FREQUENCY OF DIFFERENT COMPLICATIONS AND OUTCOME IN PATIENTS WITH CIRRHOSIS LIVER

Fahim Ullah[1], Said Amin[2], Ayesha Khan Afridi[1], Muhammad Ashfaq[1], Fawad Rahim[2]

ABSTRACT

Objective: The objective of this study was to find out the frequency of different complications of cirrhosis liver in already diagnosed patients with cirrhosis liver and those diagnosed during their admission in hospital and find their effect on the outcome.

Methodology: A prospective study of ninety five patients already diagnosed as cirrhosis liver or diagnosed as such during current admission was performed in the Medical B Unit of the Department of Medicine Khyber Teaching Hospital, Peshawar from January to December, 2009. Both male and female patients above 15 years of age were included in this study.

Results: Of the ninety five patients meeting the inclusion criteria 49 were male patients and 46 were female patients. The commonest affected age group was 40-60 years.

The commonest complication in these patients was ascites present in 67.3% (64 patients) cases followed by hepatic encephalopathy, spontaneous bacterial peritonitis and variceal hemorrhage present in 65.26% (62 patients), 18.9 %(18 patients) and 13.7%(13 patients) cases respectively.

5.36% patients were in Child Trucut Pugh (CTP) class A, 32.6% were in class B and 62.1% were in class C. Among them 24.21% had grade 0 hepatic encephalopathy, 12.6% had grade I, 22.1% had grade II, 29.50% had grade III and 11.57% had grade IV hepatic encephalopathy on clinical examination. 12.6% died in hospital, of them 83.33% were in CTP class C and 16.66 % were in class B while none of the patients in class A died.

Conclusion: The most common complication in patients admitted with cirrhosis liver was ascites followed by hepatic encephalopathy.

Keywords: cirrhosis liver, hepatic encephalopathy, ascites, spontaneous bacterial peritonitis

INTRODUCTION

Cirrhosis liver is defined as a chronic disorder of liver characterized by degeneration of liver cells followed by fibrosis and disordered regenerating nodules leading to portal hypertension and its complications. In 2001 cirrhosis liver was the 10th leading cause of death in men and 12th commonest cause in women in the United States (US) causing about 27,000 deaths[1]. Cirrhosis liver is more prevalent in Pakistan and other developing countries[2-4]. It has become an epidemic in Pakistan mostly due to very high prevalence of hepatitis B virus (HBV) and hepatitis C virus (HCV) infections in our community[5].

Cirrhosis liver is end stage disease and can lead to wide range of complications. Ascites is the most common complication of cirrhosis liver[6]. It occurs in 50% patients over 10 years of follow up while 50% patient die within 2 years of developing of ascites and is associated with a poor quality of life, increased risks of infections, renal failure and a poor long-term outcome in patients with liver cirrhosis[7-11].

Hepatic encephalopathy (HE) is a well recognized complication of cirrhosis liver. Subtle signs of HE are observed in nearly 70% of patients while debilitating symptoms occur in 24-53% causing about 30% death in this group of papulation[12].HE in liver cirrhosis indicates poor prognosis [13, 14].

Ascites predispose cirrhosis liver patients to spontaneous bacterial peritonitis (SBP) which is the most common infective complication of cirrhosis liver[15,16]. It has been reported to occur in 25% of the cases in different international studies[17]. In Pakistan it has been reported to occur in 32-33% of cirrhosis liver patients [17-19]. Mortality associated with SPB has decreased from 80% in the past to 30% due to better management with effective antibiotics[20].

Variceal hemorrhage accounts for 10-30% of all cases of bleeding from the upper gastrointestinal (GI) tract [21]. It occurs in 25-35% of patients with cirrhosis liver and accounts for 80-90% of bleeding episodes in such patients.[22-24]. It is associated with increased

[1] Department of Medicine Khyber Teaching Hospital, Peshawar, Pakistan.
[2] Department of Medicine Hayatabd Medical Complex, Peshawar, Pakistan.

