

Original Article

Asymptomatic Spontaneous Bacterial Peritonitis in Liver Cirrhosis With Ascitis

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ABSTRACT

Objective: To assess the frequency of asymptomatic spontaneous bacterial peritonitis in liver cirrhotic patients with first presentation of ascities.

Study Design: A descriptive case series study.

Place and duration of Study: This study was conducted at the Department of Medicine, Peoples Medical College Nawabshah from 1st September 2007 to 28th February 2008.

Patients and Methods: In this study 100 patients of cirrhosis with ascities. There were 52 (52%) females and 48 (48%) males. Detailed history was taken from all the patients. The diagnostic criteria were the presence of signs and symptoms of chronic liver insufficiency e.g. pallor, jaundice, clubbing, palmar erythema, gynecomastia, spider naevi, visible veins, splenomegaly, edema or ascities etc. Laboratory investigations include CBC, LFTs, PT, total protein, Ascitic fluid D/R etc. and specific investigations especially ultrasound of abdomen as diagnostic modality and for assessment of cirrhotic patients with ascities.

Results: All patients fulfilling the inclusion criteria. Age ranging from a minimum of 20 years to 80 years with mean ages of patients was 44.99 ± 14.29 years. There were 52 (52%) females and 48 (48%) males. Twenty one (21%) patients positive for spontaneous bacterial peritonitis because of $WBC \geq 500$ and neutrophils ≥ 250 /mm³ while 79 (79%) patients who had $WBC \leq 500$ and neutrophils < 250 /mm³ were spontaneous bacterial peritonitis negative. SBP positive, 8 (38 %) were females and 13 (62 %) males. Average systolic and diastolic blood pressure was found 110 ± 9.32 mmHg and 80 ± 62.98 mmHg, mean pulse rate 83.30 ± 5.81 /min, mean hemoglobin 9.14 ± 1.89 g/dL, total leucocytes count 6408.85 ± 2333.69 /mm, platelets $191.32 \pm 54.59 \times 10^9$ /L, total bilirubin 1.99 ± 1.33 mg/dL, total proteins 5.96 ± 0.46 , SGPT 134.53 ± 267.06 Unit/L, alkaline phosphatase 314.34 ± 200.85 Unit/L, ascitic fluid proteins 1.35 ± 0.83 g/dL, ascitic fluid neutrophils 282.58 ± 48.73 /mm, ascitic fluid lymphocytes 43.09 ± 19.38 /uL, ascitic fluid RBC 1465.25 ± 2653.35 /uL and average duration of stay in hospital was 8.23 ± 4.4 .

Conclusion: In this study clearly showed a high percentage of asymptomatic SBP in cirrhotic patients with ascities. This is quite high in comparison with national and international studies. Thus in future studies should be conducted determining the factors associated with high frequency.

Key Words: asymptomatic, spontaneous bacterial peritonitis, Ascitic fluid.

INTRODUCTION

Spontaneous bacterial peritonitis (SBP) is an acute bacterial infection of previously sterile ascitic fluid without demonstrable cause^{1,2}. Spontaneous bacterial peritonitis occurs in both children and adults. Ascities is a common complication of cirrhosis and associated with poor quality of life, increased risk of infections and renal failure and a poor long term outcome³. SBP is the third leading cause of death in patients with cirrhosis and ascities⁴. The prevalence of SBP in patients with ascities ranges between 10-30% but in Pakistan it varies from 32.20-64.5%⁵. SBP associated with an impaired defense mechanism against infections present in cirrhotic patients, such as a depressed phagocytic activity of the reticulo endothelial system, an impaired leukocyte function, reduced serum complement levels and low antibacterial activity of the ascitic fluid⁶. SBP are mainly due to aerobic,

gram -ve bacilli usually present in the intestinal flora. SBP was first described in 1970 and up to the present the mortality rate has been decreasing from 80% to 30%, due to prompt diagnosis and early starting adequate treatment⁷. Clinical features of SBP are abdominal pain, distention, fever and local tenderness.

