OPEN ACCESS ORIGNAL ARTICLE

FREQUENCY OF SPONTANEOUS BACTERIAL PERITONITIS IN ASYMPTOMATIC PATIENTS WITH CIRRHOTIC ASCITES.

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ABSTRACT

BACKGROUND: Spontaneous bacterial peritonitis (SBP) is a serious intra-abdominal infection that commonly occurs in patients with cirrhotic ascites. Although it is usually seen in symptomatic patients, its frequency in asymptomatic patients with cirrhotic ascites remains a topic of clinical interest, as it can go unrecognized, thus increasing the risk of complications. **OBJECTIVE:** To identify the prevalence of asymptomatic spontaneous bacterial peritonitis in patients with cirrhotic ascites. To proponent timely detection and enhance clinical outcome via treatment.**METHODOLOGY:** A cross-sectional study was conducted at Department of Medicine, Chandka Medical College Hospital, SMBBMU Larkana and 154 patients was enrolled in their first visit between 2024 and January 2025. Totally, 154 cirrhotic consecutive patients aged 18–65, ascites patients but no spontaneous bacterial peritonitis symptoms were enrolled. Following obtaining informed consent, the abdominal paracentesis was executed. Ascitic fluid was studied for PMN count and culture result. Data was analyzed using SPSS version 25. **RESULTS:** Of 154 patient, 39 (25%) were found to have asymptomatic Spontaneous bacterial peritonitis by increased PMN and positive fluid culture. Culture positivity was shown in 20(51%) with E. coli being most common organism isolated (60%). Majority of the patient were in Child-Pugh B stage (63.6%). **CONCLUSION:** Twenty five percent of patients with ascites had asymptomatic Spontaneous bacterial peritonitis. Routine diagnostic paracentesis should be done in all such patients whether symptoms is present or not so to reduce morbidity & mortality.

KEYWORDS: Asymptomatic SBP, Cirrhosis, Ascites, Diagnostic Paracentesis, Spontaneous Bacterial Peritonitis

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How to cite this article: Ali N[1], Chandio SA[2], Zafar S[3], Abro HA[4], Ali H[5], Lal V[6] **FREQUENCY OF SPONTANEOUS BACTERIAL PERITONITIS IN ASYMPTOMATIC PATIENTS WITH CIRRHOTIC ASCITES.** J Peop Univ Med Health Sci. 2025:15(2), 254-260. http://doi.org/10.46536/jpumhs/2025/15.02.648

Received On 09 MAY 2025, Accepted On 15 JUNE 2025, Published On 30 JUNE 2025.

INTRODUCTION

Spontaneous bacterial peritonitis (SBP) is one of severe and dangerous infections, which is the kind of liver cirrhotic patients who got ascites without clear sources infection.[1] It is almost always in cirrhotic capacity to happen and be on the look out if the faltante presents with abdominal pain, lung, chest fever or consciousness change.[2] Physical examination in the body of patients most with tender abdomen, the response of perceptible discomfort up to a high degree of guarding and reaction tenderness.[3]

Global SBP prevalence in cirrhosis of liver

patients is 17.12% of which with maximum of Africa 68.20%, South Asia 19.42%, and least of North America 10.81%.[4] Spontaneous bacterial peritonitis account for about 24% of hospital mortality in Pakistan specially in Sindh province.[5] SBP is under treatment mortality may reach 90%, Mechanisms of pathophysiology of SBP involve multifactorial mechanism including lack of gut permeability, impaired immune system and alteration in gut microbiota, all of which, contribute to bacterial translocation.[6]

Diagnosis of SBP in cirrhotic patients with ascites, animal living in this ascitic fluid of culture of a single organism or in leucocyte descending polymorphonuclear (PNIN).[7] Leukocyte 250 cells/mm in the absence of clinical signs of infection. Incidence of Asymptomatic SBP Anyway Have a Range of Extremely Wide Value, accounting in cirrhotic Patients For 10% to 30%.[8]

