ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 02 | February - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

TO STUDY THE PROGNOSIS AND OUTCOME IN 50 PATIENTS WITH PERFORATION PERITONITIS USING MANNHEIM PERITONITIS INDEX

General Surgery

Dr. Rakesh Sharma Professor, Department of General Surgery, Govt. Medical College, Amritsar.
Dr. Amarbir Singh Associate Professor, Department of General Surgery, Govt. Medical College, Amritsar.
Dr. Divya Kumari* Junior Resident, Department of General Surgery, Govt. Medical College, Amritsar. *Corresponding Author

ABSTRACT

Acute generalised peritonitis from gastrointestinal hollow viscus perforation is a potentially life threatening condition. Peritonitis is an inflammatory or suppurative response of peritoneal lining to direct irritation. Taking into consideration the need for a simple accurate scoring system in these conditions. Present study was undertaken to evaluate the performance of MPI scoring system to predict the risk of morbidity and mortality in the patients with peritonitis due to hollow viscus perforation. The study was carried out for a period a January 2020 to July 2021 in 50 patients with perforation peritonitis in Govt. Medical College, Amritsar. The structured scoring system i.e MPI was applied along with other clinical and biochemical parameters recorded in pre-structured proforma. Data was analysed for predicting mortality and morbidity. Mortality rate was 71.4% in high risk group (MPI score >29). There was no mortality in low risk group (MPI score <21) and intermediate risk group(21-29). Overall mortality was 10%. MPI is disease specific, easy scoring system for predicting the mortality in patients with secondary peritonitis. Increasing scores are associated with poorer prognosis, needs intensive management and hence should be used routinely in clinical practice.

KEYWORDS

Peritonitis, Mannheim Peritonitis Index, Hollow Viscus Perforation, Mortality

INTRODUCTION:

Acute generalized peritonitis from gastrointestinal hollow viscus perforation is a potentially life threatening condition. Peritonitis due to hollow viscous perforation continues to be one of the most common surgical emergencies. The prognosis of peritonitis remains poor despite development in diagnosis and management because of delayed presentation in Indian setup. Early diagnosis of patients with severe peritonitis may help in selecting patients for aggressive surgical approach.1-3 Empirically based risk assessment for important clinical events has been extremely useful in evaluating new therapies, in monitoring resources for effective use and improving quality of care. This condition most of the times needs an emergency surgical intervention and hence a quick scoring system should be available to assess the need, type, and quality of the care required for a particular patient.

Taking into consideration the need for a simple accurate scoring system in these conditions the present study was undertaken to evaluate the performance of MPI scoring system to predict the risk of morbidity and mortality in patients with peritonitis due to hollow viscous perforation. Utilization of scoring systems would be of great help in salvaging a priceless life of a patient. Our study is aimed at testing the efficacy of Mannheim Peritonitis Index.

The Mannheim Peritonitis Index:

Risk Factor Scores :

Age > 50 years	5
Female sex	5
Organ failure	7
Malignancy	4
Preoperative duration of peritonitis > 24 h	4
Origin of sepsis not colonic	4
Diffuse generalized peritonitis	6
Exudate	
Clear	0
Cloudy, purulent	6
Fecal	12

Using history, clinical examination and lab values risk factors found in MPI were classified according to values indicated and individual variable scores were added to establish MPI score. The cases were first grouped into three, as described by Billing: those below 21 patients, between 21-29 patients, and those above 29 pts. The minimum possible score was zero, if no adverse factor were present, and maximum was 47 if presence of all were confirmed. MPI Score <21: low risk groups, 21-29: moderate risk groups and score >29:high risk group.

MATERIALAND METHODS:

prospective study of 50 patients with perforation peritonitis conducted in the period of January 2020 to July 2021 in Govt. Medical College, Amritsar.

Inclusion Criteria:

Cases of peritonitis secondary to hollow viscous perforation due to trauma or non-traumatic causes with age group 15-70 years were included in the study.

Exclusion Criteria:

All patients with primary peritonitis, peritonitis due to polytrauma, Immunocompromised, Age less than 15 and more than 70, patients who were managed Conservatively and patients with Abdominal injuries with associated solid organ or vascular injuries were excluded from the study.