Aim of this study to assess the frequency of asymptomatic spontaneous bacterial peritonitis in liver cirrhotic patients with first presentation of ascities.

PATIENTS AND METHODS

This study consists of one hundred patients. This descriptive case series study was carried out in department of medicine at Peoples Medical College Nawabshah, from 1st September 2007 to 28th February 2008. Inclusion criteria were all cirrhotic patients with ascities, greater than 18 years of age and either gender,

presenting to tertiary care center. Patients with hepatic encephalopathy, patients receiving anti biotics one week before admission, GI bleeding and acute renal failure were excluded from this study.

Detailed history was taken from all the patients. The diagnostic criteria were the presence of sign and symptoms of chronic liver insufficiency e.g pallor, jaundice, clubbing, palmar erythema, gynecomastia, spider navie, visible veins, splenomegaly, edema or ascities etc. Laboratory investigations include CBC, LFTs, PT, total protein, Ascitic fluid D/R etc. and specific investigations especially ultrasound of abdomen as diagnostic modality and for assessment of cirrhotic patients with ascities. Detailed Clinical examination of the patient was done. Follow up of all these patients was done. 1st visit after 6 month and 2nd visit after one year to assess any complication and inquiry about resumption to work. Results were prepared with help of tables and graphs. Data was analyzed through SPSS software.

RESULTS

This study was comprised of 100 patients of with cirrhosis of liver with ascities fulfilling the inclusion criteria. There was wide variation age ranging from a minimum of 20 years to 80 years with mean ages of patients was 44.99 ± 14.29 years. There were 52 (52%) females and 48 (48%) males (Table 1).

The majority of the patients 86 (86%) were of poor class while 14 (14%) patients belonged to middle class (Chart 1). Twenty one (21%) patients positive for spontaneous bacterial peritonitis because of $WBC \geq 500$ and neutrophils $\geq 250 /mm^3$ while 79 (79%) patients who had $WBC \leq 500$ and neutrophils $< 250 /mm^3$ were spontaneous bacterial peritonitis negative (Chart 2).

When compared the proportion of gender in SBP positive, 8 (38 %) were females and 13 (62 %) males. Average systolic and diastolic blood pressure was found 110 ± 9.32 mmHg and 80 ± 62.98 mmHg, mean pulse rate 83.30 ± 5.81 /min, mean hemoglobin 9.14 ± 1.89 g/dL, total leucocytes count 6408.85 ± 2333.69 /mm, platelets $191.32 \pm 54.59 \times 10^9/L$, total bilirubin 1.99 ± 1.33 mg/dL, total proteins 5.96 ± 0.46 , SGPT 134.53 ± 267.06 Unit/L, alkaline phosphatase 314.34 ± 200.85 Unit/L, ascitic fluid proteins 1.35 ± 0.83 g/dL, ascitic fluid neutrophils 282.58 ± 48.73 /mm, ascitic fluid lymphocytes 43.09 ± 19.38 /uL, ascitic fluid RBC 1465.25 ± 2653.35 /uL and average duration of stay in hospital was 8.23 ± 4.43 .

Most common examination findings 88 (88%) patients had edema, palor in 80(80%) patients, jaundice was in 33 (34.7%) patients, dehydration in 5 (5.4%) patients, clubbing was found in 2 (2.1%) patients, koilonychia found in 9 (9.4%) patients, palmar erythema was present in 46 (46.9%) patients, palmer erythema found

in 28(28.9%) patients, gynecomastia found in 16 (16.2%) patients, spider navie had in 78 (78.8%) patients, visible veins were seen in 78 (78.8%) patients.