Many of the cases are asymptomatic but present with delayed diagnosis and increased mortality, it may result in an onset of acute hepatic encephalopathy, septic shock and in HUD /HRS and also lengthen the hospital stay in the patients.[9] It was fluctuating with the only few factors that include the severity of the liver disease, having done antibiotic before the diagnosis, and the diagnostic method. Choudary et al got 115% SBP was in asymptomatic patient visiting in our outpatient.[5]

Many studies have shown that early detection and antibiotic administration of aseptic SBP is important enough, it must alter the outcome.[2-5] Although there is one more prophylactic antibiotic therapy to the vascular high-risk patient clearly documented to prevent the recurrence of SBP.What we know to tell is that it is for asymptomatic SBP in patients with cirrhosis with ascites. With the antibiotic treatment already early demonstrated that morbidity and mortality of this disease can be reduced. As a result, this study aimed to determine the incidence of asymptomatic spontaneous bacterial peritonitis in cirrhotic ascites.

METHODOLOGY

A cross modal study was conducted at the Medicine department of Chandka Medical College Hospital Shaheed Mohtarma Benazir Bhutto Medical University Larkana from 2nd May, 2025 to 31st July, 2025, after approval from ethical committee of ethical review committee of SMBBMU, Larkana (SMBBMU/OFF ERC/270). Sample of 154 patients were calculated using Open Epi sample size calculator, at 95% confidence level, with the expectaton that 11.25% proportion, 5% margin of error.[10]

The patients of age 18-65 years CLD and those with ascites without symptom of bacterial peritonitis are selected by using non probability convenient sampling. The hospitalised patients consisting of common symptoms, fever, abdominal pain/tenderness, hepatic encephalopathy, sepsis shock and HRS - as they taken out of study. Patients were included in the study after they given a signed informed consent and completed presence of demographic and clinical data and viral etiology. The history of a detailed patient history of fever, distension, pain of abdomen as well as other symptoms.

A abdominal paracentesis was done for the liver cirrhosis with ascites diagnosis. The skin, with antiseptic, was cleaned and facetiously infiltrated with 1% lignocaine for the superficial anaesthesia. Larger (20ml) syringe was with one hand, the needle was inserted 3cm below the lower left quadrant of abdominal wall, and 3cm medially to the anterior superior iliac spine. The syringe is then palpately slid while aspirated until fluid is aspirated for the routine examination and culture. Syringe is aspirated, needle is withdrawn and a dry sterile dressing is applied. Bedside, inoculation of blood culture bottles done via 10 mls of ascitic fluid. Spontaneous bacterial peritonitis was

diagnosed if based on an absolute ascitic fluid polymorphonuclear leukocyte count of st- E250 cells/ml and/or positive ascitic fluid culture.

All the information was taken from a performa. The data collected in this form were later entered and analyzed into SPSS, version 25. Descriptive statistics was used to calculate the mean±SD of the quantitative variable that was age. Frequencies and percentages were computed for the qualitative variable i.e. gender, socioeconomic status, culture of ascitic
fluid, polymorphonuclear leucocyte (PMN) count (<250/mm3) and >250/mm3) and spontaneous bacterial peritonitis.

RESULTS

Out 154 patients analyzed 84 (54.5%) is male and 70 (45.5%) is female with the mean age for male were 35±4 (18-60) years, for female were 30±3 (19-58 years) as showed in figure 01. Where as 39 (25%) were asymptomatic as showed in figure 02. In the sac fluid was culture positive of 20 (15%) of the cases, and 39 patients had neaunoscystic ascites (Polymorphic nuclear cell (PMN) 250/ cell / mm) as showed in figure 03.

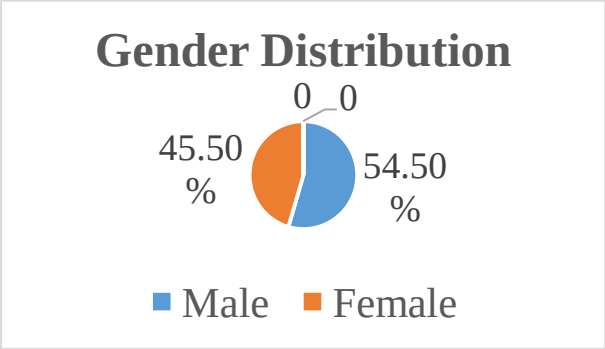

Figure 01 Results of Gender Distribution in study population (n=154)

