ORIGINAL RESEARCH PAPER

COMPARATIVE STUDY BETWEEN MPI & APACHE II TO PREDICT OUTCOME IN PATIENTS OF INTESTINAL PERFORATION

General Surgery

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ABSTRACT

INTRODUCTION- Peritonitis due to hollow viscous perforation continues to be the common surgical emergency. Perforation of any part of the intestine is a life threatening condition, which is most commonly managed by general surgeons. About 80% of cases of secondary peritonitis in large hospitals account for perforated peritonitis.

Many scoring systems have been designed for assessing the severity of perforation peritonitis like acute physiology and chronic health evaluation (APACHE II) score, Mannheim peritonitis index (MPI), POSSUM score, simplified acute physiology score (SAPS), sepsis severity score (SSS),Ranson score ,Imrite score.

AIMS & OBJECTIVES- To find the best scoring system to predict outcome amongst the scoring systems.

METHODOLOGY-Carried out in 100 cases in 1year duration. After detailed history & investigations , patients were managed .Post op follow up was done & data was recorded. Individual score for each patient was calculated and scores were compared.

RESULT-Most of the patients were from 16 to 25 years of age group followed by 26 to 35 years.Ileal perforation was most common among the all intestinal perforation followed by appendicular perforation .Diagnostic Accuracy of MPI, APACHE II Score was 52% & 98%respectively.

CONCLUSION-APACHE II score is the best scoring system for assessing the severity of acute intestinal perforation peritonitis in comparison with MPI score. Strict vigilance and prompt correction of the validated factors can improve the general condition of the patient and decrease the mortality.

INTRODUCTION-

Intestinal perforations are one of the most common causes for admissions in emergency. Perforation of any part of the intestine is a life threatening condition, which is most commonly managed by general surgeons. The prognosis of perforation peritonitis is result of the complex interaction of many factors and the success obtained with the early identification of patients and the aggressive surgical approach.[1] Intestinal perforations are one of the most common causes for admissions in emergency. Perforation of any part of the intestine is a life threatening condition, which is most commonly managed by general surgeons. The prognosis of perforation peritonitis is result of the complex interaction of many factors and the success obtained with the early identification of patients and the aggressive surgical approach.[2] Intestinal perforations are one of the most common causes for admissions in emergency. Perforation of any part of the intestine is a life threatening condition, which is most commonly managed by general surgeons. The prognosis of perforation peritonitis is result of the complex interaction of many factors and the success obtained with the early identification of patients and the aggressive surgical approach.[3]

Many scoring systems have been designed for assessing the severity of perforation peritonitis like acute physiology and chronic health evaluation (APACHE II) score, Mannheim peritonitis index (MPI), POSSUM score, simplified acute physiology score (SAPS), sepsis severity score (SSS), Ranson score, Imrite score.[4,5] Scoring systems are solely dependent on multiple investigations. Such investigations may not be easily available in developing countries. Therefore a simple prognostic scoring system which can be easily used in developing countries is needed. [6]

AIMS AND OBJECTIVES-

To compare MPI & APACHE II score to predict outcome in patients of intestinal perforation.

To find the best scoring system to predict outcome between MPI & APACHE II score

METHODOLOGY-

total 100 patients were studied which were admitted in emergency , OPD and Casualty at Sanjay Gandhi Memorial Hospital, Rewa. MP .Study type was prospective observational. Studywasdone over the period of 1 year from 1st June 2017 to 31st May 2018. After detailed history,examination ainvestigations, and management of patient data was recorded and MPI & APACHE II score of each individual was calculated.

RESULTS-

Table1 SENSITIVITY AND SPECIFICITY OF MANHEIM'S INDEX

		MORTALITY		TOTAL
		YES	NO	
MANHEIM'S SCORE TOTAL	≥22	19	48	67
	<22	0	33	33
		19	81	100

Parameter	Calculation	Estimate
Sensitivity	19/19+0	100%
Specificity	33/48+33	40.7%
Positive Predictive Value	19/19+48	28.3%
Negative Predictive Value	33/0+33	100%
Diagnostic Accuracy	19+33/100	52%

TABLE :2-SENSITIVITY AND SPECIFICITY OF APACHE II INDEX

		MORTALITY		TOTAL
		YES	NO	
APACHE II SCORE	≥ 15	17	0	17
	< 15	2	81	83
TOTAL		19	81	100

Parameter	Calculation	Estimate
Sensitivity	17/17+2	89.4%
Specificity	81/81+0	100%
Positive Predictive Value	17/17+0	100%
Negative Predictive Value	81/81+2	97.5%
Diagnostic Accuracy	17+81/100	98%

Out of 100 patients 81 survived and 19 expired.

DISCUSSION-

In our study, a Manheim's score of 22 was found to predict

mortality which was statistically significant. This is in accordance with previous studies where a score of 21 was found to predict mortality .In the study by Dr.Sudharsan. S. B (2013)   mortality below score 22 was 2.9 % and mortality above 22 was 50%.[7]

In the study by Pawanjeetkumar (2017) with MPI score >25, 22.86% patients expired and MPI score below 25, 6.7% patients expired.[8]

In our study , for Manheim peritonitis index score of 22 as cut off ,sensitivity , specificity , positive predictive value and negative predictive value were 100%, 40.7%, 28.3% and 100% respectively .In our study diagnostic accuracy of   Manheim peritonitis index was found 52%. In the study by Dr.Sudharsan. S. B(2013), for Manheim peritonitis index score of 22 as cut off , sensitivity , specificity, positive predictive value and negative predictive value were 88.89%, 80.49%, 97.06% and 82% respectively. Diagnostic accuracy of Manheim peritonitis index in study by Dr.Sudharsan. S. B (2013) was 82%.In study by Kumar P et al (2017) with Manheim peritonitis index cut off of 25 sensitivity ,specificity ,positive predictive value and negative predictive value were 100 % ,91%, 69% and 100 %. Diagnostic accuracy of MPI in study by Kumar P et al (2017) was 69%.

In our study APACHE II score with cut off as 15 showed sensitivity ,specificity, positive predictive value and negative predictive value as 89.4%, 100%, 100% and 97.5% respectively.Diagnostic accuracy with cut off as 15 was 98%. In the study by Dr.Sudharsan. S. B (2013) APACHE II score with cut off as 15, sensitivity , specificity , positive predictive value and negative predictive value was 100%, 100%, 100% and 100% respectively. Diagnostic accuracy with cut off, as 15 in study by Dr.Sudharsan. S. B (2013) was 100%.In study by Kumar P et al (2017) ,APACHE II score showed sensitivity ,specificity , positive predictive value and negative predictive value as 85 % ,100% ,100 % and 96 % respectively. Diagnostic accuracy with cut off as 15 in the study by Kumar P et al(2017) was 83.33%.

In our study , between APACHE II and Manheim peritonitis index , APACHE II was found to be better predictor of mortality accuracy of APACHE II was better than that of MPI.

CONCLUSION-
APACHE II score is the better among   MPI & APACHE II score for assessing the severity of acute intestinal perforation peritonitis.

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