

# Spontaneous Bacterial Peritonitis in Liver Cirrhosis Patients Having Hepatic Encephalopathy

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## ABSTRACT

**Aim:** To find out the frequency of SBP in patients with Hepatic Encephalopathy and association of different grades of hepatic encephalopathy with SBP.

**Methods:** This cross sectional study was conducted at Bahawal Victoria Hospital, Bahawalpur from March 2012 to February 2013. Patients with hepatic encephalopathy and ascites age from 20 to 60 years were included in this study. Patients were labeled as having SBP when ascetic fluid neutrophil count > 250/ml. Hepatic encephalopathy was graded according to west heaven criteria.

**Results:** Total 130 patients with hepatic encephalopathy were included in this study. Mean age of patients was  $39.86 \pm 12.9$ . Males were 106(81.5%) and females were 24(18.5%). Overall SBP was present in 64 (49.2%) patients.

**Conclusion:** SBP and HE are common complications of liver cirrhosis patients. SBP commonly found in HE patients. Both may precipitating each other as a risk factor. So every patient of liver cirrhosis with HE should be assumed have SBP until proved otherwise. So should be treated or prevented promptly.

**Keywords:** Hepatic Encephalopathy, SBP

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## INTRODUCTION

Hepatic encephalopathy describes a wide spectrum of often-reversible neuropsychiatric abnormalities that occur in patients with acute or chronic liver disease<sup>1,2</sup>. Often, the term "portal-systemic encephalopathy" is used to emphasize the failure of the liver to detoxify toxins that escape from the intestine. These toxins thus bypass the liver and enter the systemic circulation, causing the primary or secondary changes in brain neurochemistry that produce symptoms of hepatic encephalopathy. This metabolic disorder is characterized by reversibility, which suggests a lack of persistent structural lesions in the brain<sup>3</sup>.

Hepatic encephalopathy can be develop due to many factors which include gastro-intestinal bleeding, infections, constipation, electrolyte imbalance (hyponatremia, hypokalemia), hypoglycemia, medicines (sedative-hypnotics, opiates). It is imperative to identify one of these factors so that prompt treatment given to get patient out of encephalopathy<sup>4,5</sup>. Bacterial infections are important cause of morbidity and mortality in patients with hepatic encephalopathy<sup>6</sup>. Spontaneous bacterial peritonitis (SBP), Constipation, urinary tract infections and other infections are the common precipitating factor in these patients<sup>7</sup>. Spontaneous bacterial peritonitis (SBP) is a serious and potentially life threatening complication and associated with a 30—

50% mortality rate, if not treated and death can occur within few hours<sup>8,9</sup> so early diagnostic paracentesis should be performed in every patient presented with hepatic encephalopathy<sup>10</sup>.

Keeping in view the high mortality rate of SBP in patients of liver cirrhosis, a study was conducted to find out the frequency of SBP in patients with hepatic encephalopathy and to determine the association of different grades of hepatic encephalopathy with SBP.

## MATERIAL AND METHODS

This cross sectional study was conducted at Bahawal Victoria Hospital, Bahawalpur from March 2012 to February 2013. Total 130 patients were included in this study after informed consent. An approval was taken from institutional review committee. Patients with hepatic encephalopathy and ascites age from 20 to 60 years were included in this study. Patients with fulminant hepatic failure, non-cirrhotic portal hypertension, and uremic, anoxic, cerebral and metabolic encephalopathy were excluded from this study. Detailed history of all patient were taken and physical examination was done. Patients were labeled as having SBP when ascetic fluid neutrophil count > 250/ml. Hepatic encephalopathy was graded according to west heaven criteria as shown in table 1. Demographic data of all the patients, clinical and laboratory findings were recorded in pre-designed proforma. All the data was entered in SPSS version 16. All patients meeting the inclusion criteria underwent diagnostic paracentesis. Patients were labeled as having SBP when ascetic fluid neutrophil

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count >250/ml. A detailed Performa of demographic, clinical and laboratory parameters were recorded. This study was approved from ethical review board.

**RESULTS**

Total 130 patients with hepatic encephalopathy were included in this study. Mean age of patients was 39.86±12.9. As shown in table 2 out of 130 patients of hepatic encephalopathy, males were 106(81.5%) and females were 24(18.5%). Patients with HBsAg positive were 47(36.2%), Anti-HCV positive was 78(60%) and Both HBsAg& Anti-HCV Positive were 5(3.8%). As shown in table 3, all patients with hepatic encephalopathy were graded according to west heaven criteria. Among 130 patients 40(30.8%), 55(42.3%), 18(13.8%) and 17(13.1%) had Grade I, II, III and IV hepatic encephalopathy respectively. SBP was present in 26(65%), 26(47.3%), 8(44.44%) and 4(23.5%) patients in Grade I, II, III and IV. Overall SBP was present in 64(49.2%) patients. There is significant association between grades of hepatic encephalopathy and SBP (P. value <0.05).