Address for correspondence:
Dr. Fahim Ullah
MBBS, MRCPII, FCPS (Med)
E.mail:drfaheemullah@gmail.com

morbidity and mortality compare to other causes of GI bleeding and higher hospital costs[25-27]. Up to 30% patients die from the first episode and as many as 70% of survivors suffer from recurrent bleeding[22, 28]. Moreover, the one-year survival rate after variceal hemorrhage is 32 to 80%[28, 29].

Hepatocellular carcinoma (HCC) is diagnosed in more than half a million patients worldwide including approximately 20,000 new cases in the US[30,31]. Liver cancer is the fifth most common cancer in men and seventh in women. 85% cases occur in developing countries with the highest incidence rates reported in regions where HBV is endemic such as Southeast Asia and sub-Saharan Africa while 80% of HCC occur in cirrhosis liver patients[32,33]. The incidence of HCC in the US has increased three times in last 20 years while the 5-year survival rate is still below 12%[31].

Renal failure is a common complication of patients with advanced cirrhosis liver[34,35]. Hepatorenal Syndrome (HRS) occurs in 10% cirrhosis liver patients having ascites admitted to hospital and the probability of developing HRS in patients with cirrhosis liver with ascites is 18% at 1 year and increases to 40% at 5 years[36]. Approximately 30% of patients with SBP develop HRS[37].

METHOD AND MATERIAL:

This prospective study was conducted in Medical B Unit of Khyber Teaching Hospital (KTH) Peshawar over a period of one year from January to December 2009. It included 95 patients who were admitted either with the diagnosis of cirrhosis liver or were diagnosed as cirrhosis liver during their stay in hospital. All patients over the age of 15 years both male and females were included in the study while those with acute liver failure and chronic renal failure were excluded. After informed consent they were included in study. Demographic characteristics were recorded.

Detailed history was taken and full clinical examination was performed to look for the stigmata of cirrhosis liver and presence of complications like ascites, presence and grading of HE.

Investigations including serum bilirubin, alkaline phosphatase, serum SGPT, prothrombin time, ultrasound abdomen, blood urea, serum creatinine and serum electrolytes were performed. 24 hours urinary volume and protein excretion were calculated in patients with suspected HRS. Serum levels of α-feto-protein and upper GI endoscopy were performed in those in whom these investigations were not done in previous 6 months or otherwise indicated.

Patients were managed along the standard guidelines. Data were entered in an objectively structured proforma. Data collected were entered into SPSS version 16.0 for statistical analysis. Mean and Standard Deviation of age, frequencies for gender, CTP class, HE and other complications were calculated.

RESULTS

95 patients were included in our study. 49(51.6%) were male 46 (48.4%) were female. Their age ranged from 16-81 years with mean age of 54±7.821 years. (Table: 1)

Majority of the patients were in 5th and 6th decade of their life i.e.; 31 (32.6%) and 33 (33.68%) patients respectively.(Table: 2)

64 (67.3%) patients had ascites, 62 (65.2%) had HE, 18 (18.9%) had SBP, 13 (13.7 %) had gastro-esophageal variceal hemorrhage, 7.36% had HCC and 7.36% had HRS. (Figure: 1)

23(24%21) had grade 0, 12(12.6%) had grade I, 21(22.1%) had grade II, 28(29.50%) had grade III and 11(11.57%) had grade IV HE on clinical examination. (Table: 3)

5.36% patients were in CTP class A, 32.6% were in class B and 62.1% were in class C (Figure: 2)

12 (12.6%) died in hospital, of them 10 (83.33%) were in CTP class C and 2 (16.66 %) were in class B while none of the patients in class A died in hospital. (Table: 4)

Among those who died 6 had grade IV HE, 4 had grade III and 1 had grade II, 1 patient had no clinical HE. (Table: 5)

Among those who died 3 patients had variceal bleed and 2 each had SBP and HRS.

