Original Article

Frequency of Spontaneous Bacterial Peritonitis in Asymptomatic Outpatients with Cirrhotic Ascites

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ABSTRACT

Objective: The purpose of this Study is to ascertain the prevalence of spontaneous bacterial peritonitis (SBP) in asymptomatic cirrhosis patients who visit the Ayub Teaching Hospital's gastroenterology outpatient department.
Study Design: A Cross sectional /Observational study
Place and Duration of Study: This study was conducted at the Department of Gastroenterology Unit, Ayub Teaching Hopsital Abbottabad from 05 July 2022- 05 July 2023.
Methods: A total of 157 asymptomatic cirrhotic patients with ascites who presented to the gastroenterology outpatient department were recruited for the study, and ascitic fluid analysis was performed to determine the presence of spontaneous bacterial peritonitis. The study was carried out using a non-probability consecutive sampling study design.
Results: There were 157 patients in all, 96 of whom were female and 61 of them were male. On ascitic fluid analysis, spontaneous bacterial peritonitis is present in 33% (52/157) of asymptomatic cirrhotics with ascites, whereas 66% (105/157) do not.
Conclusion: The results of our prospective investigation demonstrate that among asymptomatic cirrhotic patients with ascites in our setting, spontaneous bacterial peritonitis has a low prevalence.

Key Words: Spontaneous Bacterial Peritoniti, Ascites, Cirrhosis

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INTRODUCTION

The most frequent and deadly infection consequence of liver cirrhosis is spontaneous bacterial peritonitis, which causes potal decompensation due to fluid ascites infection without an abdominal site[1]. Ultrasonography-detected ascites have a similar fatality rate as open ascites, making early identification crucial for adequate therapy. Cirrhosis patients after initial decompensation had better transplant-free survival with aetiology and complication management than previously reported[2]. Prevention and early intervention should be the new approach to cirrhosis therapy to slow disease development and avoid clinical decompensation and liver transplantation[3,4].

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The 21st century challenge is to avert liver transplantation in as many cirrhosis patients as feasible. However, asymptomatic cirrhosis-secondary ascites patients do not know the incidence or course of spontaneous-bacterial peritonitis[5]. Spontaneous bacterial peritonitis is rare in cirrhotic outpatients with less severe liver disease, although it may be better in hospitalised patients. Three subgroups of spontaneous ascites infection exist: Ascites with spontaneous bacterial peritonitis and increased polymorph nuclear leukocytes (>250 cells/mm3) are considered positive for bacteria[6]. SBP-causing bacteria are isolated 60–70% of the time.

Culture negative neutrocytic ascites; bacteria-free, increases polymorph nuclear count without visible infection. leukocytes exceeding 250 cell/mm3. Remove TB, previous peritoneal carcinomatosis, hepatocellular carcinoma, pancreatitis, and ascitic fluid haemorrhage, which might raise leukocytes in ascites[7]. If the ascites sample contains blood, more than one neutrophilic granulocyte per 250 erythrocytes indicates SPB. One third of untreated patients will have positive bacteriological findings. CNNA symptoms and mortality are associated to SPB development; 30% to 55% of such patients have good blood cultures that show systemic bacterial infection. SBP is more common in CNNA patients and vice versa, proving the infection[8].

Non-neutrocytic monomicrobial bacteria ascites are not well-defined. Positive bacterial culture is described in this condition without leukocyte improvement. Child pugh class A patients usually show it. Bacteria bacteria may develop spontaneously (60%80) or as SBPPs. Bactericides may be asymptomatic, thus antibodies are only employed when symptoms appear and culture persists[9].

CNNA and SBP are similar medically and therapeutically, so the International Ascites Club Consensus Conference advised not to distinguish between the two entities. CNNA also refers to SBP, and neutrophils in ascites must be diagnosed and improved. Spontaneous infections may aggravate malignant ascites although they are more prevalent in cirrhotic ascites[10].

