

## FREQUENCY OF ASYMPTOMATIC SPONTANEOUS BACTERIAL PERITONITIS IN DECOMPENSATED CIRRHOTIC PATIENTS WITH ASCITES

ARFAN MAHMOOD, MUHAMMAD ARIF NADEEM

Department of Gastroenterology Medical Unit III, SIMS / Services Hospital, Lahore

### ABSTRACT

**Introduction:** Spontaneous bacterial peritonitis is an infection of ascitic fluid in cirrhotic patients which occurs most commonly due to bacterial translocation from the intestines and inadequate defense mechanisms to counter these bacteria. Most common symptoms are abdominal pain, tenderness, fever, chills however it can be present in asymptomatic patients.

**Objectives:** The objective of the study is to find the frequency of asymptomatic spontaneous bacterial peritonitis in patients of decompensated liver cirrhosis with ascites.

**Study Design:** Cross sectional survey.

**Setting:** Department of Gastroenterology, Medical Unit-III, Services Hospital, Lahore.

**Duration of Study:** Study was carried out over a period of six months from 13-05-2014 to 12-11-2014.

**Subjects and Methods:** A total of 140 cases were included in this study. After taking informed consent ascitic fluid sample was taken and checked for the presence of spontaneous bacterial peritonitis by complete biochemical and cytological examination.

**Results:** Regarding age distribution of patients, 22 patients (15.7%) were 21 – 40 years old, 87 patients (62.15%) were 41-60 years of age while 31 patients (22.15%) were between 61 – 70 years of age. Mean age of the patients was observed  $53.27 \pm 9$ . Out of 140 patients, 73 patients (52.1%) were male and remaining 67 patients (47.9%) were female. Frequency of asymptomatic spontaneous bacterial peritonitis was seen in 16 patients (11.4%).

**Conclusion:** It is concluded that frequency of spontaneous bacterial peritonitis is high in asymptomatic patients of decompensated liver cirrhosis with ascites.

**Key Words:** Spontaneous bacterial peritonitis, Translocation, Decompensated liver cirrhosis, Ascites.

### INTRODUCTION

Cirrhosis is a serious and irreversible disease. It usually occurs as an end result of hepatocellular injury that leads to both fibrosis and nodular regeneration. Usual presenting complaints are due to upper gastrointestinal bleed, ascites, spontaneous bacterial peritonitis, hepatic encephalopathy, hepatocellular carcinoma and hepatorenal syndrome.<sup>1</sup>

Spontaneous bacterial peritonitis is defined as an infection of previously sterile ascitic fluid, without any apparent intra-abdominal source of infection.<sup>2</sup> Patients with cirrhosis and ascites are more susceptible to bacterial infections, of which spontaneous bacterial peritonitis (SBP) is the most frequent and potentially life threatening.<sup>3</sup> More than 92% of cases of SBP are monomicrobial (aerobic gram negative bacilli being responsible for more than two third of all the cases and *Escherichia coli* being the most common followed by *Klebsiella* species).<sup>4</sup>

It develops in 10 – 30% of hospitalized patients.<sup>5-6</sup> Initially mortality rate was high > 90% when it was first described. However, with the early recognition of disease and prompt and appropriate antibiotic treatment, the in-hospital mortality of an episode of SBP has been reduced to approximately 20%.<sup>7</sup>

Clinical manifestations of SBP are often non-specific and include abdominal pain or tenderness, fever, chills, hepatic encephalopathy and alterations in gastrointestinal motility (vomiting, ileus, diarrhea).<sup>8</sup> One third of patients with infected peritoneal fluid lack any overt signs or symptoms such as fever or abdominal pain at the time of initial presentation.<sup>9</sup>

Diagnosis is made by ascitic fluid complete examination (cell count and culture sensitivity) after abdominal paracentesis. A raised total leucocyte count >500 cells/mm<sup>3</sup> or absolute polymorph nuclear (PMN) cell count of >250/mm<sup>3</sup> or culture positive is considered to be diagnostic of SBP.<sup>10</sup>