Table 1: Demographic Data of Patients

Number of patients	95
Mean age	54±7.821 years
Age range	16-81 years
Male patients	49 (51.6 %)
Female patients	46 (48.4%)

Table 2: Age Group of Patients

S.No	Age group	Number of patients	% age
01	1-19	1	1.05%
02	20-39	9	9.47%
03	40-59	53	55.78%
04	60-79	30	31.57%
05	≥80	2	2.10%

DISCUSSION

Cirrhosis liver is end stage liver disease where normal liver parenchyma is replaced by regenerating nodules and scar tissue resulting in a variety of complications.

Table 3: Grades of Encephalopathy on Clinical Examination

Grade of Hepatic Encephalopathy	No of patients	Percentage
0	23	24.21
I	12	12.61
II	21	22.10
III	28	29.50
IV	11	11.57

Table 4: Child Trucut Pugh Class and Patient Outcome (Cross Tabulation)

Child Trucut Pugh Classification	Patient Outcome		Total
	Discharged	Died	
A	5	0	5
B	29	2	31
C	49	10	59
Total	83	12	95

Table 5: Grade of Encephalopathy on Clinical Examination and Patient Outcome (Cross Tabulation)

Grade of encephalopathy on clinical examination	Patient outcome		Total
	Discharged	Died	
0	22	1	23
1	12	0	12
2	20	1	21
3	24	4	28
4	5	6	11
total	82	12	95

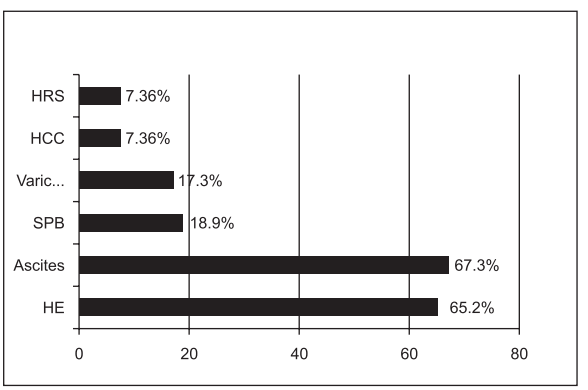

Figure 1: Freqency Of Different Complications Of Cirrohsis

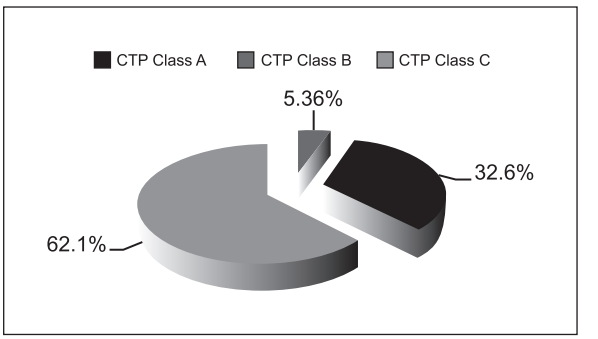

Figure 2: Child Trucut Pugh Classification

The two main consequences of cirrhosis liver are portal hypertension with the accompanying hyperdynamic circulatory state and liver insufficiency. The development of portal hypertension results from both an increase in resistance to portal flow and an increase in portal venous inflow. It is responsible for formation of varices, ascite and hyperdynamic circulatory state, whereas jaundice occurs as a result of liver insufficiency. Encephalopathy is the result of both portal hypertension and liver insufficiency. Ascites can become complicated by functional renal failure, which is called hepatorenal syndrome and by infection, which is called spontaneous bacterial peritonitis.

Ascites in cirrhosis liver results from sinusoidal hypertension which is caused by blockage of hepatic venous outflow by fibrosis and regenerative nodules and increased post sinusoidal vascular tone and retention of sodium. In addition, retention of sodium increases the intravascular volume and allows the continuous formation of ascites.