Table 1: West Haven criteria

Grade 1	Trivial lack of awareness Euphoria or anxiety Shortened attention span Impaired performance of addition
Grade 2	Lethargy or apathy Minimal disorientation for time or place Subtle personality change Inappropriate behavior Impaired performance of subtraction
Grade 3	Somnolence to semi stupor, but responsive to verbal stimuli Confusion, Gross disorientation
Grade 4	Coma (unresponsive to verbal or noxious stimuli)

Table 2

Male	106(81.5%)
Female	24(18.5%)
Viral cause of cirrhosis HBsAg positive	47 (36.2%)
Anti-HCV positive	78 (60%)
Both HBsAg & Anti-HCV Positive	5 (3.8%)

Table 3

Grades	Spontaneous Bacterial Peritonitis		Total
	Present	Absent	
Grade I	26(65%)	14(35%)	40(30.8%)
Grade II	26(47.3%)	29(52.7%)	55(42.3%)
Grade III	8(44.44%)	10(55.56%)	18(13.8%)
Grade IV	4(23.5%)	13(76.5%)	17(13.1%)
Total	<b>64(49.2%)</b>	<b>66 (50.8%)</b>	<b>130</b>

P value: 0.03

**DISCUSSION**

Hepatic Encephalopathy has never been less than an unsolved mystery for physicians and researchers around the globe. Since the time of Hippocrates it has been difficult to diagnose and manage any patient of hepatic encephalopathy. Although the exact pathogenic mechanism is yet to be determined, modern research has proved time and again that identifying and removing precipitating factors is still the key step in the overall management. In majority of patients with HE, a clearly definable precipitating factors is identified and reversal or control of these factors is the key step in the management<sup>11,12</sup>.

SBP needs early diagnosis to prevent mortality<sup>9</sup>. In present study SBP was presented 64(49.2%) patients. This percentage is showing very high presence of SBP in patients of liver cirrhosis with hepatic encephalopathy. This high percentage of SBP in these patients is due to high rate of general infection, unhygienic living conditions, low immunity to fight infection because of malnourishment and frequent use of proton pump inhibitors (PPI). These patients are not taking good quality diet because of anorexia, poverty, food faddism. Another most important reason for high SBP rate in this area is that these patients are not taking primary or secondary prophylaxis of antibiotics.

The reason for high rate of SBP in these patients' unhygienic living conditions, high rate of general infection, frequent use of proton pump inhibitors (PPI) and low immunity to fight infection because of malnourishment. These patients are not taking good quality diet because of anorexia, poverty, food faddism. Another most important reason for high SBP rate in this area is that these patients are not taking primary or secondary prophylaxis of antibiotics<sup>13</sup>.

The frequency of SBP is ranges from 32% to 64% in different studies of Pakistan<sup>14,15</sup>. In one study of Ram N et al, frequency of SBP was found 48.46% which is similar with this study. Mumtaz et al is in contrast with this study, who found SBP in 20.5% patients with hepatic encephalopathy<sup>16</sup>.

SBP was detected the most common 67% precipitating factor by Devrajani et al<sup>17</sup>, this percentage is also in contrast with this study.

Primary prophylaxis of antibiotics is recommended for high risk cirrhotic patients with ascitic fluid albumin <1.5gm/dl<sup>6</sup>. Antibiotic prophylaxis in cirrhotic patients with ascites is mandatory. Variceal bleed is the most common event in advanced cirrhosis. It leads to hepatic encephalopathy and SBP. However antibiotic therapy decrease infection (SBP) and increase survival. In our study, SPB more observed in grade I and II of

hepatic encephalopathy. This is due to greater risk factor of GIT bleed in these. Hepatic encephalopathy and SBP both are important complications in cirrhotic patients and potentiate each other in the presence of any participating factors.

## CONCLUSION

SBP and HE are common complications of liver cirrhosis patients. SBP commonly found in HE patients. Both may precipitate each other as a risk factor. So every patient of liver cirrhosis with HE should be assumed have SBP until proved otherwise. So should be treated or prevented promptly.

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