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ORIGINAL RESEARCH

Patterns and Early Treatment Outcomes of Peritonitis among Patients admitted at G S Medical College and Hospital, Uttar Pradesh, India

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ABSTRACT

Introduction: In order to pinpoint the causes of the bad outcome and precisely treat them in the context of lowering poor outcomes among patients with secondary peritonitis, the current study set out to investigate the diverse spectrum of aetiologies that cause secondary peritonitis. **Materials and Methods:** This study included 86 patients who had generalised peritonitis upon presentation. All patients who arrived at the hospital with a confirmatory diagnosis of peritonitis and received treatment during the trial period were enrolled using an easy enrolment approach. Analysis is conducted to ascertain the prevalence of peritonitis by age and sex, risk factors, and the effectiveness of early treatment. **Results:** The age group most impacted was 21–40 years old (38.0%). For both sexes, children under five years old were the least impacted age group (1.5%). Male patients made up 65.2% of the affected population. Chi Square = 63.867 and a p-value of 0.003<0.05 indicate a significant correlation between the cause of intestinal rupture and age. Bowel perforations were most frequently caused by typhoid fever (18.18%), followed by trauma (13.64%), whereas inflammatory bowel disease and idiopathic causes (3.03%) were least common. **Conclusion:** In conclusion, ischaemia, typhoid, peptic ulcer disease, and perforated appendicitis are the most frequent causes of secondary peritonitis. Furthermore, it is advised to do research to examine the long-term consequences of secondary peritonitis patients.

Keywords: Peritonitis, Etiologies, Etiologies, Bowel Perforations

INTRODUCTION

Acute bacterial infection of ascitic fluid is known as spontaneous bacterial peritonitis. This can happen as a side effect of any illness that causes the ascites clinical condition, including heart failure and Budd-Chiari syndrome. However, cirrhosis patients in a decompensate state have the highest risk of SBP.[1]

Perforated appendicitis, perforated gastric or duodenal ulcers, perforated (sigmoid) colons brought on by diverticulitis, volvulus, or malignancy, and small bowel strangulation are common causative entities of secondary peritonitis (SP). When necrotic tissue becomes infected, necrotising pancreatitis may also be linked to peritonitis.[2]

Anastomotic leaks are the most frequent cause of postoperative peritonitis, and symptoms typically start to show up seven days after surgery. The incidence of SP (due to anastomotic disruption, breakdown of enterotomy closures, or unintentional intestinal damage) is high after elective abdominal procedures for noninfectious aetiologies.[3]

Abdominal discomfort, tenderness, and guarding are the clinical signs of peritonitis, and they are made worse by movements of the peritoneum, such as coughing, hip flexion, or positive Blumberg sign. The most specific finding for peritonitis diagnosis is abdominal stiffness. Fever and paralytic ileus, which also results in bloating, nausea, and vomiting, are other symptoms.

One of the most frequent surgical emergencies worldwide is secondary peritonitis, which results from gastrointestinal tract perforation and is linked to a high rate of morbidity and mortality.[4–7] If treatment is delayed, bacterial infections can enter the peritoneal cavity through the loss of epithelial integrity, triggering an inflammatory response, sepsis,

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multisystem organ failure, and death.[4] Therefore, in order to provide the best care possible for the patients and enhance their treatment success, aggressive resuscitation and early surgical intervention are necessary.[5-8] There are significant regional differences in the spectrum of gastrointestinal perforations; lower gastrointestinal perforations are more common in western nations than upper gastrointestinal perforations in poorer nations.[6, 9–11]

Previous studies from BMC were retrospective and each focused on single etiology thus, lacking a holistic approach in addressing the implicated etiologies;[12-14]

Many people continue to die from peritonitis in spite of advanced diagnostic techniques, strong antibiotics, contemporary intensive care, and vigorous surgical treatment. In our area, nothing is known about the pattern, risk factors, and effectiveness of therapy for peritonitis. Thus, this study offers data-based evidence on the characteristics of this deadly illness and makes suggestions for bettering the treatment of peritonitis patients.

MATERIALS AND METHODS

The study was conducted in surgical wards of G S Medical College and Hospital, Uttar Pradesh, India.Total 86 patients who presented with generalized peritonitis were included in this study. A convenient enrollment technique was employed in which all patients presented to hospital and confirmatory diagnosed to have peritonitis and got treated during the study period were enrolled.

