

ORIGINAL ARTICLE

Prevalence of Spontaneous Bacterial Peritonitis in Patients Presenting with Upper Gastrointestinal Bleeding in Decompensated Chronic Liver Disease PatientsLIAQAT ALI¹, MUHAMMAD NAEEM², MUHAMMAD IMRAN ULLAH³, MUJAHID ASLAM⁴, HAMID ULLAH⁵, ABBAS MASOOD⁶, ASSAD ULLAH⁷¹Medical officer, DHQ Hospital Mardan²Registrar, Gastroenterology Department, Mardan Medical Complex, Mardan KP³Assistant Professor of Gastroenterology Department, Hayatabad Medical Complex, Peshawar⁴Assistant Professor of Gastroenterology Department, Lady Reading Hospital, Peshawar⁵Assistant Professor of Gastroenterology Department, Qazi Hussain Ahmad Medical Complex, Nowshera, KP⁶Medical Officer, Qazi Hussain Ahmad Medical Complex, Nowshera, KP⁷Veterinary Officer, Civil Veterinary Hospital Gumbat, Kohat, KP PakistanCorresponding author: Hamid Ullah, Email: drhamidullah222@gmail.com**ABSTRACT****Background:** Over the last several decades, chronic liver disease incidence has increased globally. One of the most common complications of cirrhosis is spontaneous bacterial peritonitis.**Objective:** To assess the prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease patients**Methodology:** The current study was cross sectional carried out at the Gastroenterology department, Qazi Hussain Ahmad Medical Complex, Nowshera. The duration of study was one year from August 2021 to August 2022. All the data like name, age, gender and other information related to medical history were recorded on a predesigned proforma. All the analysis of collected data was done by employing IBM SPSS version 24.**Results:** In the current study, totally 100 patients were enrolled. There were 60 (60%) male participants and 40 (40%) patients were female in our study. The overall prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease was 29 (29%).**Conclusion:** Our study concludes that the prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease patients is high. Spontaneous bacterial peritonitis frequency is also high in patients with Child-Pugh Class C as compared to Child-Pugh Class B.**Keywords:** Decompensated chronic liver disease; spontaneous bacterial peritonitis; Prevalence**INTRODUCTION**

Over the last several decades, chronic liver disease incidence has increased globally. The pool is updated annually with 14–26 new instances for every 100,000 people¹. According to the findings of the most recent study, chronic viral hepatitis is among the four primary causes of chronic liver disease that may eventually lead to cirrhosis². Ascites is a common consequence of cirrhosis, and it may often progress to Spontaneous Bacterial Peritonitis (SBP), which is serious condition for hospitalized patients³.

One of the most common complications of cirrhosis is bacterial infections⁴. They are responsible for 25%–46% of hospitalizations for acute decompensation in cirrhotic patients and are linked to substantial morbidity and death⁵. Patients with decompensated cirrhosis had a 30% mortality rate after the first month and a 63% mortality rate after the first year of follow-up due to bacterial infections⁵. The most prevalent bacterial infection in cirrhotic individuals is spontaneous bacterial peritonitis, which is accompanied by skin and soft tissue infections, pneumonia, spontaneous bacteremia and urinary tract infections⁶. Patients sometimes show indications of decompensation during and after an episode of spontaneous bacterial peritonitis, including the onset or worsening of ascites, gastrointestinal bleeding, hepatic encephalopathy and extra-hepatic organ impairment like failure of kidney^{7,8}. The most prevalent cause of death in cirrhotic patients hospitalized with bacterial infections is acute-on-chronic liver failure, which is itself associated with a high deaths owing to multi-organ failure⁶. In everyday practice, the absence of normal signs and symptoms like fever or leukocytosis might make it difficult to diagnose spontaneous bacterial peritonitis and other diseases. Thus, early treatment and diagnosis which are linked to improved results often need a high index of suspicion⁹.

Patients with SBP often have fever, abdominal pain, hepatic encephalopathy, vomiting, diarrhea, and GI bleeding¹⁰⁻¹². Measures that may minimise any negative outcomes in these individuals include early detection and therapy of SBP by administering the proper antibiotics¹⁰⁻¹³. A major risk of negative

consequences associated with SBP necessitates the identification of underlying risk factors. Based on literature searching no such research has been carried out in Nowshera city of Khyber Pakhtunkhwa. This study was therefore conducted to assess the prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease patients.

