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Research Article

**AN ASSESSMENT OF CLINICAL CHARACTERISTICS AND  
RESULTS AMONG SPONTANEOUS BACTERIAL  
PERITONITIS (SBP) PATIENTS**<sup>1</sup>Dr. Hassan Hamid Mahmood, <sup>2</sup>Dr. Muhammad Usman Khawaja, <sup>3</sup>Dr. Kashif Hussain  
<sup>1</sup>UHS, Lahore

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**Abstract:**

**Objectives:** This research is conducted to observe the characteristics and results of spontaneous bacterial peritonitis cases.

**Material and Methods:** This research was carried out from February to September 2017, at Jinnah Hospital, Lahore. A total of 50 SBP patients with known cirrhosis were observed. PMN count of > 250 of the ascitic fluid cell is used for diagnosis of SBP. Cell count of ascitic fluid was noted serially at about 24 hrs, 48 hrs up to 5 days.

**Results:** The ratio of female: male in the patients of SBP was (1:2). Mean of the diagnosis age was 28 to 74 years (50.96 ± 11.48) years. The mutual characteristics clinically were: fever (56%), jaundice (64%), altered sensorium (44%), abdomen pain (54%), Malena or hematemesis (40%) and icterus (74%), oliguria (32%), hypotension (24%), abdominal tenderness (60%) and asterixis (46%). It was a severe result with a rate of mortality 42%.

**Conclusion:** It was observed that the tendency of male cirrhosis patients was to be prey to SBP than the female cirrhosis patients. The greater number of patients were in the 60s of their lives. There is a high rate of mortality in this research.

**Keywords:** Serial Ascitic Fluid Cell Count, Cirrhosis and SBP.

**Corresponding author:**

Hassan Hamid Mahmood,  
UHS, Lahore.

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## INTRODUCTION:

In the practical aspect of the clinic, cirrhosis liver diseases' most common disorder is of hepatological in nature. HE (Hepatic Encephalopathy) is a fatal occurrence for these patients [1]. SBP (Spontaneous Bacterial Peritonitis) appears before HE but leads to it (HE) and consequently worsen the state of the patients of cirrhosis [2].

The characteristics of SBP are immediate chills and fever with the pain and sensitivity of abdomen, leucocytosis and soundless bowels. It is disclosed through paracentesis that white blood cells are mostly dominated by PMN (polymorphonuclear cells) [3]. For most of the cases, only one organism is cultured of the intestine group (from ascitic-fluid) [4]. This organism can also be retrieved blood culture. The death rate of the patients is high because of the complications, infection per se and other dangers of liver diseases like hepatorenal syndrome or bleeding varices [5].

Although it first appeared in the cirrhosis of alcoholic patients but later it was found in chronic active hepatitis, postnecrotic cirrhosis, malignant ascites and primary biliary cirrhosis, Cardiac cirrhosis and Nephrotic syndrome [6 – 10].

Therefore, hypotension, hypothermia, unexplained fever, encephalopathy, clinical deterioration or abdominal pain may indicate SBP in the liver patients [11, 12]. As the liver patients are prone to be SBP victims so all liver patients should have a screening of SBP ascitic fluid with PMN cell count. There are greater chances of mortality if the treatment is not started in time, so they are given heavy antibiotics because of poor prognosis [12]. The PMN cell count of ascitic fluid can monitor the duration and the treatment of SBP through antimicrobial therapy [13].

## MATERIALS AND METHODS:

This research was carried out from February to September 2017, at Jinnah Hospital, Lahore. The total number of patients studied for hepatic cirrhosis or liver disease were 50. The confirmed patients of hepatic cirrhosis through ultrasound or liver biopsy were observed for Spontaneous Bacterial Peritonitis (SBP).

The criteria for SBP diagnosis was PMN cell count of ascitic fluid exceeding 250 cells/ mm<sup>3</sup> OR Cell count of ascitic fluid exceeding 500 cells/ mm<sup>3</sup> with >50% PMN cells and infection is not of a principal basis.

The ultrasound machine for this research was Mechanical Probe USG (3.5 MW) for diagnosing ascites and liver cirrhosis with a reference

particularly to the spleen, portal vein and caudate lobe. For biopsy of liver, the cutting needle in use was of VIM Silverman, on requirement basis. The past and present history of genitourinary infection and tuberculosis were given due importance. The history of deterioration and fever was carefully recorded to minimize other reasons for it. Before the start of antibiotics and giving invasive procedures of endoscopy, therapeutic aspiration or liver biopsy, the analysis of Ascitic fluid was recommended first.

