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Role of Mannheim Peritonitis Index (Mpi) Score inpredicting the mortality in Patients with Peritonitis secondary to hollow viscus perforation

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I. Introduction

Acute generalized peritonitis from gastrointestinal hollow viscous perforation is a potentially life threatening condition. The prognosis of peritonitis remains poor despite development in diagnosis and management. Early identification of patients with severe peritonitis may help in selecting patients for aggressive surgical approach[1-3].

Grading the severity of acute peritonitis has assisted in no small way in decision making and has improved therapy in the management of severely ill patients[4]. 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[5-6].

Many scoring systems have been designed and used successfully to grade the severity of acute peritonitis like, acute physiology and chronic health evaluation (apache) ii score, simplified acute physiology score (saps), sepsis severity score (sss), ranson score, imritescore,mannheim peritonitis index (mpi)[7,8].Mpi was developed by wacha and linder in 1983. It was developed based on the retrospective analysis of data from 1253 patients with peritonitis, in which 20 possible risk factors were considered. Of these only 8 proved to be of prognostic relevance and were entered into the mannheim peritonitis index, classified according to their predictive power. Patients with a score exceeding 26 were defined as having a high mortality rate.

The mannheim peritonitis index (mpi) is a specific score, which has a good accuracy and provides an easy way to handle with clinical parameters, allowing the prediction of the individual prognosis of patients with peritonitis[9].There are only few published Indian studies to assess the validity of this scoring system.

II. Aims And Objectives

1) Aim is to predict the risk of mortality in patients with peritonitis due to hollow viscous perforation. Assessment of surgical risk in these patients is to help in choosing the modality of management in a particular patient.
2) This study attempts to evaluate the role of mpi scoring system in patients with peritonitis due to hollow viscous perforation, to use it as a clinical tool in assessing severity.

III. Materials and Methods

Prospective study on peritonitis secondary to hollow viscus perforation conducted in K R Hospital under MMC & RI , Mysore, Karnataka, India, from period of January 2018 – August2019.

IV. Methods of Collection of Data

Sample Size: 50(on calculation with 94% expected proportion,7% relative precision,with 95% confidence level required sample size came upto 50)

Inclusion criteria

- Patients presenting with peritonitis secondary to hollow viscus perforation.
- Age above 18yrs

Exclusion criteria

- Patients aged below 18yrs
- Patients with primary peritonitis &peritonitis due to trauma.

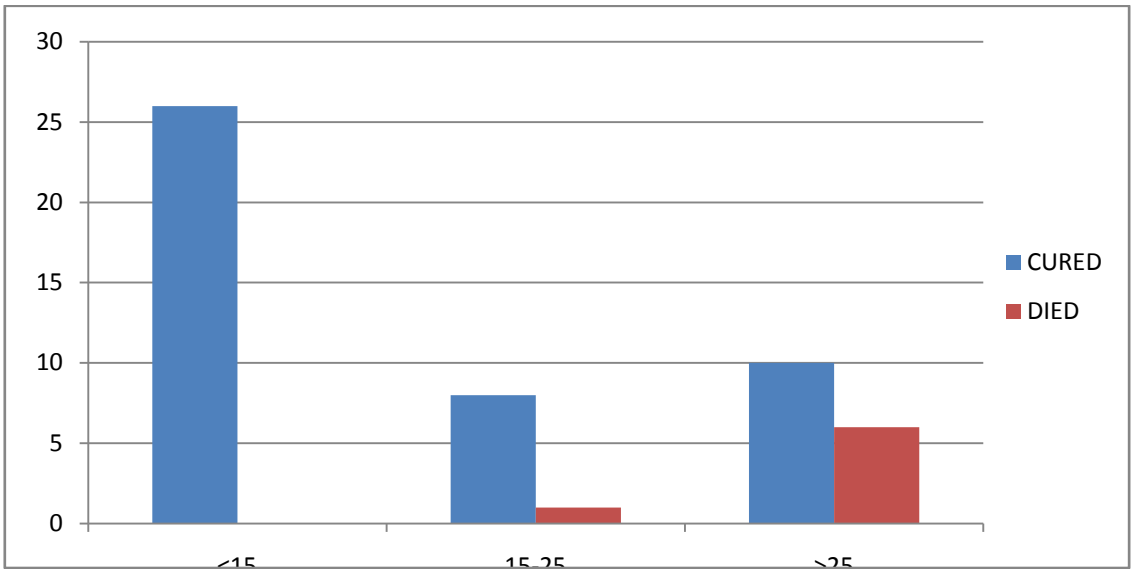
Preoperative work up with required investigations and resuscitation with intravenous fluids, antibiotics, analgesics, nasogastric decompression was done in all the cases as per protocol.The MPI was applied in Prediction was diveded into 3 groups: i) score ≤ 15 ii) Score 15-25 iii) score >25. Further resuscitation and ICU care was given as and when was necessary. Patients were followed up postoperatively till the outcome i.e. mortality, morbidity or discharge. Data obtained was analysed for predicting mortality and morbidity.