Cirrhotic patients with spontaneous bacterial peritonitis may be asymptomatic i.e. not having the clinical sign and symptoms of peritonitis like abdominal pain, abdominal discomfort and fever. As spontaneous bacterial peritonitis can be silent so in order to make the diagnosis of SBP; abdominal paracentesis is necessary to prevent the complications like septic shock, hepatorenal syndrome, and hepatic encephalopathy.<sup>11</sup>

There are various studies regarding the frequency of asymptomatic SBP but the results vary. An international study quotes that frequency of asymptomatic SBP is low i.e. 3.5%<sup>8</sup> and 5.4%<sup>12</sup> while local studies in Pakistan quote that it is quite high i.e. 10%<sup>13,14</sup> and 21%.<sup>15</sup> Rationale of this study is that there are discrepancies in the above mentioned studies regarding frequency of asymptomatic spontaneous bacterial peritonitis in Pakistan as well as abroad. So this study was conducted to determine the frequency of asymptomatic SBP in the local population.

**OBJECTIVE**

The objective of the study is to determine the frequency of asymptomatic SBP in patients of decompensated liver cirrhosis with ascites.

**MATERIALS AND METHODS**

It was a cross sectional survey, conducted in Medical Unit 3, Services Hospital Lahore over a period of six months from 13-05-2014 to 12-11-2014. Total 140 patients, with 95% confidence level & 5% margin of error and taking expected percentage of frequency of asymptomatic SBP 10%, were included.<sup>8</sup>

**Inclusion Criteria:**

1. Patients of either gender between the ages of 20-70 years.
2. Patients of decompensated liver cirrhosis with ascites (as per operational definitions).
3. Asymptomatic patients i.e. no history of fever or pain in abdomen.

**Exclusion Criteria:**

1. Patients who had taken antibiotics in last two weeks.
2. Patients who had the procedure of paracentesis in last two weeks.
3. Patients with upper GI bleed or history of bleed in last two weeks.
4. Patients who will not give the consent.

After informed consent, ascitic fluid sample of 10 ml was taken via paracentesis and checked for the presence of SBP.

**Data Analysis**

Data was analyzed on SPSS version 19. Age was the quantitative variable and its mean and standard deviation was calculated. Presence or absence of spontaneous bacterial peritonitis and gender were qualitative variable and data regarding it was calculated as frequency and percentage.

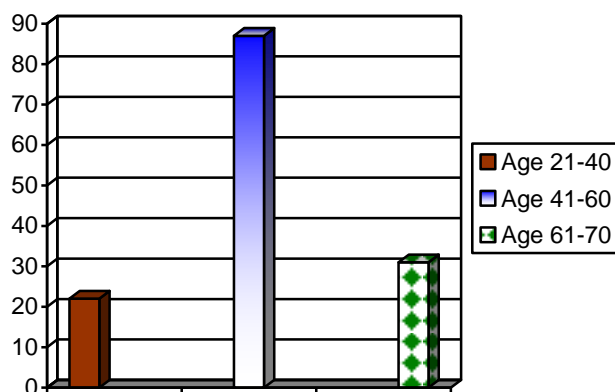
**RESULTS**

A total of 140 cases were included in current study during the study period of six months from 13-05-2014 to 12-11-2014.

Regarding age distribution of patients, 22 patients (15.7%) were 21 – 40 years old, 87 patients (62.1%) were 41 – 60 years of age while 31 patients (22.1%) were between 61 – 70 years of age. Mean age of the patients was observed 52.14 ± 9.61 (table-2).

**Table 1:** Distribution of cases by Age.

Age (Year)	Number	Percentage
21-40	22	15.7%
41-60	87	62.15%
61-70	31	22.15%
Total	140	100%
Mean ± SD	52.14 ± 9.61	



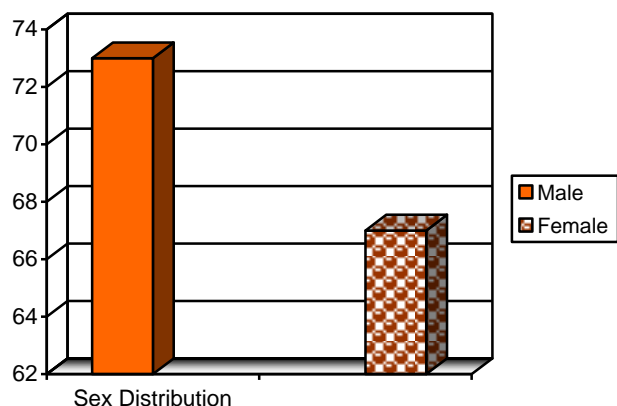
**Graph 1:** Distribution of Cases by Age.