In cirrhosis liver ammonia accumulates in the systemic circulation due to shunting of blood through portosystemic collaterals and decreased liver metabolism and plays a major role in the pathogenesis of HE by damaging supporting brain cells or astrocytes. It also up-regulate benzodiazepine receptors, stimulation of which results in cortical depression and HE.

Spontaneous bacterial peritonitis occurs in the absence of perforation of a hollow viscus or an intra-abdominal inflammatory focus resulting either from bacterial translocation or the migration of bacteria from the intestinal lumen to mesenteric lymph nodes and other extraintestinal sites.

Gastroesophageal varices develop as a result of portal hypertension and develop when the hepatic venous pressure gradient is more then 10 to 12 mm Hg. Hyperdynamic circulatory state leads to further dilatation and growth of varices and eventually leads to their rupture resulting in variceal hemorrhage, one of the most dreadful complications of cirrhosis liver.

In our study male to female ratio was 49:46, mean age was 54±7.821 years. The most common age group

was 40-59 years accounting for 55.78% of all cases. These findings are comparable with study conducted by Khan P,et al. where the mean age was 53.09 years and 56.36% patients were between 46-60 years[38]. Similar findings were observed in other studies as well[39,40].

In our study ascites was the most common complication found in 67.3% patients. Similar results 59% and 64% were observed by Almani SA, et al. and Maqsood S ,et al [41,42].

In our study SBP was found in 18.9% patients compared with Khan Z ,et al. who reported it in 33% [43]. One possible explanation for this difference is that above mentioned study enrolled cirrhosis liver patients with ascites only while in our study all cirrhosis liver patients were included. By further analysis of the data and by calculating the presence of SBP in the sub group of patients with cirrhosis liver with ascites the percentage of SBP in our study increased to 26.67 % which is comparable to the figure observed by above mentioned researchers and others[44,45].

Hepatorenal syndrome was present in 7.36% of patient compared with 9% observed in by Almani AS,et al[41]. Further analysis of the data showed that the frequency of HRS raised 10.38% in patients having cirrhosis liver and ascites both, comparable with figure observe by other researcher [46,47].

Hepatic encephalopathy was present in 65.26% while Kakakhel SM ,et al. reported its presence in 55%[48]. Out of 95 patients 24.21 had no HE, 12.6% had grade I, 22.1 had grade II, 29.5% had grade III and 11.57 % had grade IV HE. Further analysis of the data among 62 patients with HE showed that 19.35%,33.87%, 43.07% and 17.74% had grade I,II,II and IV HE and the results were comparable with the spectrum observed by Khan B ,et al. where 24%, 46%, 17% and 13% patients were in grade I,II,III and IV HE respectively[49].

In our study 13.7% patient presented with variceal hemorrhage or had GI bleed during hospital stay. These findings are similar to 18.3% observed by Khan H, et al [50].

Hetatocellular carcinoma was reported in 7.36% of patient in our study comparable with 7.3% reported by Ziauddin ,et al [51].

5.36% patients were in CTP class A ,32.6% were in class B and 62.1% were in class C comparable with study conducted by Maqsood S ,et al. who reported 4%, 28% and 62% patients with class A,B and C respectively[42].

In our study 12 patients died. 10 patients were in CTP class C while 2 patients were in class B. Further analysis revealed that 13.55% of all the patients admitted in Class C died in hospital compared to 26% observed by Almani SA ,et al.[41]

CONCLUTION

In our local population majority of the cirrhosis liver patients presents in their 5th and 6th decade of life with slight male predominance. The most common complications in descending order of frequency are ascites, HE, SPB, variceal bleed, HRS and HCC. Most of the patients admitted to the hospital are in CTP class C and almost 10% of them die in hospital particularly those who present in grade IV HE or GI bleed/suffer a GI bleed in hospital.

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