V. Results

According to scores

According to study it shows that as score increase , there is increase in mortality in patients. In this study there are 6deaths (12%). In that more death ie 5(33.33%) to score 25 above, one death (11.11%) for score between 15-25.Study is found to statistically significant with p value 0.02715

Scores	CURED	DIED
<15	26	0
15-25	8	1
>25	10	5

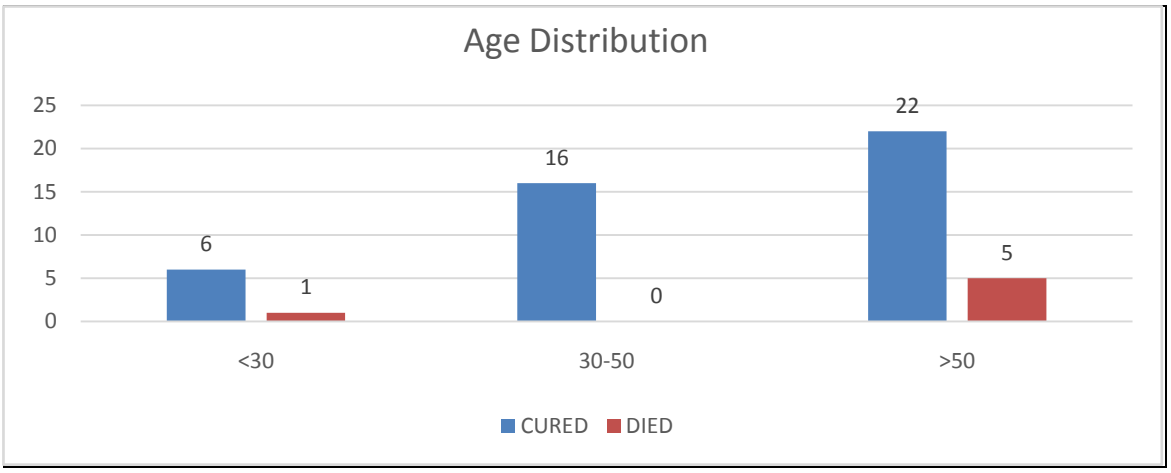


{table-1& fig-1}

Age distribution

It was found that the mortality rate is 4.34% for patients with <50 years and 18.51% for patients more than 50 years. This shows as the age increases there is increase in moratality. The study is significant with p value of 0.027

Age	CURED	DIED
<30	6	1
30-50	16	0
>50	22	5



{table-2& fig-2}

According to my study female sex is not risk factor for mortality with p value of 0.384 which was statistically not significant though it is consider as one of risk factor. [Table 3]

In comparing to mortality in DGP to localized peritonitis there was significant mortality in DGP patients with p value 0.05 hence patient with DGP have higher chance of mortality compare to localized peritonitis. [Table 3]

In comparing the duration of symptoms and surgery there was significant positive results , shows delay in surgery leads to increase in mortality. With p value of <0.001 factor is found to be significant. [Table 3]

The mortality of patients in cloudy exudates is more compare to clear. It was found to be statistically significant with p value 0.001[Table 3]

Patients having no organ failure preoperatively, mortality was less as compared to patients having organ failure, mortality was more, which was statistically significant with p value <0.0001 [Table 3].

		Cured	**Dead**	**P value**
Age	**<50**	22	1	**0.027**
	Above 50	22	5	
Sex	**Female**	**8**	2	**0.384**
	Male	**36**	4	
DGP	**NO**	**25**	**1**	**0.05**
	YES	**19**	**5**	
EXUDATES	**CLEAR**	**30**	**0**	**0.001**
	CLOUDY	**14**	**6**	
	FECAL	**0**	**0**	
Duration	**<48**	**40**	**1**	**<0.0001**
	>48	**4**	**5**	
PO2	**Less PO2**	**0**	3	**<0.0001**
	WNL	**44**	3	
RFT	**INS**	**1**	4	**<0.0001**
	WNL	**43**	2	

{table-3}

Sensitivity and specificity of index score:

For a score of 26, the sensitivity was 83.3%, specificity was 95.54%, and positive predictive value for mortality is 92% and an accuracy of test is 94%.

Index scores	**Cured**	**Dead**	Total
<26	42	1	43
>26	2	5	7
Total	44	6	50

{table-4}

95.5:- Specificity

83.3:- Sensitivity

VI. Discussion

Peritonitis remains a hot spot for the surgeons despite advancements in surgical technique and intensive care treatment. Various factors like age, sex, duration, site of perforation, extent of peritonitis and delay in surgical intervention are associated with morbidity and mortality. A successful outcome depends upon early surgical intervention, source control and exclusive intraoperative peritoneal lavage. Also various methods and scoring systems are used to identify the risks and to morbidity and mortality in those patients.

Different studies have mortalities ranging from 6.4% to 17.5%[12-13]. According to the literature MPI is an independent, objective and effective scoring system in predicting mortality and has advantages over the other scoring systems [13-15].