**Table 2:** Distribution of Cases by Sex.

Sex	Number	Percentage
Male	73	52.1%
Female	67	47.9%
Total	140	100%

Out of 140 patients, 73 patients (52.1%) were male and remaining 67 patients (47.8%) were female (table

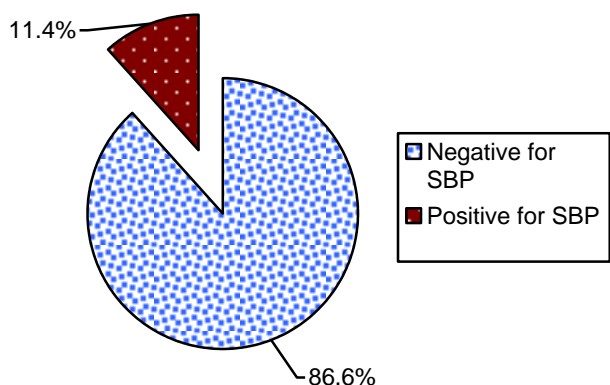
3). Criteria for SBP was positive in 16 patients (11.4%) (table 4).



**Graph 2:** Distribution of Cases by Sex.

**Table 4:** Frequency of Asymptomatic SBP.

Sample Positive for SBP	Number	Percentage
Yes	16	11.4%
No	124	88.6%
Total	140	100.0



**Graph 3:** Frequency of Helicobacter Pylori.

**DISCUSSION**

Spontaneous bacterial peritonitis (SBP) is a life threatening complication of cirrhosis and results from infection of the ascitic fluid.<sup>3</sup> The decompensated cirrhotic patients who develop ascites, can get this infection by bacterial translocation from the intestine. It develops in 10 – 30% of hospitalized patients.<sup>5-6</sup> Mortality rate is high. However with the early recognition of disease and prompt and appropriate antibiotic treatment, mortality of an episode of SBP can be reduced.<sup>7</sup>

SBP can present with non-specific symptoms like abdominal pain or tenderness, fever, chills, hepatic encephalopathy and alterations in gastrointestinal motility (vomiting, ileus, diarrhea)<sup>8</sup> but about one third of patients with infected peritoneal fluid lack any signs or symptoms such as fever or abdominal pain at the time of initial presentation.<sup>9</sup> As spontaneous bacterial peritonitis can be silent so in order to make the diagnosis of SBP; abdominal paracentesis is necessary even in asymptomatic patients to prevent the complications like septic shock, hepatorenal syndrome, and hepatic encephalopathy.<sup>11</sup> Frequency of asymptomatic SBP in patients of decompensated liver cirrhosis with ascites has been a subject of ongoing debate.

In our study we found the frequency of asymptomatic SBP 11.6%. Similar results were seen in a study conducted in medical units of Khyber Teaching Hospital, Peshawar from July 2008 to Jan 2009. This study showed that the frequency of asymptomatic SBP was 10%.

Another study conducted from India in 2011. H. pylori infection was found in 22 (63%) of 35 patients with MHE.<sup>9</sup>

**CONCLUSION**

Data from our study has further proven the increased frequency of asymptomatic spontaneous bacterial peritonitis (SBP) in decompensated liver cirrhotic patients. Early diagnosis of SBP and its treatment may prevent serious complications associated with SBP like septic shock, hepatorenal syndrome, and hepatic encephalopathy.<sup>11</sup>

Although testing for SBP in asymptomatic cirrhotic patients with ascites is not in routine, it is important to consider this infection in all asymptomatic cirrhotic patients with ascites in order to improve their quality of life. Further studies are needed to evaluate the arguments in favour of and against the testing for SBP in asymptomatic patients of liver cirrhosis with ascites.

*Address for Correspondence:*

*Dr. Arfan Mahmood*

*SR Gastroenterology Medical Unit III*

*Services Hospital, Lahore*

*Email: dr\_arfan159@gmail.com*

*Cell: 0332-6522873*

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