MATERIALS AND METHODS

The current study was cross sectional carried out at the Gastroenterology department of Qazi Hussain Ahmad Medical Complex, Nowshera. The duration of study was one year from August 2021 to August 2022. The study approval was taken from the hospital ethical committee. The overall sample size based on calculator of WHO was 100 decompensated chronic liver disease patients with upper gastrointestinal bleeding. Patients with decompensated chronic liver disease (child class B & C) of either gender with age ranging from 18-60 years presenting with upper gastrointestinal bleeding and willing to take part in our research were included in our study, whereas the patients with hepatocellular carcinoma, patients on prior antibiotic treatment, or terminally ill patients were excluded from the study. After explanation of study in detail to the participants, an informed consent was taken from all the enrolled patients. All the data like name, age, gender and other information related to medical history were recorded on a predesigned proforma. For determination of severity of Child Pugh class, clinical examination, and some important laboratory investigations like ultrasound abdomen, serum albumin, PT and bilirubin was done for all the enrolled patients. All the patients were considered with liver cirrhosis if they have shortened liver, decreased albumin level and enlarged spleen. All the patients of decompensated chronic liver disease with upper gastrointestinal bleeding (Class B and Class C) were subjected for the diagnosis of spontaneous bacterial peritonitis (SBP). The patients were considered as positive for SBP if they have >1.1 serum ascitic albumin gradient, more than 500/ml total

leukocyte count and/or more than 250/ml neutrophil count. All the analysis of collected data was done by employing IBM SPSS version 24. For variables such as gender and status of SBP, frequency and percentages were determined while for other variables like age and laboratory parameters, means and standard deviation were calculated.

RESULTS

In the current study, totally 100 patients of decompensated chronic liver disease patients with upper gastrointestinal bleeding were enrolled. There were 60 (60%) male participants and 40 (40%) patients were female in our study. (Figure 1) The mean age of the patients with \pm SD was 49 (\pm 12.34) years. On the basis of age distribution, 5 (5%) patients were 18-30 years old, 32 (32%) patients were 30-40 years old, 45 (45%) patients were 41-50 years old and 18(18%) patients were 51-60 years old. (Figure 2) Based on the severity of cirrhosis, 45 (45%) patients were in Child-Pugh Class B whereas 55 (55%) patients were in Child-Pugh Class C. (Figure 3) The overall prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease was 29 (29%). Out of 29 SBP patients, 17 (58.62%) patients were male while 12 (41.38%) patients were female. Out of 29 patients, SBP was observed in 7 (24%) patients of Child-Pugh Class B and in 22 (76%) patients of Child-Pugh Class C. (Table 1)

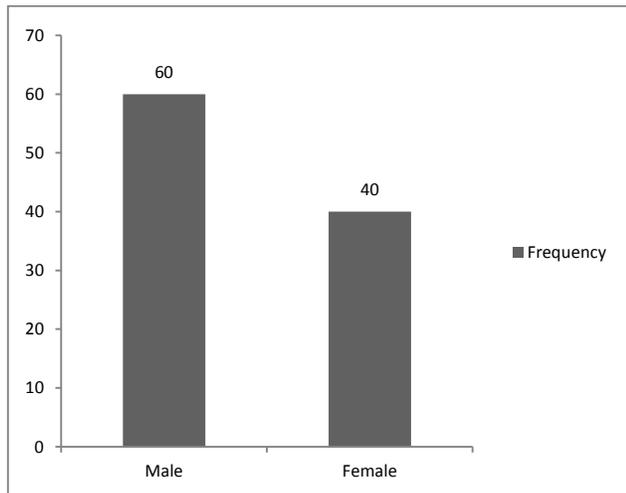


Figure 1: Distribution of participants based on gender

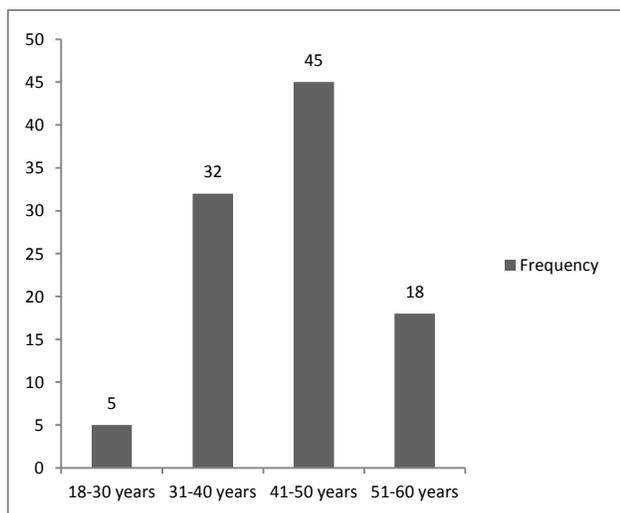


Figure 2: Distribution of participants based on age

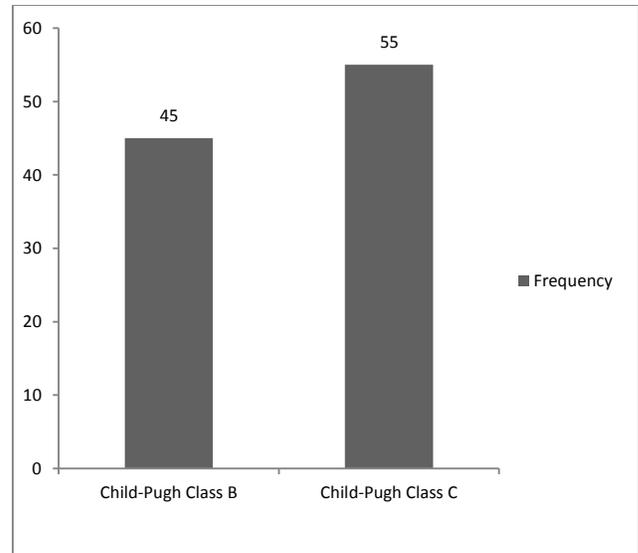


Figure 3: Distribution of participants based on Child-Pugh Class for cirrhosis severity