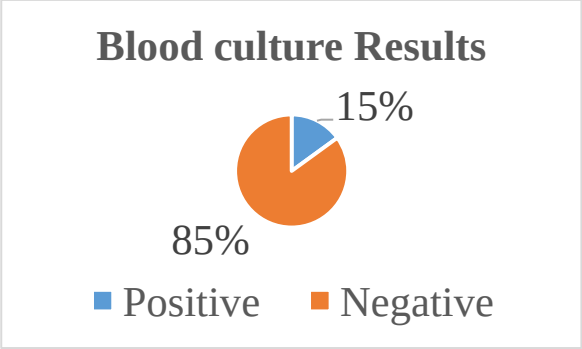

Figure 02: Results of Spontaneous bacterial peritonitis (n=154)

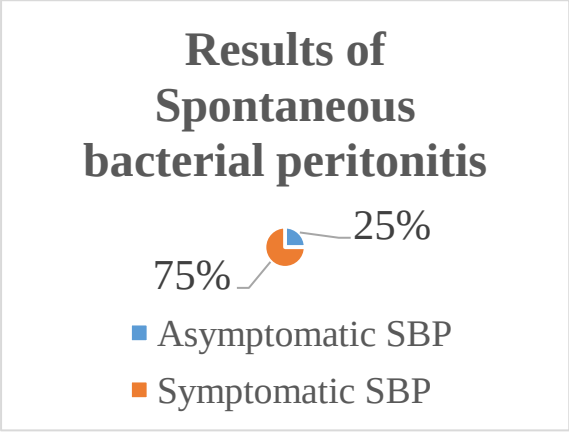

Figure 03: Results of blood culture of study participants (n=154)

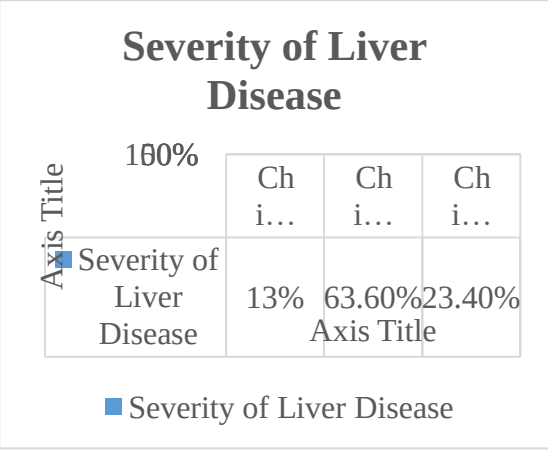

Figure 04: Percentage of severity of liver disease (n=154)

Moreover the severity of liver disease 20 (13%) in child pugh A, 98 (63.6%) in child pugh B, 36 (23.4%) in child pugh C as listed in figure 04.

DISCUSSION

Spontaneously Bacterial Peritonitis was first described in 1893 by Conn and subsequently several case reports.[11]Current global estimates of prevalence of SBP in decompensated cirrhotic patients is 17.12 %. Its maximum reported prevalence of SmBPH (>20%), in African population (68.20%), 19.42% in South Asia and lowest in North America (<11%). Spontaneous bacterial peritonitis account for about 24% of hospital mortality in Pakistan especially Sindh province. SBP has at least 90% undertreated death.[12]-[13]

There are 4 late stages for spontaneous bacterial peritonitis first small intestine bacterial over growth second raised GIT permeability, but not one.[14] The factors associated with SIBO in patients with liver cirrhosis include lack of motility into the small intestine, a situation of common place for the bile, reduction of expired gastric juice to hypochlorhydria, defect of IgA production and malnutrition.[15] In severe liver cirrhosis lacunar patients, there is the decrease smaller intestine motility. This one due to which is flourishing of bacteria as well as by the penetration of a bacteria through a cut mucosal barrier. Portal hypertension is one of the major contributors of intestinal hypersensitivity, and related to the intestinal barrier dysfunction.[16]

