Original Article

Frequency of Asymptomatic Spontaneous Bacterial Peritonitis in Outdoor Patients with Liver Cirrhosis

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ABSTRACT

Objective: Investigate the incidence of asymptomatic spontaneous bacterial peritonitis in patients with liver cirrhosis.

Study Design: Prospective study.

Place and Duration of Study: This study was conducted at the Gastroenterology Department of Bakhtawar Amin Hospital and Nishtar Hospital Multan from May 2018 to May 2019.

Materials and Methods: Eighty six patients of liver cirrhosis were included in the study. Main variables were serum albumin, prothrombin time, ascitic fluid protein, serum bilirubin, child class B, child class C. SPSS version 23 was used for data analysis. Test of significance student t-test and chi square test were applied. P value ≤0.05 was taken a s significant.

Results: S. Albumin, PT (s), Ascitic Fluid Proteins, S. Bilirubin, TLC, ESR and CRP of SBP negative patients was 29.55±2.95 (g/dL), 28.97±1.25, 1.87±0.22 (g/dL), 54.21±2.15mMol/L, 11.91±2.21 ($x10^9$ /L), 34.37±2.18 (mm/h) and 56.47±2.33 (mg/ L), respectively. Child class C and child class B was observed as 64.5% and 31.6%, respectively.

Conclusion: High frequency of spontaneous bacterial peritonitis is associated with liver cirrhosis; early diagnostic parenthesis should be performed in all outdoor patients for detection of silent cases of peritonitis. Antibiotic prophylaxis reduces the incidence of SBP.

Key Words: Liver cirrhosis, spontaneous bacterial peritonitis, ascites, Child pugh, viral hepatitis.

Citation of articles: Ather MM, Arif MM, Qadir M, Khan HR, Khaliq SA, Rasheeq T. Frequency of Asymptomatic Spontaneous Bacterial Peritonitis in Outdoor Patients With Liver Cirrhosis. Med Forum 2019;30(7):2-5.

INTRODUCTION

Chronic liver disease is a rising economical burden on healthcare facilities worldwide. In European population about 0.1% suffer from liver cirrhosis a deadly adverse situation of chronic liver disease[1,2]. According to a survey 14-26 cases/ one lac and chronic viral hepatitis is the main cause among other major causes of the liver disease are reported. Chronic viral hepatitis is an most instant end stage complication accounting for 78% hepatocellular carcinoma and 57% cirrhosis[3,4].

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Received: June, 2019
Accepted: June, 2019
Printed: July, 2019

Both of these conditions are preventable among early signs of cirrhosis, ascities is the most common which may lead to bacteria peritonitis a life threatening complication specifically in hospitalized patients[5].

Spontaneous bacterial peritonitis may develop hepatic encephalopathy, sepsis, renal failure, worse condition of liver disease and reduced survival rate. It's percentage is 10 to 30% in hospitalized patients[6]. This rate is also reported 34% in recent studies. Prevelance rate of liver cirrhosis in outdoor department is unknown if spontaneous bacterial peritonitis can help to control the complication like helatic encephalopathy, hepato renal syndrome, sepsis, and worsening of liver disease[7]. That's why ascitic tape analysis is mandatory in every patient for the analysis of SBP[8].

There are some restrictions in developing countries like financial and procedural limitations[9]. These limitations hinder the exact practice and incidence rate of SBP in the cirrhotic patients due to chronic viral hepatitis[10]. In this present study we aimed to investigate the incidence characteristics and natural background of SBP in cirrhotic patients who present with chronic viral hepatitis so that local statistics of the disease and their cost ratio then the estimated in local population.

MATERIALS AND METHODS

This prospective study was carried out at gastroenterology department of Bakhtawar Amin Hospital and Nishtar hospital Multan from 1st May 2018 to 1st May 2019. Study was approved by ethical committee of hospital and informed written consent was obtained from patients. Non probability consecutive sampling technique was used. Patients with diagnosed cirrhosis and asymptomatic ascities were included in the study. Clinical symptoms of hepatic encephalopathy, upper GI bleed, infection, antibiotic treatment at the time of admission and de ranged renal function and previous history of SBP were excluded from the study.

Diagnosis of cirrhosis was made on laboratory radiological and clinical parameters. Severity of disease was accessed on model of end stage liver disease (MELD) score and child pugh score. Complete physical examination was done to rule out the chronic liver disease, hepatic encephalopathy and prescence of ascities and after that paracentesis was performed. Routine laboratory investigation like CBc , ESR, C reactive protein, AST, ALT, serum bilirubin, gamma GT, albumin, INR, prothrombin time, renal function test and serum electrolytes were performed. Paracentesis was performed with aseptic techniques without ultrasound guidance and 30mm of ascitic fluid was drawn. Diagnosis of SBP was based on absolute neutrophilic count in the absence of intra abdominal infection. Culture positive neutrocytic ascites was considered as positive when culture positive with absolute neutrophilic count >250/mm3 while culture negative neutrocytic ascites considered when culture negative with absolute neutrophilic count >250/mm3. Culture positive with absolute neutrophilic count < 250/mm3 were termed as Bacterascites.