Paracentesis was undertaken by all the patients after admission in 24 hrs duration. Taking aseptic precautions, the patients were injected 40 ml ascitic fluid.

1. For clinical checkup in the microbiological laboratory, the ascitic fluid of 10ml was collected from each patient.

2. For the purpose of conventional culture ascitic fluid of 10ml was referred to the laboratory.

3. For cytological and biochemical examination, the remaining ascitic fluid of 20ml was sent to the laboratory.

For cell count and cell type, the analysis of patients' Ascitic fluid was carried out. For knowing pathogenic organisms culturing of Ascitic fluid was done. Because of the unavailability of services fungi, viruses and culture for anaerobes of ascitic fluid were not performed in this research. The data collected were analyzed through SPSS. For data which was categorical in nature, frequencies were determined, and for data numerical in nature SD and mean were determined.

## RESULTS:

A total of 50 SBP patients were observed in the ages of more than twelve years keeping in their clinical history and examination. The following observations were noted:

The female population was less dominated by SBP i.e., 34% (17 cases only) as compared to its male counter par which was 66% (33 cases), as the distribution of sex was in the cirrhosis patients.

There was a wide range of distribution of age in the patients as the youngest was of 28 years and the oldest was of 74 years of age. The patients of old age (66%), having age more than 50, with a mean age 51 years, were found to be predominantly the victims of SBP and cirrhosis.

Among these patients most were alcoholics 86% and 4% of HBsAg +ve. The aetiology of the remaining patients (10%) was unable to be calculated and it may have been due to nutritional or cryptogenic reasons.

Each patient was having abdomen fluid which was free and moderate or massive in magnitude. Although the starting of fluid accumulation was slow in the beginning its progress was speedy in 28 patients. At about ninety per cent (90%) patients of ascites were pedal edema showing hypoalbuminemia. The patients were mostly in the later stage of liver disease. Jaundice was a common feature in about sixty-four percent (64 %) patients, at admission time, showing the failure of hepatocellular. Patients having pain in the abdomen were fifty-four percent (54%), patients having fever were fifty-six percent (56%) and about forty-four percent (44%) patients were showing alteration in sensorium in the form of restlessness, irritability and deep coma or drowsiness showing deteriorating sensorium. Generally, there was a low-grade fever and the pain in the abdomen was in the epigastric area or in the flanks. At about forty percent (40%) showed manifestations of bleeding in Malena or hematemesis form which represents that they were having oesophageal varices and were in the later stages of liver disease although in some of the patients the reason for bleeding was alcoholic gastritis and portal gastropathy. At about thirty-two percent patients (32 %) showed the reduced output of urine.

In this study, each patient had a severe or a moderate ascites, sixty percent (60%) patients were showing shifting dullness while remaining forty percent (40%) patients were having tense ascites. In about eighty percent (80%) of the patients, the abdomen veins had been engorged and distended. The range of bilirubin was (1 – 13.2 mg/dl) and seventy-four percent (74%) patients were having jaundice. Forty-six percent (46%) patients were observed to have asterixis. The altered-sensorium was seen in all the cases. In about sixty percent (60%) of the patients were observed with abdominal rebound which is a feature of SBP. In twenty percent (20%) patients splenomegaly was significant clinically otherwise because of tense ascites the splenomegaly was not possible. Yet, in eighty-four percent (84%) patients splenomegaly discovered through USG.

The results were devastating due to the mortality rate up to forty-two percent (42%). Besides other liver disease complications, the majority of the patients got mortality because of HE (hepatic encephalopathy) and SBP as compared to those who died because of hepatorenal and hematemesis syndrome.

**Table – I: Various Features**

	Variables	Number (50)	Percentage
Gender	Male	33	66
	Female	17	34
Age	21 - 30 Years	3	6
	31 - 40 Years	7	14
	41 - 50 Years	11	22
	51 - 60 Years	17	34
	61 - 70 Years	9	18
	> 70 Years	7	14
Etiology	Alcoholic	43	86
	HBsAG	2	4
	Others	5	10
Symptoms	Fever	28	56
	Icterus	37	74
	Asterixis	23	46
	Hypotension	12	24
	Petechiae, Purpura, Ecchymosis	17	34
	Abdominal Tenderness	30	60
	Ascites	50	100