It is known that what the definition of bacterial translocation establishes is that the invasion of the organism, alive and in life, by its harmful products, through the epithelial mucosal structure of the lamina propria mucosae, is a systemic infection. [17]Thus that, microorganisms are positioned in mesenteric lymph nodes and/or other extraintestinal sites. Liver cirrhosis patients are medically immunocompromised status due to a large number of disturbances included some: lowered phagocytic activity of degree of level of leukemia gravy ke-series and mononuclear phagocyte system, lowered humoral immunity and a poor activity of opsonin fluid ascitic. All the above-mentioned jointly related factors are the foundation of the production of spontananous bacterial peritonitis in patients with liver cirrhosis complicated by ascites.[18]

Our study demonstrates 39 (25%) asymptomatic SBP. Though, Seyedi et al reported 5%[19], Alhumaid et al reported 11.5% of asymptomatic SBP.[20] Higher percentage in our study might be attributable topoor socio-economic conditions of the patient (low socio-economic patient), late referral, ignorance & poor compliance to prophylactic antibiotics.

Two studies found the asymptomatic SBP rate as 37.14%, 38% higher than the rate of our study. Mean age of patients were 35 ± 4 in male, 30 ± 3 in female of our study that differs from 16, 56.5 ± 4.1 and 51 ± 12.5 years in other studies. It could be that in our region HBV virus is more, where he causes cirrhosis of liver in young age.[21-22]

The microbiological flora in cases of Spontaneous bacterial peritonitis is mainly gram negative, aerobic, gout biofilm, escherichia coli, klebsiella pneumonia, proteus mirabilis, gram positive, viridians streptococcus and aerobic.[23] In our study, ascitic fluid culture, it was positive in 20(13%) asymptomatic-SBP out of. E. coli weisolirovan 12 (60%), streptococci viridian.3 (15%), staphylococci 2 (10%), klebsiella pneumonia in 2 (10%) and 1 (5 %) protein. Huang et al., 22% of case culture, positive 20, which were similar to the result of this study.[17]

Reported E. coli 36,36%, klebsiella 27.27%, streptococcus auses 9% and streptococcus viridian in 18%, Dale et al.,E. coliinserts streptococcus epidermidis in 25%, followed E. coli 16% of case.[15] Fatima et al., enterococcus species in 19% of case positive cultured in 50% of E. coli.

For the evaluation of severity of liver disease, 20 (13%) were in Child pugh A, 98 (63.6%) were in Child pugh B and 36 (23.4%) were in child pugh C respectively.[13]

This study has several limitations. First, its cross sectional, single centre design, limits generalizability of the results to the wider population with liver cirrhosis and ascites. Besides the study sample was collected by convenience sampling, it may cause selection bias. Potential cause for the development of asymptomatic SBP determined by such factors other than mentioned above did not investigated. Further multicentre studies with bigger numbers and prospective design are needed to affirm these conclusions and the preventive measures in this high-risk group.Future prospective, multicenter, and longitudinal study has to evaluate the clinical consequence of patients with asymptomatic SBP. It would be also important to examine the effect of early interventions such as antibiotic prophylaxis to minimize the risks and the mortality.

CONLUSION

The study found 25% of patients with ascites presented with asymptomatic spontaneous bacterial peritonitis. This highlights the importance of routine diagnostic paracentesis, even in the absence of symptoms. Early detection can significantly reduce morbidity and mortality. Preventive measures are recommended for patients with cirrhosis and ascites.

ETHICS APPROVAL: The ERC Gave Ethical Review Approval.

CONSENT TO PARTICIPATE: Written And Verbal Consent Was Taken From Subjects And Next Of Kin.

FUNDING: The Work Was Not Financially Supported By Any Organization. The Entire Expense Was Taken By The Authors.

ACKNOWLEDGEMENTS: We Are Thankful To All Who Were Involved In Our Study.

AUTHORS' CONTRIBUTIONS: All Persons Who Meet Authorship Criteria Are Listed As Authors, And All Authors Certify That They Have Participated In The Work To Take Public Responsibility Of This Manuscript. All Authors Read And Approved The Final Manuscript.

CONFLICT OF INTEREST: No Competing Interest Declared.

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