SPSS version 23 was used for the data analysis.ean and standard deviation was calculated for numerical variables like age serum albumin, prothrombin time, ascitic fluid protein, serum bilirubin and frequency percentages were calculated for qualitative variables like gender, child class B and child class C. Student t-test and chi square test were applied to see the association among variables. P value less than or equal to 0.05 was considered as significant.

RESULTS

Eighty six patients were included in this study. n=10 patients had SBP positive and n=76 had negative SBP status. The mean age, S. Albumin, PT (s), Asc. Fluid Proteins, S. Bilirubin, TLC, ESR and CRP of SBP positive patients was 50.91±4.08 years, 30.40±2.83 (g/dL), 29.22±1.31, 0.71±0.002 (g/dL),48.54±4.54 mMol/L, 8.56±2.11(x10^9 /L), 46.93±1.24(mm/h) and 63.19±6.39(mg/L), respectively. Child class C and child class B was observed as n=7 (70%) and n=1 (10%), respectively. While, the mean age, S. Albumin, PT (s), Asc. Fluid Proteins, S. Bilirubin, TLC, ESR and CRP of SBP negative patients was 50.91±4.08 years, 29.55±2.95 (g/dL), 28.97±1.25, 1.87±0.22 (g/dL), 54.21±2.15mMol/L, 11.91±2.21 (x10^9 /L), 34.37±2.18 (mm/h) and 56.47±2.33 (mg/ L), respectively. Child class C and child class B was observed as n=49 (64.5%) and n=24 (31.6%), respectively. P-value ≤0.05 considered as significant. (Table. I).

Table No. I: Different characteristics of the SBP positive and negative patients

Variable	Positive n=10	Negative n=76	P-value
Age (years)	50.91±4.08	50.91±4.08	0.549
S. Albumin (g/dL)	30.40±2.83	29.55±2.95	0.394
PT (s)	29.22±1.31	28.97±1.25	0.595
Asc. Fluid Proteins (g/dL)	0.71±0.002	1.87±0.22	0.000
S. Bilirubin mMol/L	48.54±4.54	54.21±2.15	0.000
TLC (x10^9 /L)	8.56±2.11	11.91±2.21	0.000
ESR (mm/h)	46.93±1.24	34.37±2.18	0.000
CRP (mg/ L)	63.19±6.39	56.47±2.33	0.000
Child class C	n=7 (70%)	n=49 (64.5%)	0.730
Child class B	n=1 (10%)	n=24 (31.6%)	0.158

DISCUSSION

In literature available on this study reported different ratio of spontaneous bacterial peritonitis in hospitalized cirrhotic patients. Its frequency was reported upto 50% in studies. In a study conducted by Gunjaca et al[11] reported 21% spontaneous bacterial peritonitis and 14.1% per annum prevalence rate. His results were statistically significant. In our study child class C was positive in 70% cases and class B found to be positive in 10% of cases.

Use of prophylactic antibiotic therapy reduced the incidence of SBP, this conclusion was reported in some studies our observation was also similar during study. Alaniz et al[12] conducted a study in 2009 and observed the role of prophylactic antibiotics in prevention of SBP. He reported that prevention of SBP is possible in cirrhotic patients if proper and early treatment was started with antibiotic prophylaxis.

Zaman et al[13] also conducted a similar study in 2011 and reported 56% SBP in cirrhotic cases. He labeled SBP as main complication of chronic liver disease and E. coli is most common and frequent offending organism involved in SBP. His conclusion about its prevention is similar as previous reported that antibacterial therapy of early disease and time can prevent prevalence rate of SBP.

Except these, few studies were conducted on incidence of spontaneous bacterial peritonitis in outdoor patients. Castellote et al[14] conducted a study on outdoor patients

and reported culture-negative neutrocytic ascites in 0.5% and bacterascites in 3% of patients. Most common organism was gram positive cocci in his study. In outdoor patients this prevalence rate is much lower when compared with other patients.

Evans et al[15] also conducted a similar study on this topic and concluded that reassessment criteria for outdoor patients required for cases of spontaneous bacterial peritonitis. He observed neutrocytic ascites in 3.5% patients but hepatorenal syndrome was not observed in a single case. Similarly Kasztelan-Szczerbinska et al[16] reported bacterascites in 16.2% cases and neutroascites was observed in 2.7% cases.

Another study was conducted by Khalid M et al[17] and reported neutrocytic ascites as 10% and without culture positive studies. His assessment criteria is also same as in our study, severity was determined with child class B and C. not only hepatitis C is involved but hepatitis C have equal contribution worldwide. Its prevalence increasing day by day from 1991 (6.4 million) cases which increased to 8.5 million in 2005[18].

Development of bacterial peritonitis is the major morbidity and mortality related factor in liver cirrhosis. Romney et al[19] conducted a study on use of routine laboratory investigations in diagnosis of early peritonitis and its role in patient's survival. He concluded a major role of timely investigations. In our study we also performed daily investigations and treat the intensity of disease accordingly.

CONCLUSION

High frequency of spontaneous bacterial peritonitis is associated with liver cirrhosis; early diagnostic parenthesis should be performed in all outdoor patients for detection of silent cases of peritonitis. Antibiotic prophylaxis reduces the incidence of SBP.

Author's Contribution:

Concept & Design of Study:	Muhammad Mumtaz Ather
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Final Approval of version:	Muhammad Mumtaz Ather

Conflict of Interest: The study has no conflict of interest to declare by any author.

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