Table 1: Prevalence of SBP in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease

Parameter	Sub category	Frequency (%)
SBP	Yes	29 (29%)
	NO	71 (71%)
SBP based on gender	Male	17 (58.62%)
	Female	12 (41.38%)
	Class B	7 (24%)
	Class C	22 (76%)

DISCUSSION

Both in medical inpatient and outpatient clinics, liver cirrhosis is among the most often reported disorders. It may result in a number of consequences that impose a significant burden on hospital wards and emergency care ¹⁴. One of these severe consequences is SBP that results from superadded infection from a variety of reasons in addition to diffuse liver damage. Its diagnosis is crucial in order to distinguish it from other peritonitis causes and direct timely treatment, since the latter cause may need surgical intervention. Liver cirrhosis is a fatal and irreversible illness. Hepatocellular damage leads to fibrosis and nodular regeneration. In the globe, cirrhosis and chronic liver disease rank tenth in terms of fatality rates. Common manifestations include hepatorenal syndrome, ascites, hepatic encephalopathy, hepatocellular carcinoma and other conditions like upper gastrointestinal bleeding and spontaneous bacterial peritonitis.

In the current study, totally 100 patients of decompensated chronic liver disease patients with upper gastrointestinal bleeding were enrolled. There were 60% male participants and 40% patients were female in our study. The mean age of the patients with \pm SD was 49 (\pm 12.34) years. On the basis of age distribution, 5% patients were 18-30 years old, 32% patients were 30-40 years old, 45% patients were 41-50 years old and 18% patients were 51-60 years old. Based on the severity of cirrhosis, 45% patients were in Child-Pugh Class B whereas 55% patients were in Child-Pugh Class C. The overall prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease was 29 (29%). Out of 29 SBP patients, 58.62% patients were male while 41.38% patients were female. In our study, out of 29 patients, SBP was observed in 24% patients of Child-Pugh Class B and in 76% patients of Child-Pugh Class C. Similar study was carried out by Ivan Gunjača et al. on cirrhotic patients. They reported 21.2% prevalence of SBP in cirrhotic patients which is in accordance with our findings. In the same study the frequency of SBP amongst

cirrhotic patients with upper gastrointestinal bleeding was 39% which is almost same to our findings¹⁵. Hospitalized cirrhotic individuals had a 10-30% prevalence of SBP¹⁶. According to the findings of Navasa et al., the risk of cirrhotic patients experiencing their first episode of SBP within a year is around 10%¹⁷. Llach et al. found that the likelihood of getting the first episode of SBP was 11% after a year and 15% after three years in a group of 127 individuals who had been admitted to the hospital for management of an episode of ascites¹⁸. A study carried out by Sidra Kiran et al. reported comparable results with our findings. In their study they reported 30% prevalence of SBP in liver cirrhosis patients which is almost similar with our findings¹⁹. Our results agreed with those of previous research that different authors had conducted in various parts of Pakistan. This incidence was seen in investigation by Nauman et al. and it ranged between 30 and 35% of cases in patients with liver cirrhosis²⁰. When looking at worldwide statistics, it was not surprised to find that this problem only occurred in 7-23% of patients²¹. This is likely due to the pathophysiology of the illness, since our country is a poor nation with limited resources and hence lacks the right health facilities in early diagnosis, correct follow up, and early therapy of the difficulties at the outset of the disease's progression, which explains why the rates were high not only in the current research but also in others from the same area. In our study, out of 29 patients, SBP was observed in 24% patients of Child-Pugh Class B and in 76% patients Child-Pugh Class C. In accordance with our study, a previous study done by Khan et al. reported more cases of SBP in patients with Child-Pugh Class C as compared to Child-Pugh Class B which is consistency with our results²². Another study carried out by Muhammad Siddique et al. reported 43% prevalence of SBP in liver cirrhosis patients which is not in accordance with our findings²³.

CONCLUSION

Our study concludes that the prevalence of spontaneous bacterial peritonitis in patients presenting with upper gastrointestinal bleeding in decompensated chronic liver disease patients is high. Spontaneous bacterial peritonitis frequency is also high in patients with Child-Pugh Class C as compared to Child-Pugh Class B.

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