RESEARCH

STUDY OF CLINICAL AND MICROBIOLOGICAL PROFILE IN SPONTANEOUS BACTERIAL PERITONITIS IN KARNATAKA POPULATION

Received : 22/07/2022
Received in revised form : 08/09/2022
Accepted : 21/09/2022

Keywords:
SBP, CNNA, MNBA, C-SBP, Ascites, Hepato-encephalopathy.

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DOI: 10.47009/jamp.2022.4.4.138

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2022; 4 (4); 696-699

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Abstract

Background: Bacterial Peritonitis is quite common infection, which occurs frequently as Ascites in which patience with cirrhosis of liver having various clinical manifestations. If not diagnosed at the earliest which may prove fatal. **Materials and Methods:** 50(fifty) patients aged between 35 to 58 years having cirrhosis of liver with ascites were studied. CBC, Urine analysis, Blood sugar, Renal function tests, Liver function test, USG, Chest X-ray, Serological test for hepatitis B & C and Elisa if needed was carried out. Abdominal Paracentesis were performed. Ascetic fluid was aspired examined microbiologically; Bio-chemical study of ascetic fluid for estimation of sugar, Albumin, Protein, AFB, Cytology for malignancy culture & sensitive was done. Patients were classified in C-SBP, MNBA, CNNA to rule out SBP. **Result:** Out of 50, 11(22%) SBP patients were encountered. CNNA had no growth of any organism while MNBA had staphyloccus aureus and Acinetobacter SPP. C-SBP had Klebeseilla Pneumoniae, E.coli, coagulase Negative Staphylococci. **Conclusion:** This pragmatic clinical study will be an important tool for physician to treat SBP patients in various clinical settings.

INTRODUCTION

Bacterial peritonitis is an infection presented as ascitis in the patience with cirrhosis of liver having various clinical manifestations. The bacterial peritonitis differs from intra-abdominal source of infection or inflammatory process. This difference was diagnosed by Caroli (1958), kerr and his colleagues (1963).[1,2]

Conn coined the term "Spontaneous Bacterial peritonitis" in 1964 to depict a syndrome of peritonitis and bacteremia in Laennec's Cirrhosis without an apparent cause of infection.[3] SBP occurs in cirrhotic patients with varied a etiologies, not just alcohol, and further research has uncovered causal factors such as translocation of gut bacteria to lymph nodes making the etiology less elusive.

Portal hypertension, splanchnic vasodilatation and activation of the rennin- angiotensin cascade leads to sodium and water retention and fluid overflow into the peritoneal cavity.[4] Ascites is a primarily a transudative fluid with poor opsonic activity which provides a favorable environment for growth of bacteria. SBP rarely occurs without cirrhosis, but cardiac, renal, malignancy, portal vein thrombosis and auto- immune related infection of ascites has been reported.[5] Intestinal gram- negative flora is the major cause of SBP. A variety of factors are associated with the development of SBP including the patho-physiological hallmark; bacterial translocation in an immune-compromised host. The incidence of SBP ranges from 10% to 30% and mortality from 10 to 46% in hospitalized patients. Hence attempt was done to evaluate the variants of SBP.

MATERIALS AND METHODS

50 (Fifty) patients aged between 35 to 58 years visited to Siddaganga Medical College and Research Institute, Tumakuru, Karnataka were studied.

Inclusive Criteria

Patients of liver cirrhosis with ascites were confirmed by diagnosis were selected for study.

Exclusion Criteria

The patients who were already taking antibiotics since two weeks, having secondary peritonitis, ascites due to tuberculosis, malignancy, renal failure or cardiac diseases, immune compromised patients were excluded from study.

Method

Routine investigation included CBC (Complete Blood Count), Urine analysis, Blood sugar, renal function tests, Chest X-ray, Liver function tests, Prothrombin time Ultra-Sonography of abdomen

ISSN (O): 2687-5365; ISSN (P): 2753-6556

was carried out. Serological test for hepatitis B and hepatitis C were carried and Elisa was also carried out if needed any confirmation of results.

Diagnostic abdominal paracentesis was performed. Ascitic fluid was aspirated. It was examined microbiologically Ascitic fluid was subjected to bio-chemical analysis for estimation of sugar. Patients Albumins, Grams stain, Zn stain for AFB, Malignant Cytology and culture and sensitivity was recorded.

