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Spontaneous Bacterial Peritonitis in Alcoholic liver Cirrhosis Patients with Ascites.

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ABSTRACT

50 patients diagnosed of alcoholic liver cirrhosis with ascites were selected for the study. Patients with polymorphonuclear leucocyte count more than 250 were considered as cohort for spontaneous bacterial peritonitis. By performing abdominal paracentesis, 5ml of ascitic fluid collected in blood culture bottle. All the inoculum are subcultured in nutrient, blood and Mac conkey agar. The organism were identified based on biochemical and sugar fermentation test. Pure culture was obtained in all the positive isolates. Of the positive isolates 11 cases (61.1 %) are Escherichia coli, klebsiella species and staphylococcus accounts for 3 cases each (16.6%) and shigella was positive in one case (5.5%)

Keyword: Cirrhosis, Ascites, Spontaneous bacterial peritonitis, paracentesis, polymorpho nuclear neutrophil.

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INTRODUCTION

The peritoneal cavity is the largest cavity in the body, the surface area of its lining membrane being nearly equal to that of the skin [1]. A small amount of serous fluid is normally present in the peritoneal space, with protein content (consisting mainly of albumen) of <30g/L and < 300 white blood cells (WBCs generally mononuclear cells) per microliter [2].

Peritonitis, the infection of peritoneum results from invasion of peritoneal cavity by the bacteria, so that when the term 'peritonitis' is used without qualification, bacterial peritonitis is implied. Bacterial peritonitis is usually polymicrobial, both aerobic and anaerobic organisms being present. The exception is primary peritonitis ('spontaneous peritonitis'), in which a pure infection with *Escherichia coli*, *staphylococcus*, *streptococcus* and *enterococcus* can occur [2].

Spontaneous bacterial peritonitis occurs most commonly in conjunction with cirrhosis of liver (frequently the results of alcoholism). The cause of spontaneous bacterial peritonitis has not been established definitely but is believed to involve hematogenous spread of organisms in a patient whom a diseased liver and altered portal circulation result in a defect in the usual filtration function. The proteins of the complement cascade have been found in peritoneal fluid, with lower level in cirrhotic patients than in patients with ascites of other etiologies. The opsonic and phagocytic properties are diminished in patients with advanced liver disease [2].

MATERIALS AND METHODS

50 patients diagnosed of alcoholic cirrhosis with acites were selected for the study. The criteria used to select patients with Spontaneous bacterial peritonitis, is > 250 PMNs (polymorphonuclear neutrophils)/ μ L of peritoneal fluid [3]. For 15 of this patients contrast enhanced CT was done to rule out source of primary intraabdominal infection. Chest and abdominal radiographs were done to 10 patients who complained of abdominal pain to exclude free air, to rule out intestinal perforation.

Under aseptic precautions 5 ml of peritoneal fluid collected at bedside is inoculated in the blood culture bottle. After overnight incubation at 37 degree centigrade, the inoculum is subcultured in nutrient, Mac conkey and Blood agar. The organisms were identified based on biochemical test and sugar fermentation test. The Antibiotic sensitivity profile of the isolated organism is done using Kirby bauer methods. Cefotaxime, ciprofloxacin and amoxicillin were highly sensitive to the isolated organism.

RESULTS

Out of the 50 clinical specimen, nearly one third-18 (32%) are culture positive. Remaining 32 specimens were culture negative. In all the eighteen cases only pure culture was obtained. The isolated organisms were *Escherichia coli*, *klebsiella* spp, *staphylococcus aureus* and *shigella*.spp. The number of organism isolated is given in table 1.

Table 1

Organism isolated	Number organism
<i>Escherichia coli</i>	11(61.11%)
<i>Klebsiella</i>	3(16.66%)
<i>Staphylococcus aureus</i>	3(16.66%)
<i>Shigella</i>	1(5.55%)

DISCUSSION

The peritonitis is a life threatening event that is often accompanied by bacteremia and sepsis syndrome. The diagnosis of spontaneous bacterial peritonitis is not easy. It depends on the exclusion of primary intra-abdominal infection. So as described by Harold conn, spontaneous bacterial peritonitis is the infection of ascitic fluid in the absence of any intra-abdominal, surgically treatable source of infection [4].

In the study conducted by koulaouzidis et al the microorganisms more commonly isolated were Escherichia coli (70%) klebsiella species(10%), proteus(4%), enterococcus fecalis(4%) pseudomonas species(2%)[5].In our study too, the predominant organism isolated was Escherichia coli which accounts for nearly 61 percentage.

Nearly 32 samples turned out to be culture negative. It is difficult to to recover organisms from cultures of peritoneal fluid, presumably because the burden of organism is low. However, the yield can be improved, if 10mL of peritoneal fluid is collected instead of 5 mL.

CONCLUSION

Early diagnosis and prompt treatment will reduce the in hospital mortality from 90% to less than 20% [6]. So it is imperative to perform abdominal paracentesis in all cirrhotic patient and all patients who develop signs of peritoneal infection. Escherichi coli, klebsiella and staphylococcus are the most common organism isolated, empirical therapy should use appropriate antibiotics. The antimicrobial susceptibility test show excellent sensitive to third generation cephalosporins which is also the antibiotic of choice due to their broad antibacterial spectrum(98 % of the causative organism are susceptible to cefotaxime.) [7].

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