In Billing A, Fröhlich D, Schildberg FW., patients with scores of less than 21 had a mortality rate ranging from 0-2.3% and those with MPI between 21 and 29 had a mortality rate of approximately 65%. MPI score of more than 29 had the highest mortality, up to more than 80% in some studies.

Notash AY, Salimi J, Rahimian H, Fesharaki MH, Abbasi A. have shown important cut-off points to be 21 and 29 when using the MPI, with mortality of 60%, and up to 100% for scores more than 29[13].

Kusumotoyoshiko et al., evaluated the reliability of the MPI in predicting the outcome of patients with peritonitis in 108 patients. A comparison of MPI and mortality showed patients with a MPI score of 26 or less to have mortality of 3.8%, where as those with a score exceeding 26 had mortality of 41.0% [16]

In a study conducted by Qureshi AM et al., score of < 21 had mortality of 1.9%, score of 21-29 had 21.9% and score > 30 had mortality of 28.1%. Mortality rate for MPI score more than 26 was 28.1% while for scores less than 26 it was 4.3% [17].

Wittmann showed in his study, a high mortality rate (50%) when the diagnosis of peritonitis was made after 48 h.[18]The observed high frequency of patients with preoperative peritonitis duration longer than 24 h (65.5%) was correlated with high death rate.

VII. Conclusion

Increasing score of MPI indicates bad prognosis. More score associated with high morbidity and mortality. So patients high score require close monitoring with close attention to be given to support the vital systems. Thus MPI is disease specific , easy to interpret in predicting the morbidity and mortality in patients with peritonitis secondary to hollow viscus perforation.

References

[1]. Bohnen J, Boulanger M, Meakins JL, Mclean APH. Prognosis in generalized peritonitis: relation to cause and risk factors. Arch Surg. 1983;118:285-90.

[2]. Giessling U, Petersen S, Freitag M, Kleine-Kraneburg H, Ludwig K. Surgical management of severe peritonitis. ZentralblChir. 2002;127:594-97.

[3]. Farthmann EH, Schoffel U. Principles and limitations of operative management of intra-abdominal infections. World J Surg.1990;14:210-17.

[4]. Ponting GA, Sim AJW, Dudley, HAF. Comparison of local and systemic Sepsis in predicting survival. Br J Surg. 1987;74:75052

[5]. Bion J. Outcome in Intensive care. BMJ. 1993;307:953-54.

[6]. Knaus WA, Drapper EA, Wagner DP, Zimmerman JE. APACHE severity of disease classification system.Crit Care Med.1985;13:818-29.

[7]. Kologlu M, Elker D, Altun H, Sayek I. Validation of MPI and PIAII in two different groups of patients with secondary peritonitis.Hepatogastroenterology. 2001;48:147-51.

[8]. Bosscha K, Reijnders K, Hulstaert PF, Algra A, van der WerkenC.Prognostic scoring systems to predict outcome in peritonitis and intra-abdominal sepsis. Br J Surg. 1997;84(11):1532-34.

[9]. Wacha H, Linder MM, Feldman U, Wesch G, GundlachE,Steifensand RA. Mannheim peritonitis index – prediction of risk of death from peritonitis: construction of a statistical and validation of an empirically based index. Theoretical Surg. 1987;1:169-77

[10]. CS Agrawal, M Niranjan, S Adhikary, BS Karki, R Pandey and PR Chalise. Quality assurance in the management of peritonitis: A prospective study. *Nepal Med Coll J. 2009;* 11(2):83-87.

[11]. F Ntirenganya, G Ntakiyiruta, I Kakande. Prediction of Outcome Using the Mannheim peritonitis Index in Patients with Peritonitis at Kigali University Teaching Hospital.*East Cent Afr J Surg.* 2012;17(2):52-64.

[12]. MathikereLingaiahRamachandra, Bellary Jagadesh, Sathees BC Chandra. Clinical study and management of secondary peritonitis due to perforated hollow viscus. *Arch Med Sci.* 2007;1:61-68.

[13]. Notash AY, Salimi J, Rahimian H, Fesharaki MH, Abbasi A. Evaluation of Mannheim peritonitis index and multiple organ failure score in patients with peritonitis. *Indian Journal of Gastroenterology*.2005; 24(5):197-200.

[14]. Mulari K, Leppäniemi A. Severe secondary peritonitis following gastrointestinal tract perforation.*Scand J Surg.* 2004;93(3):204-8.

[15]. SBiondo, E Ramos, D Fraccalvieri, E Kreisler, J MartíRagué, E Jaurrieta. Comparative study of left colonic peritonitis severity score and Mannheim peritonitis index.*Br J Surg.* 2006;93(5):616–22.

[16]. Demnel N. Muth G., Maag K., Osterholzer G. Prognostic scores inperitonitis: the Mannheim peritonitis index or APACHE II?Langenbecks Arch Chir 1994; 379(6):347-52.

[17]. Svanes C, et al. Adverse effects of delayed treatment for perforated peptic ulcer. Ann. Surg. 1994 August;220(2):168.

[18]. Japanese journal of gastroenterology surgery volume 37 no1 page7-13(2004)