Method of study was classified in three groups based on the results of Ascitic fluid analysis (A) Classic-spontaneous Bacterial peritonitis(C-SBP) Ascitic fluid Neutrophill count is equal to or more than 250 Cells/ml. Ascitic fluid culture grows a single type of pathogenic organism, No surgically treatable intra- abdominal source of infection. (B)Mono-microbial Non- neutrocytic Bacterascites (MNBA)-Ascitic fluid neutrophill count was less than 250 Cell/ml. Ascitic fluid cultures grows a single type of pathogenic organism. No surgically treatable intra abdominal source of infection. (C)Culture Negative Neutrocytic Ascitic (CNNA)-Ascitic fluid Neutrophill count is equal to or more than 250 Cell/ml. Ascitic fluid cultures are sterile. No surgically treatable intra-abdominal source of infection. The duration of study was Sept 2017 to April 2019.

Statistical Analysis

Various types and prevalence of Spontaneous Bacterial Peritonitis and Clinical variations, features classified with percentage. The statistical analysis was performed in SPSS software. The ratio of male and female was 2:1.

RESULTS

[Table 1] Clinical manifestations among variants of Spontaneous Bacterial Peritonitis- 8(16%) Fever, 6(12%) Abdominal pain, 3(6%) Upper GIT Bleeding, 9(18%) Tenderness, 4(8%) Absence of bowel sound, 7(14%) Hepato encephalopathy.

[Table 2] Different types of Spontaneous Peritonitis and its clinical Variants– 4(8%) Positive SBP, 3(6%) Positive CNNA, 2(4%) Positive MNBA, 2(4%) Prevalence of C-SBP and 11(22%) were total number of SBP.

[Table 3] (1) No organism grown in CNNA. (2) S.Aureus, Acinetobacter SPP was observed in MNBA. (3) Klebeseilla Pneumoniae, E.Coli, Coagulase negative staphylococci observed in C-SBP.

Table 1: Clinical manifestations among Variants of Spontaneous bacterial peritonitis. Total No. of patients 50

Sl No.	Clinical Manifestation	C-SBP	MNBA	CNNA	Total No with %
1	Fever	2	3	3	8(16%)
2	Abdominal Pain	2	3	1	6(12%)
3	Upper G.IT Bleeding	-	2	1	3(6%)
4	Tenderness	2	4	3	9(18%)
5	Absence of Bowel Sound	2	1	1	4(8%)
6	Hepato- encephalopathy	3	2	2	7(14%)

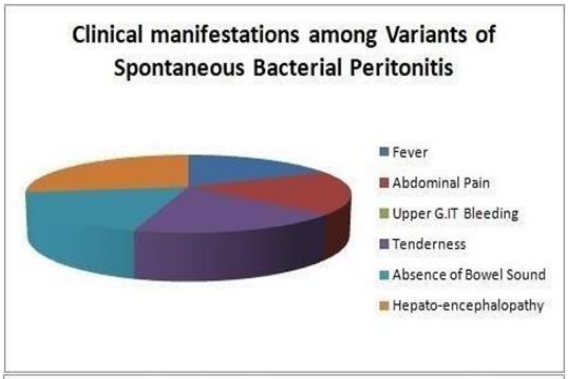
Table 2: Different types of Spontaneous prevalence of bacterial peritonitis and its clinical variants. Total No. of patients 50

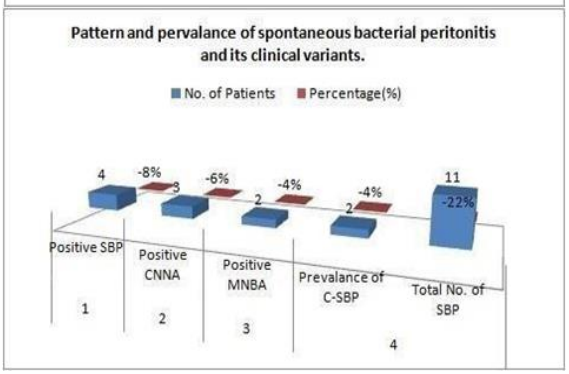
Sl No.	Particulars	No. of Patients	Percentage (%)
1	Positive SBP	4	(8%)
2	Positive CNNA	3	(6%)
3	Positive MNBA	2	(4%)
4	Prevalence of C-SBP	2	(4%)
	Total No. of SBP	11	(22%)