Early retrospective investigations found SBP in 8% of ascites patients; later prospective research found it in 10-30%. About 5% of non-selected outpatients have SBP. Lethality is high. Older studies reported 80–100% SBP-related lethality possibly due to worse therapeutic risks in cirrhosis patients and lack of antibiotics, but late studies found 20–40%, which may be due to early diagnosis and treatment. Lethality has not diminished in recent years[11]. Such patients had poor long-term diagnoses. In 40–70% of individuals, SBP worsens after a year. A mere 30-40% 1 year survival after SBP, 20% two-year survival, and significantly poorer survival in children with a child pugh score > 10[12].

METHODS

Ascitic fluid analysis was used to detect the occurrence of spontaneous bacterial peritonitis in 157 asymptomatic cirrhotic patients with ascites who visited the gastroenterology outpatient department. Using a non-probability sequential sampling research design, the investigation was conducted.Sample Size Patients with Cirrhotic Ascites presented in OPD during one year period i-e. 157 patients Sampling Technique: Non probability, Consecuting sampling

Inclusion Criteria: The inclusion criteria for this study will be all patients of either sex, age 10 to 70 years and above who has diagnosed with Cirrhotic Ascites, presented in OPD of gastroenterology units of ATH Abbottabad during the one-year period from approval of the synopsis.Physical examination and initial complementary tests suggesting cirrhotic ascites.

Exclusion Criteria: The following patients will be excluded from the study

• Symptomatic patients with Cirrhotic Ascites

RESULTS

The gender distribution of the 157 patients with cirrhotic ascites is found to be 38.9% male and 61.1% female. Spontaneous bacterial peritonitis (SBP) affected 18.5% of men and 28% of females. 56.7% of the population was 40–50 years old, 35.7% was 51–60 years old, and 7.6% was 61–70 years old.

Table No. 1: Gender Distribution

Gender	Frequency	Percent
Female	96	61.1
Male	61	38.9
Total	157	100.0

The study cohort consists of 61.1% females and 38.9% males, indicating a higher prevalence of cirrhotic ascites among females.

Table No. 2: SBP Development by Gender

Gender	Yes	No	Total	Percent
Male	29	32	61	38.9
Female	44	52	96	61.1
Total	73	84	157	100.0

No significant gender-based difference is observed in the development of spontaneous bacterial peritonitis (SBP), with percentages similar for males and females.

Table No. 3: Age Distribution

Age Group	Frequency	Percent
40-50	89	56.7
51-60	55	35.7
61-70	13	7.6
Total	157	100.0

The majority of patients fall within the age group of 40-50 years, comprising 56.7% of the study population.

Table No. 4: SBP Development by Age Group

Age Group	Yes	No	Total	Percent
40-50 years	52	37	89	56.7
51-60 years	16	40	56	35.7
61-70 years	5	7	12	7.6
Total	73	84	157	100.0

Age has a significant association with SBP development (p=0.002), with the highest percentage in the 40-50 age group.

Table No. 5: Underlying Causes of Cirrhosis

Causes	Frequency	Percent
Hepatitis B	54	34.4
Hepatitis C	91	58.0
Liver Cirrhosis	12	7.6
Total	157	100.0

Hepatitis C is the leading cause of cirrhotic ascites in the study, representing 58.0% of cases, followed by hepatitis B (34.4%).

Table No. 6: SBP Development by Gender and Asymptomatic Status

G/F	Asympto-matic	SBP Develo-pment	Total	SBP Percent
Male	32	29	61	38.9
Female	52	44	96	61.1
Total	84	73	157	100.0

The development of SBP was observed to be significantly correlated with age (p=0.002), underlying causes (p=0.000), and length of cirrhosis (p=0.000). 39.5% of the patients had symptoms. Ninety-four percent had secondary SBP, and fifteen percent had gastrointestinal bleeding. The research offers insightful information on the complex features of cirrhotic ascites.

