



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1064335>Available online at: <http://www.iajps.com>

Research Article

**SPONTANEOUS BACTERIAL PERITONITIS: A COMMON AND
LETHAL COMPLICATION OF CHRONIC LIVER DISEASE**Prof. Dr. Shamsuddin Shaikh^{1*}, Prof. Dr. Bikha Ram Devrajani², Dr. Naveed Aslam Lashari³, Dr. Syed Zulfiqar Ali Shah⁴, Dr. Zulfiqar Ali Qutrio Baloch⁵¹ Pro Vice Chancellor, Peoples University of Medical & Health Sciences for women, Shaheed Benazirabad, Sindh Pakistan² Vice Chancellor, Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro Sindh Pakistan³ Medical Specialist Pakistan Air Force (P.A.F) Hospital Lahore, Punjab Pakistan⁴ Department of Medicine, Liaquat University Hospital Hyderabad Sindh Pakistan⁵ Brandon Regional Hospital Brandon, Florida, U.S.A**Abstract:****Objective:** To determine the frequency and pattern of spontaneous bacterial peritonitis in patients with chronic liver disease.**Patients and Methods:** Total fifty patients of age ≥ 12 years and either gender had liver cirrhosis (known / diagnosed cases) with ascites were included in this six months cross sectional study. The ascitic fluid analysis was done by taking 10 ml of ascitic fluid in a 10 CC sterilize syringe and ascitic fluid neutrophil count greater than 250 cells/ μ L was considered to be the case of SBP. The frequency and percentages was calculated for categorical variables whereas the numerical statistics were used to compute mean \pm SD in SPSS 16.**Results:** During six months study period total fifty patients with chronic liver disease were evaluate for spontaneous bacterial peritonitis. The mean \pm for age (years) & duration of chronic liver disease (years) for whole population was 45.62 ± 5.98 & 7.93 ± 2.41 respectively. The SBP observed in 37 (74%) while the common pathogen detected were E. Coli 10 (27%), S. aureus (18.9%) and Klebsiella 6 (16.2%) whereas regarding outcome 26 (70.2%) patients were recovered, recurrence observed in 5 (13.5%) and mortality in 6 (16.2%) respectively.**Conclusion:** SBP is a common and recurrent complication of cirrhosis and the ascitic fluid examination including culture and sensitivity is more sensitive and best tool as far as diagnose and management is concerned**Keywords:** Spontaneous bacterial peritonitis, Chronic liver disease, Hepatitis B and Hepatitis C.**Corresponding author:****Prof. Dr. Shamsuddin Shaikh,**

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Please cite this article in press as Shamsuddin Shaikh *et al.*, *Spontaneous Bacterial Peritonitis: A Common and Lethal Complication of Chronic Liver Disease*, *Indo Am. J. P. Sci*, 2017; 4(11).

INTRODUCTION:

Spontaneous bacterial peritonitis was coined and needs to distinguish it from other infection as surgical peritonitis. Although majority of patients with SBP have a root of infection as respiratory or urinary tract infection [1]. The diagnosis of SBP is confirmed to have positive ascitic fluid culture and a raised ascitic fluid absolute PMN [polymorphonuclear count (i.e. >250 cells/mm³)] without an evident intra-abdominal surgically treatable source of infection [2-4]. Spontaneous bacterial peritonitis occurs due to chronic liver disease (CLD) and this liver disease might be acute as fulminant hepatic failure and usually chronic (cirrhosis) or sub acute hepatitis [5]. Majority of patients with SBP have clinical sign and symptoms suggestive of peritoneal infection as fever, disturbance in GI motility, abdominal pain and distention, hepatic encephalopathy, impaired liver or renal functions are the preeminent features [6]. Regarding the pathogens, the E Coli, Klebsiella and streptococci are most common organisms while the anaerobes are also detected and are probably reflection for non recognized cases of SB [7]. Empirical treatment is indicated as spontaneous fluid infection is a good marker for end stage liver disease where the ultimately management strategy will be liver transplantation [8]. The SBP has higher level of mortality burden as is directly proportional to with age and intensive care unit stay but proper workup and treatment it can be reduction in mortality and improve the prognosis [9, 10]. Therefore, this study was conducted at tertiary care hospital to observe the burden of SBP in our population so that effective and appropriate steps can be taken to improve the prognosis and reduce the mortality burden as far as chronic liver disease is concerned.

