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Original Research Paper

Surgery

A STUDY OF RISK FACTORS AFFECTING THE MORTALITY IN ACUTE DIFFUSE PERITONITIS.

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ABSTRACT

Throughout the evolution of surgery, peritonitis has been a continuous diagnostic and therapeutic challenge. Even in some centers, due to lack of armament surgeons has to depend more on the clinical risk factors for diagnosis and early management. The aim of this study was to risk factors affecting the mortaliity in Acute Diffuse Peritonitis.

Materials and methods: This was a prospective evaluation of 120 patients high risked emergency patients of acute diffuse peritonitis who were selected randomly from a single center.

Results: The overall mortality in the study group was 11%. Significant risk factors in the analysis included advanced age >50 years (p=0.02),delayed duration of presenting symptoms >24 hours (p=0.002). All the patients were high risked emergency patients and immediate intervention with proper evaluation had been managed to change the fate of these patients.

KEYWORDS : acute diffuse peritonitis

INTRODUCTION

The diagnosis of acute diffuse peritonitis is supported by clinical signs, e.g. abdominal pain or tenderness, distension, nausea, diminished intestine sounds, fever, shock abdominal, radiographic and microbiologic evidence. Presently, APACHE II Score (Acute physiological and chronic health evaluation score) is widely usedduring first 24 hours in abdominal sepsis[1-3]. In 1986 Wacha H et al.Published the Mannheim peritonitis index (MPI) based on analysis of possiblerisk factors in patients of peritonitis. The score considers clinical risk factorsroutinely found in preoperative and trans-operative registers[4].Various authorshave reported APACHE to be better system for prognostication of the outcome of patients with peritonitis[5-6], while others concluded that MPI provides a more reliable means of risk evaluation[7]. The prognosis and outcome of peritonitis depends upon interactions of many factors including; patient related factors, disease specific factors, and diagnostic and therapeutic interventions.

Categorizing patients into different risk group would help prognosticate the outcome, select patients for intensive care and determine operative risk, thereby helping to choose the nature of the operative procedures. Still any of the scoring systems are not yet proven confirmatory to prognosticate the case of acute diffuse peritonitis with limited resources. So it prompted us to undertake this prospective, randomized, hospital based, unicentric study to assess the mortality in patient with peritonitis.

MATERIALS AND METHODS

It is a prospective, hospital based, randomised study and was conducted in the department of surgery, from October 2011 to August 2013. A total of 120 cases selected in the study who had attended S-OPD and admitted to Department of Surgery, as well as include those patients presenting to the Emergency Department with features of Acute Diffuse Peritonitis. These admitted patients were resuscitated immediately and meanwhile, they were evaluated carefully for the presence of co-morbid conditions and surgical fitness. A team of surgeons, anaesthesiologist and cardiologist evaluate each of high risk surgical patients for suitability for surgery under general anaesthesia.

Inclusion Criteria of Patients

1. Patient diagnosed of having secondary peritonitis irrespective of age and sex.
2. Patient diagnosed of having secondary peritonitis requiring emergency surgery.
3. Patient diagnosed of having secondary peritonitis intra-operatively.

Exclusion Criteria of Patients

1. Patient with doubtful diagnosis.
2. Patient having diagnosed of having peritonitis due to chronic diseases like TB, HIV, Hepatitis, Malignancy.
3. Patient those refuse to co-operate.
4. Pregnant patient.

After resuscitation, those who were cleared fit for operation by team of anaesthesiologist and cardiologist were operated. Postoperative evaluation for the recovery of these patients in terms of morbidity and mortality was done.

RESULTS

The age of the patients in this study ranged between 12-78 years with median age of 41.5 years. The mean age of these patients was 41.70. Maximum number of patients was in the age group 30-39 years (22.0%) and 40-49 years (19.0%). Out of 120 patients included in the study 85 (71%) were male and 35 (29%) were female.

43 patients had pre-existing medical illness. Type 2 diabetes mellitus and hypertension was present in 20(8%) and 11(9%) cases respectively. 4 patients had previous coronary events. Chronic kidney disease and chronic liver disease was present in 2 and 4 patients respectively. Two patient had chronic respiratory illness. Among co-morbid conditions, Type 2 DM (20/43; 46.5%) and Hypertension (11/43; 25.5%) affects the disease progression to great extent.

Active search for etiology of peritonitis could establish diagnosis in all patients. Most common etiology of peritonitis was peptic perforation which accounted for 57% of total cases. Among mild severity cause of peritonitis was sealed perforation seen in 7% of cases. Enteric perforation as a cause of peritonitis was present in 12% of cases. Whereas, appendicular perforation was present in 10% of cases. Blunt trauma abdomen with biliary peritonitis or leading to perforation was found in 6 patients. 10 patients of necrotising pancreatitis causing diffuse peritonitis were present. We encountered 1 case of Gall bladder perforation due to calculus. Other rare causes were Gastric perforation in 2 patients, Post-opintestinal leak in 5 patients, Ruptured abscess liver in 3 patients,

Subphrenic abscess in 1 patient, perforated ceacel diverticulosis in 1 patient. 13 patient died and all these patients were critically ill and belong to the ASA score V as decided by the group of surgeons, anaesthesiologist and cardiologist.

