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SPONTANEOUS BACTERIAL PERITONITIS IN PATIENTS WITH CIRRHOSIS AND ASCITES

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ABSTRACT... drsyedabdulrasheed@yahoo.com **Objective:** To find out the frequency and clinical presentation of spontaneous bacterial peritonitis (SBP) in cirrhosis with ascites secondary to hepatitis c infection. **Design:** Descriptive study. **Place and duration of study:** Department of Medicine, Military Hospital, Rawalpindi, from September 2004 to February 2005. **Patients and methods:** Fifty nine subjects with cirrhosis and ascites secondary to hepatitis c infection were included. Frequency of SBP with its presenting clinical features was determined. Mean ascitic fluid protein level was compared between SBP and non SBP groups. Child pugh class was determined in SBP subjects. P-value was calculated by applying test of significance. **Results:** Out of fifty nine subjects, fourteen were having SBP. Abdominal pain / tenderness and jaundice were common presenting features in 78.57% and 64.28% of subjects respectively. Patients were asymptomatic in 7.14%. Mean ascitic fluid protein content was found to be low in SBP as compared to non SBP patient's 1.41 gm% vs. 2.20 gm%. **Conclusion:** Because of heterogeneous clinical presentation, ascitic fluid should be analyzed routinely in all patients admitted in hospital with cirrhosis and ascites.

Key words: Spontaneous bacterial peritonitis, Cirrhosis, Ascites.

INTRODUCTION

Ascites is the most frequent complication of cirrhosis and is associated with increased susceptibility to infections and poor long-term outcome[1]. Spontaneous bacterial peritonitis (SBP) is characterized by spontaneous infection of ascitic fluid in the absence of intraabdominal source of infection[2, 3]. Its prevalence ranges between 10 and 30 percent among patients with ascites and has a recurrence of 70 percent in 1 year[2,3]. SBP is related to altered host defences, overgrowth of microorganisms and bacterial translocation from intestinal lumen to mesenteric lymph nodes[4]. Patients with SBP may remain asymptomatic (3.5%) or present with Jaundice (81 %), abdominal pain (78.12%), fever, (46.8%), hepatic encephalopathy (71.8%), tenderness (87.5%), haematemesis (59.3%) and malena (65.6%)[5,6]. Diagnosis

of ascitic fluid infection is based on clinical suspicion and analysis of ascitic fluid[7].

The presence of at least 250 polymorphonuclear cells per cubic millimeter of ascitic fluid is diagnostic of SBP[2]. Ascitic fluid should be inoculated at bedside in blood culture bottle and has a yield of 18.2%[8]. Escherichia coli is the organism most frequently involved[9]. Recently frequency of episodes caused by gram positive bacteria has increased.[10] In view of this alteration and high rate of morbidity and mortality associated with SBP, study was carried out to find out the frequency, clinical presentation and organism involved in this condition in our set up.

PATIENTS AND METHODS

This prospective descriptive study was conducted from September 2004 to February 2005 at a tertiary care hospital i.e. Military Hospital Rawalpindi.

Fifty nine subjects fulfilling inclusion criteria (evidence of ascites and cirrhosis secondary to hepatitis c virus infection, age more than 12 years) were enrolled in the study with non probability sampling technique after taking informed consent. Subjects with cirrhotic ascites secondary to other than hepatitis c virus aetiology, pregnancy or other comorbid preexisting conditions were excluded.

History and clinical data of all subjects included in the study were obtained. Patients were investigated with blood counts, serum bilirubin, serum albumin and prothrombin time. Ascitic fluid was analyzed for cell count, polymorphnuclear cells, proteins and cultured on blood and Mckonkey"s agar. Child pugh class of the patient was determined on the basis of ascites, hepatic encephalopathy, serum bilirubin,serum albumin and prothrombin time to assess the severity of chronic liver disease. Findings were recorded in a previously designed proforma.

The data was entered and analyzed in the SPSS 14.0 statistical software to find out the frequency of SBP and list the presentation of disease by symptoms. Association of ascitic fluid protein concentration and SBP was determined with p-value by applying statistical test of significance. P-value was also calculated to establish relationship between child pugh class and SBP.

RESULTS

Fifty nine subjects were enrolled in the study. Findings between SBP and non SBP individuals are compared in table- I. Their mean age was 56.2 years with range of 38-69 years.