Table No.1

Variable	Number of Patients	Percentage
Gender		
• Male	48	48%
• Female	52	52%
AGE GROUP		
• 20- 30 years	11	11%
• 31 - 40 years	15	15%
• 41 - 50 years	26	26%
• 51 - 60 years	30	30%
• 61 - 70 years	13	13%
• 71 - 80 years	5	5%

Chart No.1: Socioeconomic Status

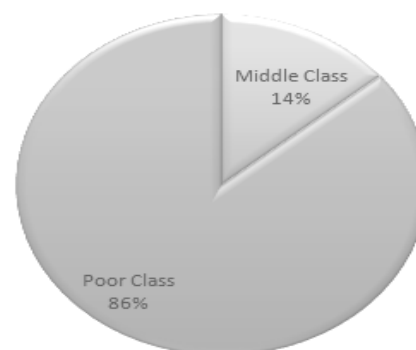
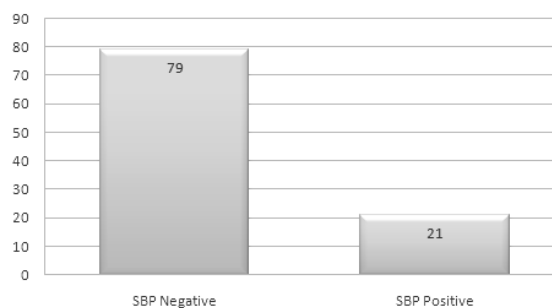


Chart No.2: Distribution of Spontaneous Bacterial Peritonitis.



DISCUSSION

Spontaneous bacterial peritonitis (SBP) is the infection of the ascitic fluid that occurs in the absence of a visceral perforation and in the absence of an intraabdominal inflammatory focus such as abscess, acute pancreatitis or cholecystitis and inoculation.

In our study were 52 % male and 48% female, male to female ratio was 1.03:1 . However the male to female ratio given by Khan Z⁸ is 1.1:1. The age ranged from 20 to 80 years with mean age 44.99 ± 14.29 years which is comparable to other study where the mean age was 51.1 ± 11.7 year⁹. In our study majority of the patients were found low socio economic class 86% while middle class 14% where as Khan TM et al¹⁰ reported the reasons for increased frequency of SBP in this study may be due to the low socio-economic conditions, malnutrition and high prevalence of infectious diseases.

The frequency of SBP in our study was 21 %. It correlates with a local study conducted by Khan showed the frequency of asymptomatic spontaneous bacterial peritonitis in chronic liver disease patients with first presentation of ascities was 9.3%¹¹. Sarwar S et al, another study from Pakistan, showed figure of 38% which is quite different from present study¹². The clinical parameters were further supported by laboratory investigations which revealed WBC ≥ 500 and neutrophils ≥ 250 cells/mm³ positive in 21% patients of SBP. Laboratory finding given by Evans shows that the prevalence of spontaneous bacterial peritonitis in the population of 427 cirrhotic outpatients as defined by neutrocytic ascities (absolute neutrophil count ≥ 250 cells/mm³) was 3.5%¹³.

Ascitic fluid polymorphonuclear cell count is an easy and single best test in establishing the diagnosis of SBP regardless of the fact whether a discriminative value of 250 or 500/cmm is used¹⁴. Our study shows mean ascitic fluid proteins 1.35 ± 0.83 gm/dl, ascitic fluid neutrophils 282.58 ± 48.73 /cmm and ascitic fluid lymphocytes 43.09 ± 19.38 /cmm. In the study of Mustafa MG showed ascitic fluid protein was 1.1 ± 0.3 g/dL and ascitic fluid neutrophil 1261 ± 1073 /cmm in the spontaneous bacterial peritonitis¹⁵. In cirrhosis, the hepatocytes change into fibrosis due to continued inflammation by the inciting agent and lose their capacity to synthesize proteins.

In our study the edema 88% and palor 80% were the commonest presentation followed by spider navie had in 78 (78.8%) patients, visible veins were seen in 78 (78.8%) patients, jaundice was in 33 (34.7%) patients, palmar erythema found in 28(28.9%) patients and testicular atrophy found in 11 (11.2%) patients. However in study of Evans LT et al¹⁶ the patients presented with jaundice (81 %), abdominal pain (78.12%), fever (46.8%) , tenderness (87.5%) and patients with SBP may remain asymptomatic (3.5%)

CONCLUSION

In this study clearly showed a high percentage of asymptomatic SBP in cirrhotic patients with ascities. This is quite high in comparison with national and international studies. Thus in future studies should be

conducted determining the factors associated with high frequency.

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