	Hepatomegaly	1	2
	Splenomegaly	10	20
Outcomes	Survived	29	58
	Death	21	42

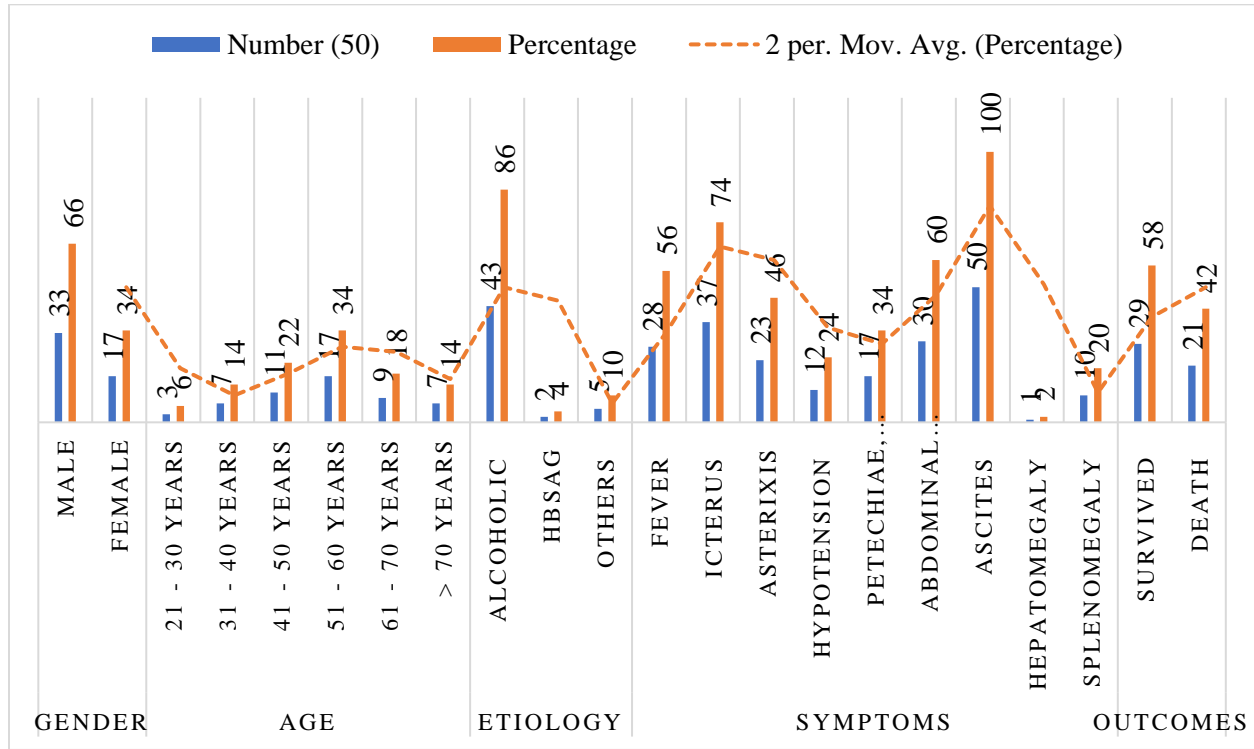
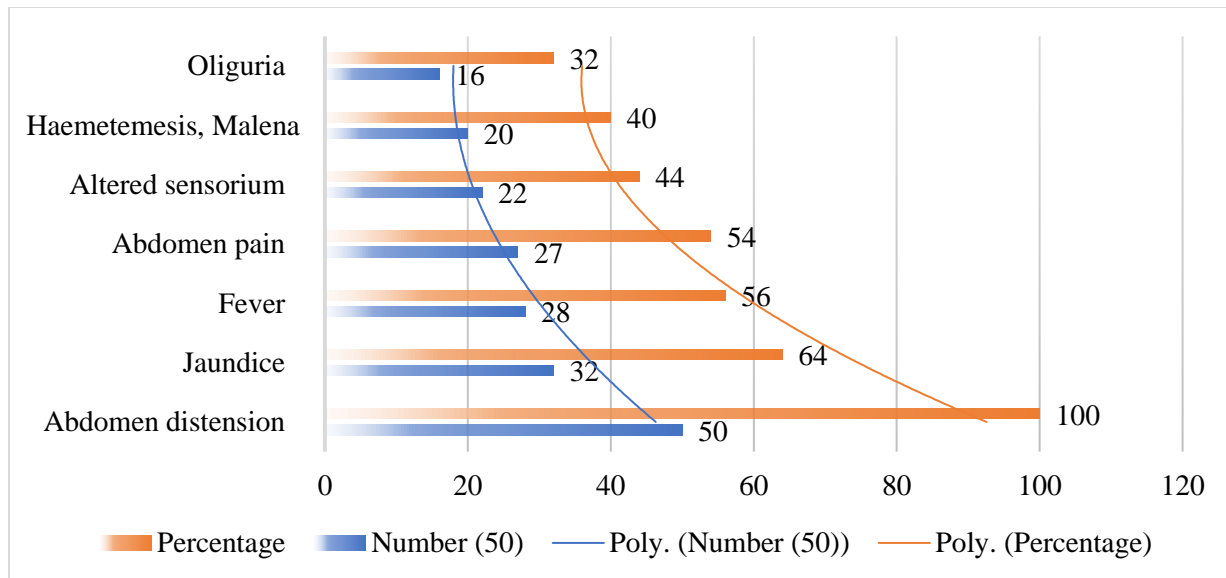


