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A Comparative Study of Ripasa Score, Appendicitis Inflammatory Response Score and Modified Alvarado Score in the Diagnosis of Acute Appendicitis

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I. INTRODUCTION

Acute appendicitis is a common surgical emergency.A quick diagnosis and prompt appendicectomy prevents perforation. CT scan can give accurate diagnosis but it is not available in all centres, and has high cost, causes radiation exposure and delay in reporting further delays appendicectomy. Negative appendicectomy is when there is a preoperative diagnosis of acute appendicitisbut post operative histopathology shows normal specimen. It increases hospital stay, increases cost of treatment, increases complications (incisional hernia(0.68%), ileus(1.2%)) and increases morbidity and mortality. So various scoring systems are used for accurate diagnosis, early diagnosis and prompt management. Three popular scoring systems used are RIPASA, Modifies Alvarado Score and Appendicitis inflammatory response score.

AIMS AND OBJECTIVES

To compare RIPASA, Modified Alvarado score and Appendicitis inflammatory response score in accurately diagnosing acute appendicitis to avoid negative appendicectomy.

II. MATERIALS AND METHODS

100 consecutive patients who underwent emergency appendicectomy (age group 15-60yrs) in Silchar Medical College were included. Exclusion criteria included children less than 15 yrs, Pregnant women, patients with RIF mass and patients with history of urolithiasis and PID All three scores were calculated for patients with RIF pain. Sensitivity, specifity, positive predictive value and negative predictive value was also calculated for all scores. High probability of appendicitis was considered when Alvarado score 7 or more, AIR score 8 or more and Ripasa score 7.5 or more. Decision of appendicectomy was based on surgeons clinical judgement considering lab and radiological investigations. Patients were monitored closely from admission till discharge. Histopathology findingsofthe operatedcaseswerecollectedand correlated with all three scores.The correlation between the three scores was tested with Pearson's correlation.The area under the receiver operating characteristic (ROC) curves was used toexaminethe performancecharacteristicsofthescoringsystems individually.

III. RESULTS

The RIPASA and Modified Alvarado scores were found to be strongly correlated positively, with a Pearson's coefficient of 0.77.The RIPASA and AIR scores were found to be weakly correlated positively, with a Pearson's coefficient of 0.66.The AIR and Modified Alvarado scores were found to be have very weak correlation, with a Pearson's coefficient of 0.54.

	MODIFIED ALVARADO SCORE	APPENDICITIS INFLAMMATORY SCORE	RIPASA SCORE
SENSITIVITY (TP/TP+FN)	64.44%	97.78%	87.78%

SPECIFICITY (TN/FP+TN)	58.82%	29.41%	76.47%
POSITIVE PREDICTIVE VALUE(TP/TP+FP)	89.23%	88%	95.18%
NEGATIVE PREDICTIVE VALUE (TN/FN+TN)	23.81%	71.43%	54.17%
DIAGNOSTIC ACCURACY	63.55%	86.92%	85.98%
AREA UNDER CURVE	0.726797	0.946732	0.910131

IV. DISCUSSION

Acute appendicitis is a common problem, but remains a difficult diagnosis to establish, particularly in young, elderly and females of reproductive age.A delay in performing an appendicectomy increases risk of appendicular perforation and sepsis, which increases morbidity and mortality.With reduced diagnostic accuracy, the negative or unnecessary appendicectomy rate is increased.Diagnostic accuracy can be improved through the use of ultrasonography or computed tomography imaging.However, such routine practice may inflate the cost of health care substantially.To summarise, the area under the ROC curve for the RIPASA and AIR scoring systems was significantly larger than it was with the Modified Alvarado system. The RIPASA and AIR scores are fast and are definitely better in categorizing patients with suspected appendicitis and reduce the need for diagnostic imaging.Among the two RIPASA score is better than AIR score due to increased specificity. Unnecessary radiological investigations can be thus avoided and this decreases the cost of treatment.The RIPASA score is currently a better diagnostic scoring system for acute appendicitis compared to the Modified Alvarado score, and AIR score.

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