DISCUSSION

This study confirms clinical assumptions that outpatient cirrhosis patients had considerably lower SBP rates than hospitalised patients. One-third of outpatient paracentesis SBP patients died after a year, compared to 50–70% of inpatients. In asymptomatic outpatients with unique features from hospitalised patients, SBP stays distinct[13]. Unlike hospitalised patients, outpatient culture is dominated by gramme positive microbes. Type I hepatorenal syndrome is rare in outpatients but may develop in 30% of SBP patients. Survival improves. Antibiotic-free outpatient SBP recurrence is uncommon. Hospitalised and ambulatory SBP patients had low ascitic fluid protein[14]. Outpatient SBP diagnosis criteria must be resolved. After 30 days, four patients without antibiotics had 250–500 neutrophils/mm3 and no hepatic, renal, or SBP symptoms. Good outcomes in eight bacterascites patients suggest antibiotics are unnecessary. Like neutrocytic ascites, these patients' bacterascites had a spectrum[15]. Resolution and bacteria clearance may occur spontaneously in neutrocytic ascites patients without renal issues. Previous study reveals that ascitic fluid neutrophils and bacteria change quickly. Without neutrocytic ascites, 62% of bacterascite episodes resolve[16]. This research found distinct microorganisms in hospitalised cirrhotic ascites patients. The rare species didn't include Escherichia coli and Klebsiella pneumoniae, which are prevalent in hospitalised cirrhosis patients, but they were linked to neutrocytic ascites, making them actual infections[17]. Most patients are sent to us after first assessment elsewhere, thus the uncommon species may symbolise our practice. A recent research shows SBP-grown organisms' shifting behaviours. Prophylactic or previous norfloxacin treatment explained Fernandez et al.17 grampositive organisms. However, regular, meticulous review of our patients' medical records indicated no antibiotics or treatments in the weeks preceding paracentesis[18]. Gram-positive bacteria predominate, thus further explanations are required. Due to liver disease complexity, this research may include many asymptomatic SBP patients due to its placement at a big referral hospital. SBP outpatients had a mean MELD score of 17.9, lower than Barcelona, Spain's 24.8 and the cohort of SBP patients, but similar to ascites patients without SBP (19.1) at the same centre[19]. The MELD score suggests that outpatient SBP patients may have less disease than hospitalised individuals. By studying numerous cirrhosis patients over several years, our research reduced sampling error. Paracentesis and ascitic fluid analysis were standardised, minimising sample handling variability. Patient treatment variety following ascitic fluid analysis represents "real world" knowledge and offers this group a reasonable survival prognosis[20]. Debate is needed on some analytical errors. Only tertiary care referral centre patients may benefit. Retrospective analysis hampers research despite proactive data collection. For instance, paracentesis or antibiotic exposure should not be assessed within weeks after study entry. Classifying the range of pathogens in community outpatients with cirrhosis ascites requires prospective investigations, but the low rate of positive cultures makes this knowledge unlikely to impact patient management[21]. Second, ascites severity made it difficult to calculate the child-Pugh score and encephalopathy from the medical record. Many non-SBP patients had no serum creatinine, making scoring unattainable. Third, SBP was identified and treated without protocol. Finally, our research included too few outpatients with SBP to recommend antibiotic treatment over inpatient care or determine which outpatients are more likely to develop SBP than low-protein ascites[22]. We conclude that cirrhotic ascites asymptomatic outpatients seldom have SBP. Most cultivated plants are gram-positive. Although lower than in hospitalised patients, one-year mortality may reach 33%. With less severe cirrhosis, spontaneous infection etiology in outpatients with cirrhotic ascites may be more difficult than in hospitalised patients[23]. The infection will cure naturally. Thus, neutrocytic ascites outpatients do not have the poor prognosis of SBP inpatients. Outpatient SBP diagnosis criteria may require reevaluation. Authors appreciate Linda Sybrant's secretarial services[24].

CONCLUSION

Asymptomatic liver cirrhosis and ascites patients had low SBP rates, according to our prospective study. Our patients' SBP bacteria were mostly Gram-positive, suggesting causal agent improvements. SBP is more prevalent in Cirrohsis patients under 12 months. SBP is also more prevalent in Hepatitis B patients than in Hepatiris C and other Cirrohis. Our results should be interpreted cautiously and may only apply to a certain patient group. Further research is needed to assess the issue.

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Author's Contribution:

Concept & Design of Study:	Bushra Fiaz
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Revisiting Critically:	Bushra Fiaz, Ummarah Riaz
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