RESULT:

Of the 50 cases of perforation peritonitis, majority of patients (44%) belong to age group 20-35yrs and Males accounted for 86% of the patients. The most common site of perforation was Gastric (42%) followed by appendicular perforation (20%), ileal perforation (20%), duodenum (8%), jejunum (4%), colon (4%) and gall bladder (2%)(table-1) Majority 48% has clear exudates collection as noticed intraoperatively, 28% had feculent & 24% had purulent collection. 62% of the study population presented with diffuse peritonitis & 38% had localized. Among the total cases, 6% patients were with malignancy. 60% of study population was in low risk group (score 29) (table-2) Patients with organ failure on admission, longer duration of illness before surgery, diffuse peritonitis, feculent exudates were more likely to have higher scores and hence fall into high risk group than their counterparts. All patients with score >29 present with any organ failure. Patients presenting with any organ failure due to hollow viscous perforation was significantly associated with increase morbidity and mortality. All patients with organ failure required more duration of ICU stay. Mortality in the study group was found to be 5/50 (10%). Among the complications, the most common were wound infection and respiratory complications. Up to 85% patients with score >29 developed surgical site infection in postoperative period which was about 69% in patients with score 21 -29 and about 23% in patients with score <21. In this study all patients with score >29, 60% patients with scores 21-29 and 13% with score <21 have pulmonary complication MPI was calculated in patients with peritonitis preoperatively and during the surgical procedure.

The mortality rates observed were higher in high risk group. There is no mortality in low risk group(table-3). Among the total death, 3 were female patients and from male patients it was 2. The difference in mortalities among MPI score categories was observed to be highly significant ($P < 0.0001$). When the individual parameters of MPI score

were assessed against the mortality only, age >50 years (P = 0.037), noncolonic origin of sepsis (P = 0.00) and generalized peritonitis (P = 0.000) were significantly associated with mortality (table-4).

Table- 1: Statistics Of Site Of Perforation

Site of Perforation	No. of Cases	Percent
Gastric	21	42.0%
Duodenum	4	8.0%
Jejunum	2	4.0%
Ileal	10	20.0%
Colon	2	4.0%
Appendix	10	20.0%
Gall bladder	1	2.0%
Total	50	100.0%

Table-2: Distribution Of Study Subjects According To Mpi Score

MPI Score	No. of Cases	Percent
< 21	30	60%
21-29	13	26%
> 29	7	14%
Total	50	100%

Table-3: Mortality Vs Mpi Score

Outcome	MPI Score						Total	
	< 21		21-29		> 29			
	No. of cases	%age	No. of cases	%age	No. of cases	%age	No. of cases	%age
Discharged	30	60.0	13	26.0	2	4.0	45	90.0
Dead	0	0.0	0	0.0	5	10.0	5	10.0
Total	30	60.0	13	26.0	7	14.0	50	100.0

Chai-square test value = 34.127, p-value=0.00 (<0.05)

Table-4: Mortality And Different Variables:

Variables		Outcome (n=50)				p-value
		Discharge		Dead		
		Count	Row N %	Count	Row N %	
Age	> 50	10	20	3	6	0.037(S)
Sex	Female	7	14	3	6	0.182(NS)
Organ Failure	Positive	5	10	5	10	1.000(NS)
Time	> 24hrs	38	76	5	10	0.006(S)
malignancy	Positive	0	0	3	6	0.07(NS)
Peritonitis	Positive	45	90	5	10	0.000(HS)
P fluid	Clear	24	48	0	0	0.000(HS)
	Fecal	11	22	3	6	0.021(S)
	Purulent	10	20	2	4	0.014(S)
Origin of Sepsis	Noncolonic	43	86	5	10	0.000(HS)

*p-value < 0.05 therefore significant.

DISCUSSION:

Perforation peritonitis due to hollow viscous perforation is one of the most common surgical emergencies. This condition almost always needs emergency surgical intervention. To assess the need, type & quality of care, a scoring system should be available for these patients. The MPI takes into account age, gender, organ failure, malignancy, duration of peritonitis, involvement of colon and extent of spread and character of the peritoneal fluid.

