepatitis C.

With respect to age of initial presentation, the majority of patients (24.8%) in our study presented with liver ailment first between 41-50 years which is similar to a research conducted at Jinnah Postgraduate Medical Centre in Karachi where the most common age of presentation of Chronic liver disease patients was 36-45 years.[17] Another study in India in North East India shows similar result with most common age group of presentation being 35-54 years.[18] So, maximum efforts to control the disease should be directed towards people in age group 41-50 years. Regular screening programs in this age group can be established for early diagnosis.

In our study, 5.94% cases of class C cirrhosis were also suffering from hepatocellular carcinoma which is more as compared to a study in North East India where the prevalence of Hepatocellular carcinoma in the liver cirrhosis is 1.3%[18] but less as compared to a study in Army Medical College in Rawalpindi where prevalence of liver cancer in the chronic liver disease was 7.2%.[19] These statistics show that a significant number of patients with liver cirrhosis can develop life threatening illness and add to the severity of the problem.

CONCLUSION

Our study concluded that approximately 1 in every 4 patients admitted in medical wards of a tertiary care hospital have severe liver cirrhosis caused most commonly by hepatitis C with most common age of presentation being 30-60 years. Approximately 6 out of 100 of these patients also had hepatocellular carcinoma.

RECOMMENDATIONS

Prompt measures should be taken to increase awareness of the disease, control the spread of hepatitis and to establish ways for early diagnosis to manage the disease effectively and prevent progression to hepatocellular carcinoma.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	M. Umer Bin Arshad	Data collection, Methodology, Introduction.	
2	Naveed Asghar	Data analysis, Result, Discussion.	
3	Talha Shamshad	Conclusion, References.	