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Original Research Article.

Analysis of Clinical Profile of Patients of Spontaneous Bacterial Peritonitis At a Tertiary Care Hospital

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ABSTRACT

Background: The designation of spontaneous bacterial peritonitis (SBP) was introduced in the early 1970s to characterize the infection of ascitic fluid occurring in the absence of any surgically addressable intra-abdominal infection source. The present study was conducted for analysis of clinical profile of patients of spontaneous bacterial peritonitis.

Materials & Methods: A total of 50 patients with SBP were evaluated. Patients were interviewed regarding their demographic and clinical characteristics as stated below. Additional clinical and laboratory variables relating to all the individuals from medical charts. Demographic and clinical data were also evaluated. Blood samples were obtained and complete biochemical along with hematological profile was evaluated. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

Results: A total of 50 patients were evaluated. The mean age of the patients was 44.8 years. 58 percent of the patients were males. Diabetes, hypertension and dyslipidemia were seen in 24 percent, 30 percent and 20 percent of the patients respectively. Fever, Abdominal pain, Abdominal tenderness, Rebound and Encephalopathy was seen in 78 percent, 48 percent, 40 percent, 26 percent and 48 percent of the patients respectively. Haemoglobin levels were found to be 9.9 g/dL while platelet count was found to be 149.2 / mm^2. Mean albumin and creatinine levels were found to be 2.1 g/dL and 1.8 mg/dL respectively.

Conclusion: Diagnostic paracentesis is recommended upon hospital admission for all cirrhotic patients presenting with ascites, to assess for the potential presence of SBP.

Key words: Spontaneous Bacterial Peritonitis, Diabetes, Hypertension, Dyslipidemia, Abdominal Pain.

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INTRODUCTION

The designation of spontaneous bacterial peritonitis (SBP) was introduced by Harold Conn in the early 1970s to characterize the infection of ascitic fluid occurring in the absence of any surgically addressable intra-abdominal infection source. Runyon has documented numerous unnecessary and enigmatic fatalities that transpired prior to the recognition of this prevalent infection within the diagnostic framework for patients with ascites who exhibit deterioration and confusion. He was among the pioneers advocating for the more frequent application of ascitic fluid paracentesis to facilitate the early identification of this potentially life-threatening infection. Recent guidelines from the British Society of Gastroenterology (BSG) regarding the management of ascites in cirrhosis emphasize the significant impact of early diagnosis and timely intervention, which has led to a reduction in in-hospital mortality rates from 90% to below 20%. These guidelines recommend that paracentesis be performed on all cirrhotic patients with ascites upon hospital admission, as well as on any patients who exhibit additional signs indicative of peritoneal infection, such as encephalopathy, renal dysfunction, and peripheral blood leucocytosis without an identifiable precipitating factor.[1-3] A heightened level of suspicion for spontaneous bacterial peritonitis (SBP) is warranted in patients diagnosed with cirrhosis and ascites. The procedure of diagnostic abdominal paracentesis carries minimal risk and should be routinely performed on all patients admitted to the hospital, particularly during episodes of clinical deterioration or in the

presence of gastrointestinal bleeding. The polymorphonuclear cell count in ascitic fluid serves as the most sensitive indicator for the presence of infection. Additionally, cultures obtained from the ascitic fluid are instrumental in identifying the causative organism and are optimally collected through bedside inoculation of blood culture bottles. The analysis of ascitic fluid for total protein, lactate dehydrogenase, and glucose concentrations can aid in differentiating SBP from secondary peritonitis. If there is a suspicion of infection following paracentesis, empirical treatment is advised. Cefotaxime is the most extensively researched antibiotic for this indication, demonstrating excellent penetration into ascitic fluid without causing nephrotoxicity. Prophylactic measures should be reserved for high-risk scenarios. The mortality rates associated with SBP have significantly decreased, primarily due to advancements in early detection and therapeutic interventions.[4-6] Hence; the present study was conducted for analysis of clinical profile of patients of spontaneous bacterial peritonitis.

MATERIALS & METHODS

The present study was conducted for analysis of clinical profile of patients of spontaneous bacterial peritonitis. A total of 50 patients with SBP were evaluated. Patients were interviewed regarding their demographic and clinical characteristics as stated below. Additional clinical and laboratory variables relating to all the individuals from medical charts. Demographic and clinical data were also evaluated. Blood samples were obtained and complete biochemical along with hematological profile was evaluated. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

Table 1: Demographic and medical details

Variables	Number	Percentage
Mean age (years)	44.8 years	
Males	29	58
Females	21	42
Diabetes	12	24
Hypertension	15	30
Dyslipidemia	10	20

Table 2: Clinical profile

Clinical profile	Number	Percentage
Fever	39	78
Abdominal pain	24	48
Abdominal tenderness	20	40
Rebound	13	26
Encephalopathy	29	48

Table 3: Biochemical profile

Biochemical profile	Mean	SD
Hemoglobin (g/dL)	9.9	1.8
Platelets (/mm^3)	149.2	56.7
Albumin (g/dL)	2.1	0.8
Serum creatinine (mg/dL)	1.8	0.9

RESULTS

A total of 50 patients were evaluated. The mean age of the patients was 44.8 years. 58 percent of the patients were males. Diabetes, hypertension and dyslipidemia were seen in 24 percent, 30 percent and 20 percent of the patients respectively. Fever, Abdominal pain, Abdominal tenderness, Rebound and Encephalopathy was seen in 78 percent, 48 percent, 40 percent, 26 percent and 48 percent of the patients respectively. Haemoglobin levels were found to be 9.9 g/dL while platelet count was found to be 149.2 / mm^2. Mean albumin and creatinine levels were found to be 2.1 g/dL and 1.8 mg/dL respectively.