Table – II: Symptoms Stratification

Symptoms	Number (50)	Percentage	90% - CI
Abdomen distension	50	100	94.89 - 100.00
Jaundice	32	64	52.38 - 74.18
Fever	28	56	44.44 - 66.94
Abdomen pain	27	54	42.00 - 65.09
Altered sensorium	22	44	33.06 - 65.66
Hematemesis, Malena	20	40	29.40 - 51.62
Oliguria	16	32	22.31 - 42.53



### DISCUSSION:

The total number of patients studied for hepatic cirrhosis or liver disease were 50. The ultrasound machine for this research was Mechanical Probe USG (3.5 MW) for diagnosing ascites and liver cirrhosis with a reference particularly to the spleen, portal vein and caudate lobe. The confirmed patients of hepatic cirrhosis through ultrasound or liver biopsy were observed for Spontaneous Bacterial Peritonitis (SBP).

The male patients showed a predominance of Spontaneous Bacterial Peritonitis (SBP) 66% (33 cases) as compared to 34% (17 cases) of female patients. The patients were mostly in the 60s of their age. Fifty-one (51 yrs) was the diagnosis-time, mean age. Filik L, Unal S diagnosis-time mean age was 49.9 as compared to N Rawat, MK Bhatnagar which was 39 yrs and in the research of Mihas AA having to mean age 44 [14 – 17]. In the research conducted by us, the mean age is a bit greater as compared to observations by other researchers, although the number of female and male patients was the same in most of the researches.

Jaundice, with tenderness and pain in the abdomen along with fever, was the SBP common feature in the series of this research. Seventy-four percent (74%) of patients were having jaundice in comparison with the series of Filik I, Unal S which was (54.5 %) and the series of Jose Pinto Correia which was (81%), it all showed decompensated liver disease [18]. In all these studies jaundice was the most common feature of all the series. DN Amrapurkar research is an exception as it shows (28%) HE otherwise the HE ratio is very high in our research (48%), according to Mihas AA

observation it is (46%), in Jose Pinto Correia, Conn HO research it is (71%) and in Filik L, Unal S study it is (50.7%) [6]. Except for the DN Amrapurkar study the incidence of hepatic encephalopathy was very high ranging from I [17 – 19]. It shows that the patients are in the advanced cirrhosis stage. The HE frequency is comparatively higher in Jose Pinto Correia, Conn HO research, the reason for this may be the absence of proper medications at that time [10]. Another reason may have been the ignorance of the SBP complications and no screening test for SBP of ascites patients in the year 1975. Fifty-four percent (54%) patients were having pain in the abdomen and fifty-six percent (56%) were having a fever which show that all patients may not have pain in the abdomen or fever but they will be having HE (hepatic encephalopathy). Therefore, all HE patients must have screening for SBP. The prevalence of tenderness and pain in the abdomen of our research can be compared to other researches. The mortality rate in the study of Hoefs JC, 1984, was seventy eight percent (78%) while in Jose P study, 1975, it was ninety six percent (96%). The high mortality rate in these researches is because of the lack of high potency antibiotics at that time. The rate of mortality had been minimized, now a days, because of the availability of higher antibiotics like quinolones and cephalosporins. As the treatment has become more aggressive and there is an increased mindfulness of SBP so it has also led to the decrease in the rate of mortality.

Our study mortality rate is 42% which is near to Filik L, Unal S rate 37.4% and DN Amrapurkar rate 43%. However, it is still a very high rate of mortality for the advanced stage patients of cirrhosis.

**CONCLUSION:**

The male patients showed a predominance of Spontaneous Bacterial Peritonitis (SBP) in comparison to the female patients. The patients were mostly in the 60s of their age. There is a high rate of mortality in this research.

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