Inclusion criteria

All patients who were proved to have peritonitis, admitted at G S Medical College and Hospital, and got definitive treatment.

Exclusion criteria

All patients who die after diagnosis but before getting treatment

Data collection methods and tools

Data were collected using a semi structured questionnaire. The data were obtained from patients, relative for minors and case notes.

Data processing and analysis

After collecting data, a manual processing by using a data master sheet was done. Analysis was done by using SPSS version 20. The results were organized and presented in tables. Analysis keep made to determine the distribution of peritonitis according to age and sex, predisposing factors and early treatment outcome of peritonitis. Measures of outcome were time to discharge. Two modality of treatment were medical (only by drugs) and surgical.

RESULTS

Data from 86 patients who presented with generalized peritonitis were collected for 9 months from November 2023 to August 2024.

Table 1: Distribution of peritonitis cases by age and sex.

Age (yrs)	Males	%	Females	%	Total	%
01-May	2	2.3	0	0	2	2.3
Jun-20	16	18.6	10	11.6	26	30.2
21 – 40	20	23.2	11	12.7	31	36.0
41 – 60	10	11.6	5	5.8	15	17.4
>60	5	5.8	7	8.1	12	13.9
Total	53	61.6	33	38.3	86	100

The mostly affected age group was 21 to 40 years (38.0%). The least affected age group was under five years for both sexes (1.5%). Most patients affected were males (65.2%). Since Chi Square =63.867 with p value 0.003<0.05 there is significant association between age with cause of bowel perforation (Table 2). Typhoid fever was the commonest cause of bowel perforations (18.18%) followed by trauma (13.64%) meanwhile the least cause were inflammatory bowel disease and idiopathic (3.03% each).

Table 2: Causes of bowel perforations *vs.* age.

Disease	Age (years)											
	1-5 No of pts	%	6-20 No of pts	%	21-40 No of pts	%	41 - 60 No of pts	%	>60 No of pts	%	Total No of pts	%
Typhoid fever	0	0	8	11.2	6	8.4	0	0	0	0	14	19.7
Appendicitis	0	0	3	4.2	4	5.6	0	0	2	2.8	9	12.6
Trauma	0	0	6	8.4	5	7.0	0	0	0	0	11	15.4
Hernia	0	0	0	0	0	0	0	0	8	11.2	8	11.2
IBD	0	0	0	0	1	1.4	2	2.8	0	0	3	4.2
PUD	0	0	0	0	5	7.0	2	2.8	0	0	7	9.8
Volvulus	0	0	3	4.2	3	4.2	5	7.0	0	0	11	15.4
Intussusception	0	0	2	2.8	2	2.8	3	4.2	0	0	7	9.8

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Idiopathic	0	0	1	1.4	1	1.4	0	0	0	0	2	2.8
Total	0	0	23	32.3	27	38.0	12	16.9	10	9.80	71	100

Since Chi Square =38.498 with p value 0.011<0.05 there is significant association between cause of peritonitis with occupation. Peasants were found to be affected in all causes of peritonitis mentioned above, of which perforations found to affect a large number of them. In chemical peritonitis and post operative sepsis only one patient was affected (2.3% each) who was a peasant (Table 3).

Table 3: Distribution of causes of peritonitis versus occupation.

Sn	Causes	Peasants	%	Small traders	%	Children	%	Employed	%	Total	%
1	Perforations	30	34.8	12	13.9	16	18.6	2	2.3	60	69.7
2	Anastomotic leakage	2	2.3	0	0	2	2.3	0	0	4	4.6
3	Chemical peritonitis	2	2.3	0	0	0	0	0	0	2	2.3
4	Spontaneous peritonitis	6	6.9	6	6.9	4	4.6	2	2.3	18	20.9
5	Post op sepsis	2	2.3	0	0	0	0	0	0	2	2.3
	Total	42	48.8	18	20.9	22	25.5	4	4.6	86	100

Most patients with peritonitis involved in the study were treated by surgery (82.5%), and few (17.4%) were managed by drugs only (medically). Many patients who developed complications and many who died were those treated surgically (Table 4).

Table 4: Treatment modality versus outcome.

