SPONTANEOUS BACTERIAL PERITONITIS IN CASES WITH LIVER CIRRHOSIS

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ABSTRACT

Background: Liver cirrhosis is an irreversible liver damage and can result into various complications due to hepatocellular damage and fibrosis. Ascites and then superadded sub acute bacterial peritonitis (SBP) is not uncommon. **Objective:**To determine the frequency of spontaneous bacterial peritonitis in cases with liver cirrhosis. **Methodology:** This was a cross sectional study that was conducted at Department of Medicine, Sheikh Zayed Hospital, Rahim Yar Khan from 1st March to 30th September 2016, in which 150 cases of liver cirrhosis were selected according to clinical and laboratory investigation. SBP was labeled according to standard international criteria. Data analyses was done by SPSS version 21. **Results:** In this study, there were total 150 patients of liver cirrhosis out of which, 93 (62%) were males and 57 (38%) females. The mean age of the patients was 52.43±5.12 years. There were 84 (56%) cases in child class Pugh C and 66 (44%) in class B. SBP was seen in 45 (30%) of the cases. SBP was observed more in those with child Pugh class C where it was seen in 31 (36.90%) cases as compared to 14 (21.21%) cases in child class b with p= 0.04. SBP was also more common in those that had liver cirrhosis for more than 3 years where it was seen in 36 (37.11%) cases as compared to 9 (16.98%) that had cirrhosis for less than 3 years, with p= 0.01. **Conclusion:** Spontaneous bacterial peritonitis is a common complication in the liver cirrhosis and it is significantly high in cases that had child pugh class C and those with duration of liver cirrhosis more than 3 years.

Key Words: SBP, liver cirrhosis, Child pugh class

INTRODUCTION

Liver cirrhosis can be defined as a diffuse and ongoing process of liver damaged that can be assessed initially on histological basis leading to formation of fibrosis and regenerating nodules.[1] This leads to destruction of the whole architecture of the parenchyma and interfere with the normal functioning of the liver. There are various causes of it and hepatitis B and C are the most common one in the developing countries. The other causes included alcoholism, Wilson disease, and hemochromatosis.[2,3] Liver cirrhosis is considered the 10th major cause of mortality in USA.[1,4]

The pathophysiology included early inflammatory process, liver damage and then excess deposition of the components of the extracellular matrix (i.e. collagens, glycoproteins, proteoglycans) within the liver. This is an irreversible process and lead to impaired structural and functional capabilities of the liver.[2,3] Liver cirrhosis is a high disease burden entity due to its wide range of complications i.e. hepatic encephalopathy, ascites, upper and lower gastro intestinal bleeding, spontaneous bacterial peritonitis (SBP), hepatorenal syndrome (HRS) and osteoporosis.[4-8]

Spontaneous bacterial peritonitis (SBP) is defined by the development of peritonitis that can be due to infection of the abdominal cavity, even in the absence of an obvious source for the infection.[9-12] It is a serious and potentially life-threatening complication that can occur in cirrhotic patients with ascites.[6,13] This can also be a factor to describe a poor prognosis in cases of liver cirrhosis. In Pakistan its prevalence range from 30-40% of the cases. Considering the impact of this complication on prognosis, this study was planned to look for its prevalence in our specific community.[6-9] The objective of this study was to determine the frequency of spontaneous bacterial peritonitis in cases with liver cirrhosis**.**

METHODOLOGY

Setting: Department of Medicine, Sheikh Zayed Hospital, Rahim Yar Khan. Study design: Cross sectional study. Duration: 1st March to 30th September 2016. Sampling technique: Non-probability, consecutive sampling. Study Subjects: Patients having liver cirrhosis with child Pugh class B and C. Inclusion Criteria: All patients of liver cirrhosis with Child Pugh class B and C, age range of 20-67 years, both genders. Exclusion criteria: Cases with end stage liver or cardiac disease, alcoholics and Cases with abdominal tuberculosis. After taking informed verbal consent, detailed socio demographic and clinical data was collected. The cases underwent USG abdomen, serum albumin, bilirubin, PT and clinical examination to check for ascites and hepatic

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encephalopathy to label the severity of child pugh class. The cases with shortened liver, enlarged spleen and decreased albumin were labeled as liver cirrhosis. Then these cases underwent ascitic fluid aspiration under full aseptic measure. SBP was labeled as yes when all of the following were present.

