"AN ANALYSIS OF THE SHORT TERM OUTCOME OF PATIENTS PRESENTING WITH PERITONITIS USING POSSUM SCORING SYSTEM"
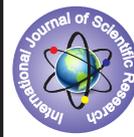
General Surgery

Dr.Bharti Saraswat	Asso.Prof. Dept. Of General Surgery, Dr.Sampurnanand Medical College,Raj,India
Dr.Rajesh K N	Resident. Dept. of Gen.Surgery, Dr.Sampurnanand Medical College,Raj,India
Dr.yeshavanth preetham	Resident.Dept. of Gen.Surgery, Dr.Sampurnanand Medical College,Raj,India.

ABSTRACT
peritonitis and mortality and morbidity regarding it is very common situation for surgeons, pre-operative prognostic scoring like POSSUM allows surgeon to predict the post-operative outcome which can be used in for better patient's counseling, improving surgical outcome and better management of limited resources and man power. objective: To predict the prognosis and outcome of the patients with peritonitis based on the POSSUM score and correlation between the POSSUM score and the severity of the disease. Data collected prospectively from 100 consecutive patients of peritonitis admitted at surgical wards to compare POSSUM score for morbidity and mortality with complications and outcome. mean age was 39.33±18.48 years, perforations of the peptic ulcers are the most common cause of peritonitis forming 34% of the study, The most common complication was septicemia (29%) ,Wound dehiscence (24.13%) was the most common complication in survived patients . The overall O:E ratio for POSSUM morbidity and mortality score were 0.93 and 1.21,in the ROC curve, higher number of complications and morbidity was observed with POSSUM morbidity score of >95.8% and the AUC being 0.987.ROC curve for mortality, the increase incidence of deaths were observed for score of >59.1% with AUC being 0.987 .the study showed a highly significant statistical difference, p value <0.0001 between the survived and expired patients and the POSSUM morbidity and mortality scores .Thus to summarize, POSSUM score is easier, faster and convenient in estimating morbidity and mortality in cases of peritonitis undergoing surgery.

INTRODUCTION

In 1991, Copeland GP et al[1] while working in Broadgreen hospital, Liverpool, United Kingdom, devised Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity(POSSUM). The POSSUM system is a two-part scoring system that includes a physiological assessment and a measure of operative severity. Apart from general surgery, the POSSUM has been used with success in specialist surgery as well. Its value is well documented in vascular[2], orthopaedic[3], upper gastrointestinal and colorectal surgery.[4,5,6] It was found to be quick, easy to use, and could be applied for both elective and emergency work and accurately predict outcome.The pre-operative physiological score yields a statistically predictive risk of morbidity and mortality for the patients overall, with inter-group differences depending on the nature of surgical procedure..The purpose of our study is to predict the prognosis and outcome of the patients with peritonitis based on the POSSUM score and correlation between the POSSUM score and the severity of the disease.

METHOD & MATERIAL

The present study included the patients presenting with peritonitis to the General Surgery Department of Dr. S.N. Medical College and Associated Hospitals, Jodhpur. A total 100 consecutive patients with peritonitis undergoing surgery with a post operative one month follow up period were included in our study. **INCLUSION CRITERIA:** Patients presenting with peritonitis, Patients aged >12 years and both sexes, Patients diagnosed with peritonitis undergoing surgery. **EXCLUSION CRITERIA:** Patients aged <12 year, Patients with significant immunosuppression (steroid use, post transplant, seropositive state),Patients with head injury, Patients with paraplegia, Patients managed conservatively i.e. not undergoing surgery (acute pancreatitis, acute cholecystitis, appendicular lump).**STUDY DESIGN:** Prospective observational study.

OBSERVATION AND RESULTS

Out of 100 patients, 86 were males and 14 were females. Majority of subjects i.e. 32% belongs to age group 15-25 years, 84% of the study population were ≤60 years. Overall mean age was 39.33±18.48 years. Perforations of the peptic ulcers are the most common cause of peritonitis forming 34% of the study followed appendicular perforation peritonitis 16%. The mortality rate of the study was 13%, The most common complication being septicaemia in 29% ,wound