Day 1 – 6 out of 13 patients died in the 1st day of admission, after the intervention was instituted.

Day 2 – 3 Patients died pre-operatively, 4 patients were operated and among them, one died intra-operatively. Out of 3 post-operative patients one died after 24 hours and two died after 2 days respectively.

Day 3 – 1 patient died after 24 hours of operation.
Day 4 – 2 patients died after 48 hours of operation.

Overall, mortality in the study population was 11% (13/120). Most of the patients died pre-operatively (9/13; 69.23%), followed by post-operative (3/13; 23.07%) and intra-operative (1/13; 7.69%). Of the patients who died preoperatively, most of them did not survive beyond 1st day (6/13; 46.15%). Majority of patient died due to enteric perforation (7/14; 50%). Peptic perforation was most common cause of peritonitis in age group of 30 to 50 years and accounted 7.01% (4/57) mortality. Other cause of mortality in our study group was post-op intestinal leak and accounted 40% (2/5) mortality.

Factors Affecting Mortality : Sub-group analyses of mortality showed a significant increase in mortality in patients with age ≥ 50 years than those < 50 years (19.51% vs. 6.32%; p=0.02). Patients presenting more or less than 24 hours after onset of symptoms showed significant increase in mortality in patients presenting more than 24 hours (30.0% vs. 7.0%; p=0.002). But there had been no significant difference in mortality between patients with or without co-morbid disease (38.46% vs. 61.53%; p=0.83).

DISCUSSION

The mean age of the patients in our study group was 41.70 years, which was high from the previous study done by Jhobta et al (36.8 years)[8]. Yet a substantial number of patients (n=41, 34%) were above 50 years of age. This is in contrast to study done by Jhobta et al, where only 16% patients belong to >50 years of age. This disparity is probably explainable by the fact that the aforesaid study had considered all patients with peritonitis, while the present work included high risked emergency patients only. Most of the patients (48%) had presented to the hospital after 48 hours of onset of symptoms, this was because these patients were mostly referred from other health centres and due to lack of transport facility; they had delayed presentation. Previous authors have implicated the increase in criticality of patients with peritonitis to the delay in treatment initiation (Udwadia et al, 1963; Bhansali, 1976; Wittman, 1991)[8-11]. Pre-existing co-morbid conditions were present in 43 patients (42%). Jhobta et al (2006) observed that only 24% in his study group had underlying medical illness[8]. The incongruency can be explained by the nature of this study in which we have selected only high risked emergency patients. The clinical presentation of the patients varied according to the aetiology of peritonitis.

Overall moratlity in our study population was 11%. Wolter et al (1996) recorded mortality rate of 93.3% for patients with ASA score V while Crook et al (1997) observed a mortality of 100% in patients with ASA score V undergoing emergency surgery[14]. Mortality in patients with age above 50 years showed a significant increase in mortality in the elderly group. But there had been no significant difference in mortality between patients with or without co-morbid diseases. Patients presenting more than 24 hours after onset of symptoms had significant increase in mortality. This is probably due to the fact that all the patients who died were critically ill and the seriousness of the disease had more impact on the outcome than the presence or absence of co-morbid conditions.

Conclusions:

Clinical Risk factors as we studied in our present study, found to govern the outcome of patients. Various factors like age of patient, duration of symptoms, presences or absences of co-morbid condition influenced the mortality and morbidity rate of these patients. The increased mortality poses a difficult challenge to the treating surgeons and health administrators. Despite the lack of well-matched controls and multicentricity, the intervention in the present study made it possible to prognosticate the patients with acute diffuse peritonitis upto optimum level.

Table 1: Distribution of patients based on mortality.

Mortality		No. of Patients	Percentage Distribution
No. Mortality		107	89.00
Mortality	Pre-operative	10	8.00
	Intra-operative	1	1.00
	Post-operative	2	2.00

Table 2: SHOWING FACTORS AFFECTING MORTALITY

Factors		Mortality	No. Mortality	P- Value
Age	< 50 Yrs.	5	74	0.02
	≥ 50Yrs.	8	33	
Duration of Symptoms	< 24	6	14	0.002
	> 24	7	93	
Co-morbid condition	Present	5	38	0.83
	Absent	8	69	

TABLE 3: SHOWING ETIOLOGICAL FACTORS AFFECTING MORTALITY

Factors	No. of Patient died	Total No. of Patient	Percentage
Peptic perforation	4	57	7.01
Sealed perforation	0	8	0
Enteric perforation	7	14	50.0
Appendicular perforation	0	12	0
BTA with perforation	0	6	0
Necrotising pancreatitis	0	10	0
Post-Op. Intestinal Leak	2	5	40.0
Others	0	8	0

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