DISCUSSION

Spontaneous bacterial peritonitis (SBP) is characterized as an infection of ascitic fluid that occurs in the absence of a definitive intra-abdominal source amenable to surgical intervention. This condition is frequently observed in individuals suffering from cirrhosis and ascites. Prospective studies tracking patients with ascites over a one-year period indicate that the incidence of at least one SBP episode ranges from 10% to 25%. Furthermore, among patients with ascites who underwent routine paracentesis, the prevalence of active SBP upon hospital admission varied between 10% and 27%. Advancements in the understanding of

SBP, coupled with improved methods for early infection detection and a broader selection of safe and effective antibiotics, have contributed to a significant reduction in infection-related mortality associated with SBP from the 1970s to the 1990s. The prognosis tends to be more favorable when antibiotic treatment is initiated prior to the onset of shock and renal failure. Nevertheless, due to the severe underlying liver disease that often precedes SBP, non-infection-related mortality rates during hospitalization remain notably high, ranging from 20% to 40%. For those who survive their initial hospitalization, the one-year and two-year mortality rates for patients with SBP are approximately 70% and 80%, respectively.[7- 9] Hence; the present study was conducted for analysis of clinical profile of patients of spontaneous bacterial peritonitis.

A total of 50 patients were evaluated. The mean age of the patients was 44.8 years. 58 percent of the patients were males. Diabetes, hypertension and dyslipidemia were seen in 24 percent, 30 percent and 20 percent of the patients respectively. Fever, Abdominal pain, Abdominal tenderness, Rebound and Encephalopathy was seen in 78 percent, 48 percent, 40 percent, 26 percent and 48 percent of the patients respectively. Haemoglobin levels were found to be 9.9 g/dL while platelet count was found to be 149.2 / mm^2. Mean albumin and creatinine levels were found to be 2.1 g/dL and 1.8 mg/dL respectively. Amaral AF et al. investigated the clinical features linked to spontaneous bacterial peritonitis (SBP). The study comprised 45 participants, with a mean age of 53.2 years, of which 82.2% were male and 73.8% were Caucasian. The average Model of End-stage Liver Disease (MELD) score was recorded at 19.5, with 33.3% of the patients diagnosed with SBP. The cohort was categorized into two distinct groups: those with SBP and a control group. Comparative analysis revealed that individuals with SBP exhibited lower mean prothrombin activity time and a reduced median serum-ascites albumin gradient (SAAG) compared to controls. Although the SBP group demonstrated a trend towards a higher mean MELD score, this finding was not statistically significant. Furthermore, a strong positive correlation was observed between the neutrophil count in ascitic fluid and the serum leukocyte count, while a negative correlation was noted between the neutrophil count in ascitic fluid and prothrombin activity time. Several characteristics, particularly liver dysfunction, SAAG, and peripheral leukocytosis, are notably associated with the occurrence of SBP.[10]

Filik L et al evaluated the clinical and laboratory features and prognostic indicators of SBP. One hundred and forty-nine of the patients 214 (69.6%) were males and 65(30.4%) were females. The mean age of all patients was 49.91+/-15.01 years (17 to 90 years). All spontaneous ascites infection episodes were symptomatic. In all of the episodes, the most common clinical features were as follows: icterus (54.5%), abdominal tenderness (54.5%), hepatic encephalopathy (50.7%), fatigue (46.7%), abdominal pain (44.4%) and fever (38.8%). The culture of the ascitic fluid resulted in isolation of bacteria in 25.4% of all episodes. The most frequently isolated microorganisms turned out to be gram negative enteric bacterias (76.2%). Sixty-seven patients in 179 cases with liver disease passed away (37.4%). The use of cefotaxime and newer cephalosporins seemed to have less mortality (31.7%) compared with that (42.2%) observed in patients treated with other antibiotic regimens. Of all the factors analyzed in patients with chronic liver diseases, being Child-Pugh class C, having fatigue, hepatic encephalopathy, hypotension, higher peripheral blood leukocyte count, renal dysfunction, longer prothrombin time, lower ascites protein level and, liver disease for longer time, developing superinfection were statistically correlated with a higher death rate.[11]

CONCLUSION

Diagnostic paracentesis is recommended upon hospital admission for all cirrhotic patients presenting with ascites, to assess the potential presence of SBP.

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