dehiscence in 23% ,Surgical site wound infection was present in 14% patients. The commonest complication in the survived patients was wound dehiscence (24.13%), and in expired patients were septicaemia (84.61%) and multiorgan failure (84.61%). The total duration of hospital stay of the patients survived increases with higher morbidity score was observed in the study. The maximum number of survived patients; 37 (42.53%) had 11-20 days of hospital stay with mean POSSUM morbidity score of 71.28%.On application of **linear analysis for POSSUM Morbidity Score,** the observed morbidity was 76%, while POSSUM expected morbidity was 780.99%, O:E ratio is 0.93:1.**The Receiver Operating Characteristic (ROC) Curve for morbidity** is depicted in the figure 1. The area under the curve (AUC) being 0.987 with cut off morbidity >95.8%, sensitivity of 100%, specificity of 90.8%, positive predictive value (PPV) and negative predictive value (NPV) being 61.9% and 100% respectively with significance p value <0.001.On application of **linear analysis for POSSUM Mortality equation,** showed O:E Ratio 1.21:1 with observed and expected rates being 13% and 10.67% respectively **The ROC Curve** for mortality is depicted in the figure 2. The AUC being 0.987 with cut off mortality >59.1%, sensitivity of 100%, specificity of 90.8%, PPV and NPV being 61.9% and 100% respectively with significance p value <0.001. The mean POSSUM morbidity score of 70.49% and 98.94% were observed in the survived and expired patients respectively.The mean POSSUM mortality score of 29.64% in the survived and 84.69% in the expired patients was tabulated. The present study showed a highly significant statistical difference, p value <0.0001 between the survived and expired patients and the POSSUM morbidity and mortality scores denoting that higher the morbidity score, more the number
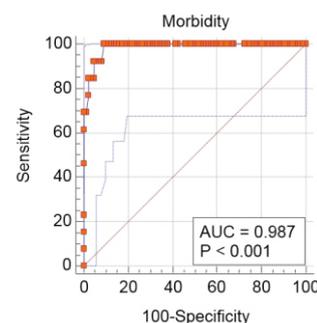

Morbidity

AUC = 0.987
P < 0.001

Fig 1: ROC curve depicting POSSUM morbidity score in the study population with peritonitissample size = 100 (87 + 13) ,disease prevalence = 13.0 %,AUC = 0.987,Cut Off Morbidity is >95.8 with a sensitivity of 100 %,specificity of 90.80 %
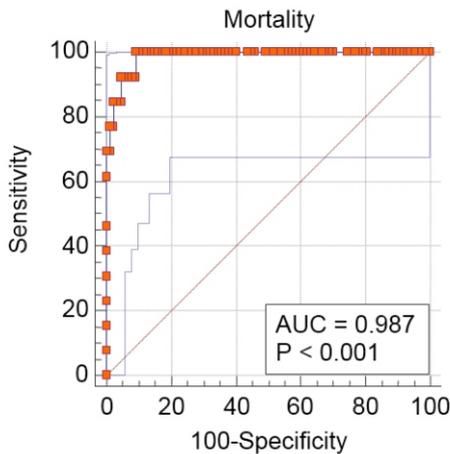
2006;30:100-6.

Fig 2: ROC curve depicting POSSUM mortality score in the study population with peritonitis, sample size = 100 (87 + 13) ,disease prevalence = 13.0 %,AUC = 0.987,Cut Off Mortality is >59.1 with a sensitivity of 100%, specificity of 90.80 %.

CONCLUSION

A prospective observational study of 100 patients was conducted at MGH and MDMH, under Dr. S. N. Medical College, Jodhpur on cases of peritonitis admitted at surgical wards to compare POSSUM score for morbidity and mortality with complications and outcome. The following conclusions were drawn.The overall O:E ratio for POSSUM morbidity and mortality score were 0.93 and 1.21 indicating good predictive ability of the scoring system. However the predicting ability was found to be seen with the higher morbidity and mortality scores unlike the lower ranges. According to the ROC curve, higher number of complications and morbidity was observed with POSSUM morbidity score of >95.8% and the AUC being 0.987 with sensitivity of 100% and specificity of 90.80% indicating a perfect discriminating ability. In the ROC curve for mortality, the increase incidence of deaths were observed for score of >59.1% with AUC being 0.987 with sensitivity of 100% and specificity of 90.80% indicating a perfect discriminating capacity. The present study showed a highly significant statistical difference, p value <0.0001 between the survived and expired patients and the POSSUM morbidity and mortality scores denoting that higher the morbidity score, more the number of complications and higher the mortality score, more the number of deaths.

Thus to summarize, POSSUM score is easier, faster and convenient in estimating morbidity and mortality in cases of peritonitis undergoing surgery.

REFERENCES:

1. Copeland GP, Jones D, Walters M: POSSUM: a scoring system for surgical audit. Br J Surg 1991, 78:355-60
2. Wijesinghe L D, Mahmood T, Scott D J A, Berridge D C, Kent P J, Kester R C. Comparison of POSSUM and Portsmouth predictor equation for predicting death following vascular surgery. Br J Surg 1998;85: 209-12.
3. Mohamed K, Copeland G P, Boot D A, Casserley HC, Shackleford IM, Sherry PG. An assessment of POSSUM system in orthopaedic surgery. J Bone Joint Surg Br 2002; 84: 735-9.
4. Tekkis P P, Kessaris N, Kocher H M, Poloniecki J D, Lyttle J, Windsor AC. Evaluation of POSSUM and P-POSSUM scoring systems in patients undergoing colorectal surgery. Br J Surg 2003; 90: 340-5.
5. Tekkis P P, Pryterch D R, Kocher H M, Senapati A, Poloniecki JD, Stamatakis JD. Development of a dedicated risk-adjustment scoring system for colorectal surgery (colorectal POSSUM). Br J Surg 2004; 91: 1174-82.
6. Slim K, Panis Y, Alves A, Kwiatkowski F, Mathieu P, Mantion G. Predicting postoperative mortality in patients undergoing colorectal surgery. World J Surg