Sn	Modality	Cured	%	Complication	%	Death	%	Total	%
1	Surgical	36	41.8	20	23.2	15	17.4	71	82.5
2	Medical	7	8.1	4	4.6	4	4.6	15	17.4
	Total	44	51.1	24	27.9	19	22.0	86	100

DISCUSSION

Young people (ages 6 to 40) were more affected (69.7%) than other age groups in the index research. In contrast, the average age of those impacted in the other study conducted in Lilongwe, Malawi, was 35 years old (Samuel et al.). The reason for this resemblance is that both of these studies were conducted in developing and neighbouring nations, which have many of the same traits. The results may be explained by the fact that young individuals are more likely than persons of older ages to engage in a variety of activities and movements, which increases their exposure to numerous risk factors for peritonitis.[15]

The most common cause of peritonitis in the index study was perforation (77.3%). This contrasts with the findings of a study that found that peritonitis from perforation was one of the most frequent surgical emergencies, and that it was typically observed in younger age groups in tropical nations (Verma et al.). This resemblance may be because both of these investigations were conducted in tropical nations where peptic ulcer-causing Helicobacter pylori infections and typhoid fever are prevalent infectious illnesses.

This study shows that typhoid was the leading cause of perforations for 18.18%. The pre disposing factors for perforation in typhoid are poor social economic status which is the cause of delay to go for treatment. Also poor diagnostic facilities and lack of well-trained health care providers is the cause of delay in diagnosing the disease and hence delay in starting appropriate management. This matches with the findings of a study done at Bugando medical centre Tanzania of which typhoid perforations seems to be superior compared to other causes.[16] This similarity is due to the fact that both these areas of study are found in tropical countries which share the risk factors.

Trauma was primarily caused by accidents and violence. Motor vehicle accidents are included, along with the remainder via other modes. A prospective descriptive research conducted in Nigeria found that 19 out of 23 individuals with traumatic intestinal perforation exhibited signs of peritonitis.[17] The reason for this consistency is that both of these trials were conducted in impoverished nations, where there may be an equal incidence of abdominal trauma.

Despite being very uncommon (7.58%), perforated peptic ulcers can be fatal and are linked to an increased risk of death. This contrasts with a study that was conducted and published in the World Journal of Emergence Surgery, in which there were far less patients than there was data gathering hours.[18]

The findings of this study showed that the peasants had a higher prevalence of peritonitis from all causes, totalling 55%. Perforations are the main cause of peritonitis. Small-scale farmers known as peasants rely on growing crops to provide them with food and income. This is the demographic that is economically and socially impoverished. This is similar to a study conducted in Northern Central Nigeria that found that 78% of peritonitis patients come from low socioeconomic backgrounds.[19] this resemblance can be explained by the fact that both trials were

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conducted in developing nations, where the majority of the patients are impoverished.

This is possible because less priority can be given to other premorbid illness in case of obvious surgical condition of the patient and thus, these premorbid illnesses may be overlooked resulting into poor outcome.[20-23] As a result, the present study emphasizes on carefully screening of potential premorbid illnesses and also alert care providers to ensure that they make all efforts to prevent postoperative complications. The predominance of HIV among premorbid illnesses in this and previous study in the same hospital[24] worthy to be further explored using a long term prospective study with large sample size so as to specifically delineate the contribution of HIV in the outcome of patients with secondary peritonitis. But from this study, it is sufficing to reiterate that approximately 30.8 % of patients with HIV infections died and their median CD4+ count were relatively low (172.5 cells/ mm3) compared to HIV infected patients who survived (315 cells/mm3). Development of complications postoperatively was strongly associated with death in the present study, similarly another study revealed that development of complication like sepsis can escalate mortality.[25] Sociodemographic factors such as age, gender, clinical symptoms such as vomiting and sign like fever in this study and another related study were not found to predict deaths.[26]

CONCLUSIONS

Typhoid, ischaemia, peptic ulcer disease, and ruptured appendicitis are the most frequent causes of secondary peritonitis. Since premorbid conditions and postoperative complications are linked to mortality in this context, it is actually important to properly screen patients upon admission to find those who have premorbid conditions and provide timely care to avoid postoperative complications and death. Furthermore, it is advised to do research to examine the long-term consequences of secondary peritonitis patients.

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