Table-I. Comparison of SBP versus non-SBP subjects

Age (years)	Mean 57.71 Range 45-68 Std. Deviation 7.032	Mean 55.76 Range 38-69 Std. Deviation 8.122
Gender	Male 10 (71.4%) Female 4 (28.6%)	Male 29 (64.4%) Female 16 (35.6%)
Ascitic fluid protein (mg/dl) P<0.05	Mean 1.41 Range 1.22-2.2 Std. Deviation 0.24303	Mean 2.2 Range 1.37-2.82 Std. Deviation 0.39228
Child pugh class P<0.05	A 2 (14.3%) B 4 (28.6%) C 8 (57.1%)	A 24 (53.3%) B 17 (37.8%) C 4 (8.9%)

Male to female ratio was 3:2 in the favor of males.
Of the 59, 14 had SBP.

Abdominal pain / tenderness was the leading clinical presentation of SBP affecting 11 out of 14 patients. The detailed account of clinical presentations is mentioned in table-II.

Mean ascitic fluid protein content was found to be low in SBP as compared to non SBP patient's 1.41 gm% vs 2.20 gm%. P – Value was found < 0.05.

Escherichia coli was the only organism found in 3 out of 14 SBP subjects..

Out of fourteen SBP patients, eight were in child – pugh class C, 4 were in class B while rest of the 2 were in class A. p – value was found < 0.05.

Table-II. Clinical presentation of patients with SBP

Presentation	No. of patients (%)
Asymptomatic	1 (7.14%)
Abdominal pain / tenderness	11 (78.57%)
Jaundice	9 (64.28%)
Hepatic encephalopathy	7 (50%)
Malena	6 (42.85%)
Hemetemesis	5 (35.71%)
Fever	4 (28.57%)

DISCUSSION

This study demonstrates important aspect of SBP to improve its diagnosis and treatment level particularly in patients with cirrhotic ascites secondary to hepatitis c infection. Majority of subjects included in this study were in sixth decade of life. This may well be due to the fact that only those patients were selected for the study which developed cirrhotic ascites secondary to hepatitis c infection. The progression of liver injury to cirrhosis in hepatitis c takes years and may have chronic hepatitis for as long as forty years before progressing to cirrhosis[11].

The frequency of SBP in this study was 23.7%, similar to results found in most of other studies of world ranges from 10 to 30 percent[2,3,4]. However one study showed prevalence of about 35%[12].

The clinical presentation of SBP in this study was found to be heterogenous. Most common clinical presentation was abdominal pain / tenderness comprising 78.57 percent followed by jaundice making 64.28 percent. Hepatic encephalopathy (50%),malena (42.85%), hemetemesis (35.71%) and fever (28.57%) were the other clinical presentation. Even asymptomatic patient (7.14%) with cirrhosis and ascites,who came for routine follow up, later turned out to be case of spontaneous bacterial peritonitis on the basis of ascitic fluid polymorphuclear cells. These results are almost consistent with the available data[6] except that fever was the more common (69%) in one study[13].

This study revealed low mean ascitic fluid protein content in SBP as compared to patients without this condition, about 1.41 gm% versus 2.2 gm %.Low ascitic fluid protein content makes patient with cirrhosis and ascites more susceptible to spontaneous bacterial peritonitis and justifies use of prophylactic antibiotics. These results are almost similar to available national and international data regarding relationship between ascitic fluid protein content and SBP[6,12,14].

Ascitic fluid culture in this study revealed growth of only Escherichia coli in 21.4 % cases which is higher than previous studies[8,15]. This may be due to better handling of samples at all levels as ascitic fluid in this study was inoculated at the bed side in blood culture bottle and cultured in blood and Mckonkey's agar, or may be an incidental finding because of smaller number of patients.

In this study, as per child- pugh criteria majority (57.14%) of patients with SBP was found in class C while 28.57% were in class B and 14.29% were in class A. These results are almost consistent with available data[6].

Clinical implications of the study

This study was focussed on the patients with cirrhosis and ascites secondary to hepatitis c infection. Although several studies are available nationally and internationally on the subject but none of the available study has exclusively focused hepatitis c as aetiology. The results of this study are almost consistent with the available data except few differences. First fever was found less common as compared to a previous data,[13] in which it was 69%.Secondly ascitic fluid culture provided better results than previous studies[8,15]. These difference

may be related to underlying aetiology hepatitis c or may be an incidental finding requiring further attention from future researchers.

CONCLUSION

SBP is a potentially treatable but life threatening condition. Because of heterogeneous clinical presentation, high index of suspicion is required to establish the early diagnosis and start empirical antibiotic therapy to avoid serious sequale. Although this study was of short duration and included smaller number of patients but as this is a common complication of ascites and is associated with high rate of morbidity and mortality, it is recommended that ascitic fluid sample should be obtained routinely in all patients admitted in hospital with cirrhosis and ascites, in addition to those who have signs and symptoms suggestive of spontaneous bacterial peritonitis. However further long term studies are needed to establish relationship between ascitic fluid protein content and spontaneous bacterial peritonitis, microbial diagnosis of ascitic fluid and prophylactic use of antibiotics.

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