Table 3: Microbiological profile of spontaneous bacterial peritonitis

Sl No.	Types of SBP	Organism detected
1	CNNA (Culture Negative Neutrocytic Ascitis)	No organism grown
2	MNBA (Mono-microbial Non- neutrocytic bacterascites)	Staphylo Coccus Aureus Acinetobacter SPP
3	C-SBP (Classic-Spontaneous Bacterial Peritonitis)	Klebseilla Pneumoniae Escherichia Coli Coagulase Negative Staphylococci)

ISSN (O): 2687-5365; ISSN (P): 2753-6556





DISCUSSION

Present clinical and microbiological profile in spontaneous Bacterial Peritonitis in Karnataka Population. The clinical manifestations were 8 (16%) had fever 6 (12%) had abdominal pain 3 (6%) had upper GIT bleeding 9 (18%) had tenderness 4(8%) had absence of Bowel sound 7 (14%) had hepato-encephalopathy [Table 1]. 4(8%) had positive SBP, 3(6%) positive CNNA, 2(4%) had positive MNBA, 2(4%) prevalence of C-SBP, 11(22%) Total SBP were observed [Table 2] CNNA- Study had no organism grown Staphylococcus aureus, Acinetobacter SPP were observed in MNBA Klebeseilla pneumoniae, E-Coli, Coagulase negative Staphylococci were observed in C-SBP [Table 3]. These findings are more or less in agreement with previous studies.[6,7]

SBP (Spontaneous Bacterial peritonitis) is the most common bacterial infection in hospitalized patients with Cirrhosis of liver with ascites who are not receiving antibiotic prophylaxis.[8] Acquisition of SBP occurs in various clinical implications. Diagnostic paracentesis should be performed without delay, ideally within 6 hours of patients evaluation and before use of antibiotics.

Early and judicious use of antibiotics can be lifesaving especially for patients with end stage liver disease defined by one or more of the following: history of ascetics, varicoceal-haemorrage, hepatic encephalopathy, hepato-pulmonary syndrome, hepato-renal syndrome, SBP or hepato-cellular carcinoma.

Urinary reagents strips were proposed as a quick method to diagnose SBP but a large multicultural study revealed that, the multi-axis 8 SG strip is an un- acceptable test because of poor sensitivity, positive predictive valve and inability to rule out infection.[9] Paracentasis consistently has been shown to be safe without using ultrasound and in the setting of an elevated prothrombin time and remains the most cost-effective method for diagnosis.[10]

Risk factors of SBP are biochemical factors developing an initial episode of SBP are low ascitic fluid protein level (<1g/dl), elevated serum Bilirubin level and advanced Cirrhosis. Low levels of 25 hydroxyl vitamin D have been associated with mortality in patients with cirrhosis.[11] Risk for recurrence based on univariate analysis, are S.Bilirubin (>4mg/dl), Prothrombin (<45%).

Clinical risk factors include varicoceal-hemorrhage predisposes to SBP. The genetic risk factors are the toll-like receptor 2(TLR-2) Proteins are expressed in macrophages and are essential for recognition of microbial components and host cell defense.[12] The pharmacological risk factors are proton pump inhibitors (PPI) increase gastric PH, impair natural host defense against ingested bacteria and predispose to an altered intestinal milieu. PPI have been associated with pneumoniae and implicated in other infections such as SBP.

CONCLUSION

Present Clinical and micro-biological profile of spontaneous Bacterial peritonitis (SBP) is a severe infection with high mortality rates in hospitalized patients having cirrhosis of liver having ascitis. It requires meticulous evaluation and comprehensive care with appropriate antibiotics is an ideal treatment for such patience especially third generation antibiotics like pipercillin – tazobactun and /or vancomycin are suitable antibiotics with selective albumin therapy and liver transplantation are only available options to improve the survival of the patients. This study demands further clinical trails in large number of such patients with various antibiotics of third generation to confirm the present research study.

Limitation of Study

Owing to tertiary location of present hospital, small number of patients and lack of latest techniques we have limited findings and Results.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556

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ISSN (O): 2687-5365; ISSN (P): 2753-6556