-Serum ascitic albumin gradient >1.1.
-Total leukocyte count >500/ml**.**
-Neutrophil count > 250/ml.

Statistical analysis was done by using SPSS version 21.0 and chi square test was used to see for significance and p value < 0.05 was considered as significant.

RESULTS

In this study, there were total 150 patients of liver cirrhosis out of which, 93 (62%) were males and 57 (38%) females. The mean age of the patients was 52.43±5.12 years. There were 84 (56%) cases in child pugh class C and 66 (44%) in class B. SBP was seen in 45 (30%) of the cases. SBP was observed more in those with child pugh class C where it was seen in 31 (36.90%) cases as compared to 14 (21.21%) cases in child class B with p= 0.04 (Table I). SBP was also more common in those that had liver cirrhosis for more than 3 years where it was seen in 36 (37.11%) cases as compared to 9 (16.98%) that had cirrhosis for less than 3 years (p= 0.01) (Table I).

Table I: Spontaneous Bacterial Peritonitis and duration of illness with child pugh class (n= 150)

Child Pugh Class	Spontaneous Bacterial Peritonitis		Total	P. Value
	Yes No (%)	No No (%)	No (%)	
B	14 (21.21%)	52 (78.79%)	66 (100%)	0.04
C	31 (36.90%)	53 (63.10%)	84 (100%)	
Total	**45 (30%)**	**105 (70%)**	**150 (100%)**	
Duration of illness				
< 3 years	9 (16.98%)	44 (83.02%)	53 (100%)	0.01
> 3 years	36 (37.11%)	61 (62.89%)	97 (100%)	
Total	**45 (30%)**	**105 (70%)**	**150 (100%)**	

DISCUSSION

Liver cirrhosis is one of the most common reportable diseases in the medical outpatient and inpatient departments. It can lead to various complications, that a pose a high burden in the hospital wards and emergencies.[10] SBP is one of these serious complications that occur due to diffuse liver damage and superadded infection due to wide range of causes. Its diagnosis is important to differentiate it from other causes of peritonitis to guide towards prompt management, as the later cause can lead to surgical intervention. In the present study Spontaneous bacterial peritonitis (SBP) was observed in 45 (30%) out of 150 cases. This was similar to the results of the other studies carried out in different regions of Pakistan by various authors.[10,14] In studies done by Iqbal et al,[11] and Jafferty et al,[10] this frequency was seen in the range of 30-35% of cases in liver cirrhosis. On further analysis of the international data, it was not surprising to see that the rate of this complication was at lower side and was observed in only 7-23% of the cases.[12] This factor can be explained by the pathophysiology of the disease as our country is a developing country and is resource deprived and that's why lack the adequate health facilities in early diagnosis, proper follow up and early management of the complications in the beginning of the development, that's why the rates were high not only in the present study, but also in the others from the same region.

SBP was more seen more commonly in cases with Child Pugh Class C where it was observed in 31 (36.90%) out of 53 cases and also those that liver cirrhosis for more that 3 years. The both findings are consistent with the studies of and Gunjača I et al,[14] Nouman S et al,[13] and Khan et al.[15] This can be explained by the fact that those with having disease for longer period of time, also had the higher chances of developing liver cirrhosis, and this cirrhosis led to ascites. As the persistent and rising volume of the ascites lead to multiple sessions of diagnostic as well as therapeutic needle drainage, it can be a cause to introduction of infection and leading to SBP. However, in a study done by Zaman H et al found most cases of this complications in child class B where it was seen in 57.7% of the cases and the overall prevalence of SBP was 39% in their study.[16]

There were few limitations in present study, as we did not assess for different organisms detected in fluid analysis and also the history that these cases undergone previous needle aspirations or this SBP occurred spontaneously.

CONCLUSION

Spontaneous bacterial peritonitis is a common complication in the liver cirrhosis and it is significantly high in cases that had Child Pugh Class C and those with duration of liver cirrhosis more than 3 years.

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