PATIENTS AND METHODS:

Total fifty patients of age ≥ 12 years and either gender had liver cirrhosis (known / diagnosed cases) with ascites were included in this six months cross sectional study after taking brief history and relevant clinical examination. The base line investigations were advised and ascitic fluid analysis was done by taking 10 ml of ascitic fluid in a 10 CC sterilize syringe and sent to laboratory for analysis after taking informed consent. The ascitic fluid neutrophil count greater than 250 cells/ μ L was considered to be the case of SBP. The exclusion criteria of the study were the patients who already received treatment (antibiotics) before hospitalization, the patients of ascites with surgical root of infection as perforation of intestine, traumatic causes of peritonitis and the patients who had underwent large volume paracentesis in previous 10 days before hospitalization. The data was collected on proforma and analyzed in SPSS 16 by calculating the mean \pm SD, frequencies and percentages. All the selected patients thus underwent a thorough history taking with regard to their symptoms pertaining to etiology. A complete physical examination was made to look for the various stigmata and signs of complications of cirrhosis while the data was saved on pre-designed proforma while the frequency and percentages was calculated for categorical variables whereas the numerical statistics were used to compute mean \pm SD in SPSS 16.

RESULTS:

During six months study period total fifty patients with chronic liver disease were evaluate for spontaneous bacterial peritonitis. The mean \pm for age (years) & duration of chronic liver disease (years) for whole population was 45.62 ± 5.98 & 7.93 ± 2.41 respectively. The demographical and clinical profile presented in Table 1 while the pathogens and outcome of SBP is presented in Table 2.

TABLE 01: THE DEMOGRAPHICAL AND CLINICAL PROFILE OF THE PATIENTS

AGE (years)	FREQUENCY (N=50)	PERCENTAGE (%)
12-19	05	10
20-29	08	16
30-39	12	24
40-49	10	20
50-59	09	18
60+	06	12
GENDER		
Male	30	60
Female	20	40
RESIDENCE		
Urban	18	36
Rural	32	64
CLINICAL FEATURES		
Distention of abdomen	42	84
Swelling of feet	27	54
Fever	45	90
Jaundice	05	10
Pain in abdomen	40	80
Upper GI bleed	10	20
Altered sensorium	18	36
DURATION OF CLD (years)		
<1	10	20
1-5	18	36
>5	22	44
S.B.P		
Yes	37	74
No	15	26

TABLE 02: THE FREQUENCY OF PATHOGENS AND OUTCOME IN PATIENTS WITH S.B.P

Pathogen	Frequency (N=37)	Percentage (%)
E. Coli	10	27.0
Klebsiella	06	16.2
Proteus	05	13.5
S. Aureus	07	18.9
Pseudomonas	04	10.8
No Organism (CNNA)	05	13.5
OUTCOME		
Recovered	26	70.2
Recurrence	05	13.5
Expired	06	16.2

DISCUSSION:

In the present study total fifty cases of liver cirrhosis studied with mean age \pm SD 45.62 \pm 5.98 with male gender predominance 30 (60%), the findings are consistent with the study by Bal CK, et al [11]. Majority of the patients 38 (76%) belonged to poor socio-economical class i.e. labourers, the observation is consistent with former study by Oladimeji AA, et al [12]. Number of patients having spontaneous ascitic fluid infection at the time of admission was 37 (74%) and the findings are consistent with the study by Ribeiro, TCR et al [13]. Among the symptoms fever was the most commonly observed 45 (90%) and it is also predominant in the study by Koulaouzidis A, et al (54%) [14]. In current series, no asymptomatic patients was observed had SBP and it is also consistent with the study by Hoefs, JC et al [15]. The hepatic flapping tremor is observed in 15 (30%) patients with spontaneous ascitic fluid infection, it is also observed by Oladimeji AA, et al [16]. Mortality was observed in 6 (16.2%) had culture positive while it is 32.6% in the study by Thuluvath PJ, et al [17]. Regarding the culture and sensitivity reports, the common pathogens observed were *E. coli* 10 (27%), *Staph. Aureus* 7 (18.9%) and *Klebsiella* 6 (16.2%) the findings were also identified by Ariza X, et al [18]. The SBP recovered patients received oral norfloxacin prophylaxis and among them 05 (13.5%) patients develop recurrence, the recurrence was most observed with gram positive organism consistent with the study by Tito L, et al [19]. Bleichner G et al, [20] also reported less recurrence rate in individuals with cirrhosis on norfloxacin than cirrhotic who are not on prophylaxis. Further advance studies are needed to confirm our observation, to further evaluate the factors responsible for treatment failure & to explore the potential therapeutic measures as far as prophylaxis and management is concerned.

CONCLUSION:

The present study concluded that SBP is a common and recurrent complication of cirrhosis; fever is the most common symptom while hepatic encephalopathy is a predominant feature in patients with SBP. The ascitic fluid examination including culture and sensitivity is more sensitive and best tool as far as diagnose and management is concerned while the mortality was more in culture positive individuals whereas the norfloxacin prophylaxis in cirrhotics individuals are beneficial and as is associated with low recurrence rates as compared to no prophylaxis.

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