In our study Age distribution 22-35yrs was most common age group which is similar to other studies like Rodolfo L et al[4] where mean age group was 34yrs . In our study 86% were male & 14% were female which is similar to other studies like Yilmazlar et al study[5] 63% were male & 37% were female, Corriea et al study[6]73 % were male & 26% were female. In our study most common site of perforation is gastric 42% of patients, 20% had appendicular, 20% had ileal & 18% had in other sites which is similar to other studies Desa LA et al[7] study 32% had gastric, 18% had appendicular, 27% had ileal & 22% had in other sites. In our study 62% presented with a diffuse form of peritonitis while the remaining 38 % presented with localized peritonitis which is similar to other studies like Rajender Jhobta[8] study 83 % had diffuse & 17 % had localized and Ohmann[9] study 65.36 % had diffuse peritonitis & 34.64 % had localized. Diffuse peritonitis is associated with a severe inflammatory reaction and development of sepsis and multiorgan failure. Localization of peritonitis is body's defense mechanism and will lead to formation of abscess. In our study 48% had clear exudates, 24% had purulent exudates and 28% had faecal exudates which is similar to other studies like Rodolfo L[4] 69.5% has clear exudates and 21.8% had purulent exudates and Rajender Singh Jhobta[8] 15% had clear exudates, 71% had purulent and 13% had faecal exudates. Among the study population of 50 patients 5 patients died thus placing the mortality at 10% in comparison to other studies like Atsushi Hourichi[10] in their study of perforation peritonitis had a mortality of 23.1%. In our study Mortality rate is 71.4% in high risk group (MPI score >29). There is no mortality in low risk group (MPI score <21) and intermediate risk group(21-29) in comparison to other studies like Notash AY et al[11] with mortality of 60%, and up to 100% for scores of more than 29., Ermolov A S et al[12].

CONCLUSION:

Mannheim Peritonitis Index scoring system is accurate for predicting the morbidity and mortality in patients with peritonitis due to hollow viscous perforation. MPI scoring system is a simple and effective tool for assessing such patients, and can be used as a guiding tool to decide on the management of the patient after the definitive procedure is done.

REFERENCES:

1. Bohnen J, Boulanger M, Meakins JL, McLean AP. Prognosis in generalized peritonitis: relation to cause and risk factors. Archives of Surgery. 1983 Mar 1;118(3):285-90.
2. Giessling U, Petersen S, Freitag M, Kleine-Kraneburg H, Ludwig K. Surgical management of severe peritonitis. Zentralblatt fur Chirurgie. 2002 Jul;127(7):594-7.
3. Farthmann EH, Schöffel U. Principles and limitations of operative management of intraabdominal infections. World journal of surgery. 1990 Mar;14(2):210-7.
4. Rodolfo L. Bracho-Riquelme MC,Men C, Mannheim Peritonitis Index Validation Validation Study at the Hospital General de Durango (Mexico), Cir Circuj 2002;70:217-225.
5. Yilmazlar T, Toker S, Zorluoğlu A. Non-traumatic colorectal perforations. Int Surg. 1999;84(2):155-8.
6. Correia MM. Prediction of Death using the Mannheim Peritonitis Index in Oncologic patients. Revista Brasileira de Cancerologia, 2001 47 (1): 63-68.
7. Desa LA, Mehta SJ, Nadkarni KM, Bhalerao RA. Peritonitis: A study of factors contributing to mortality. Ind J Surg. 1983;45:593.
8. Jhobta RS, Attri AK, Kaushik R, Sharma R, Jhobta A. Spectrum of perforation peritonitis in India-review of 504 consecutive cases. World journal of Emergency surgery. 2006;1(1):1-4.
9. Ohmann C. Prognostic scores and design of clinical studies. Infection. 1998 Sep;26(5):342-4.
10. Atsushi Horiuchi, Evaluation of prognostic factors and scoring system in colonic perforation. World J of gastroenterology 2007. June 21 13; (23) 3228-3231.
11. Notash AY, Salimi J, Rahimian H, Fesharaki MS, Abbasi A. Evaluation of Mannheim peritonitis index and multiple organ failure score in patients with peritonitis. Indian journal of gastroenterology. 2005 Sep 20;24(5):197.
12. Ermolov AS, Bagdat'ev VE, Chudotvortseva EV, Rozhnov AV. Evaluation of the Mannheim peritonitis index. Vestn Khir Im I I Grek 1996; 155: 22- 3.