



ASSESSING MORBIDITY AND MORTALITY IN PATIENTS UNDERGOING ABDOMINAL SURGERY: A COMPREHENSIVE ANALYSIS UTILIZING THE P-POSSUM SYSTEM.

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ABSTRACT

Monitoring and evaluating clinical practice on a continuous basis is crucial for driving improvements in medical science and elevating patient care.

- The POSSUM and P-POSSUM: Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity, which compiles both physiological and intra operative criteria to predict post operative mortality and morbidity.
- To investigate the efficacy and accuracy of the of the P-POSSUM scoring systems in the risk assessment of morbidity and mortality of patients undergoing abdominal surgery.
- To study the prediction risk and the outcomes of surgery and compare it with the complications observed in monitoring the patients.
- This study has been taken place in Department of General Surgery of MIMS Nellimarla, FROM Jan 2023 to Jan 2024. Including a total of 60 patients.
- P-POSSUM has demonstrated an enhanced ability to predict postoperative mortality rates in specific patient populations.
- In fact, the accuracy of P-POSSUM in forecasting the likelihood of mortality following surgery has been commendable.

KEYWORDS : P-POSSUM , abdominal surgery , mortality, predicting.

INTRODUCTION

- In the 1980, severity scores and scales were developed to provide more sensitive and objective measures for analyzing severity, stratifying patients, assess the risk of mortality during a patient's hospital stay and obtaining prognostic information.
- One such scoring system is the P-POSSUM scale (Portsmouth-Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity), that takes into account the patient's physiological state before surgery and the severity of the procedure.

Aims

- To investigate the efficacy and accuracy of the of the P-POSSUM scoring systems in the risk assessment of morbidity and mortality of patients undergoing abdominal surgery.
- To study the prediction risk and the outcomes of surgery and compare it with the complications observed in monitoring the patients.

MATERIALS AND METHODS

Source of Data

- Patients admitted to Dept of General Surgery -Maharaja Institute of Medical Sciences Nellimarla.
- **Study Period:** June 2022 to March 2023.
- **Sample Size :** 60
- **Type of Study:** Descriptive and Prospective study. Method of data collection: Data was collected via a proforma prepared for the study from all patients undergoing surgery in the stipulated time period.
- **Inclusion Criteria:** All the patients who have their given consent and were fit to study.
- **Exclusion Criteria:** Patients aged 12 years or less.

Patients who are immunocompromised and taking immunosuppressants.

The Degree of Intervention in Surgery was Categorized into Three Main Groups:

1. **Minor Procedures:** Commonly done were hernia repairs, excision biopsies and perianal surgeries.
2. **Moderate Procedures:** Commonly done were conventional or laparoscopic cholecystectomy and appendectomy.
3. **Major Procedures:** Surgeries done were bile duct exploration, intestinal resection and anastomosis and Whipple's procedure.

P-POSSUM Equation for Morbidity:

$[R / (1-R)] = -5.91 + (0.16 \times \text{physiological score}) + (0.19 \times \text{operative severity score})$, where R is the predicted risk of morbidity.

P-POSSUM Equation for Mortality:

$[R / (1-R)] = -9.37 + (0.19 \times \text{physiological score}) + (0.15 \times \text{operative severity score})$, where R is the predicted risk of mortality.

In this study, the POSSUM score was calculated for morbidity and mortality by submitting values in a form provided at the URL: www.riskprediction.org.uk for calculating these scores.

And, the collected results were then recorded in the data collection form, enabling a comparison with the post-surgical outcomes during patient discharge and subsequent medical consultations.

Estimation in different patient populations was done.

RESULTS

These findings highlight the differences in morbidity and mortality rates between genders, different age groups, emphasizing the importance of considering these factors in patient care and risk assessment.

Gender Wise: This study involved a total of 60 patients (20 female and 40 male patients).

Among the female patients, 10% experienced expected morbidity, and the same percentage actually had

complications.

Among the male patients, 30% were at risk of morbidity, but only 18% ended up having complications, which was not statistically significant.

Age Wise: 25% of the patients were expected to have morbidity: 17% of those under 60 year's actually experiencing complications.

3.3% of those between 61-70 years were expected to have complications, and 5% actually did. 11.7% of those older than 71 years were expected to have morbidity, but only 6.7% had complications.

Mortality Wise: 6.7% of the female patients were predicted to have higher mortality and 5% of them expired. Among the male patients, 16.7% had mortality risk, but 1.7% expired.

In the <60 years age group, 15% were predicted to have mortality, but 3.3% expired.

In the 61 to 70 years age group, 1.7% were expected to have higher mortality and one patient died.

Among patients older than 71 years, 6.7% were expected to have increased risk, and 1.7% actually did.

In total, there were 23.3% expected deaths, but 6.7% were observed.

Table 1: Comparison Between Expected And Observed Morbidity By Sex;.

SEX	No OF PATIENTS	MORBIDITY EXPECTED	MORBIDITY OBSERVED	RATIO O:E
FEMALE	20	6	6	1
MALE	40	18	11	0.611
TOTAL	60	24	17	0.71

The p-value is 0.9546

Table 2: Comparison Between Expected And Observed Morbidity By Age:

AGE	No. OF PATIENTS	MORBIDITY EXPECTED	MORBIDITY OBSERVED	RATIO O:E
<60	44	15	10	0.667
61-70	6	2	3	1.5
>70	10	7	4	0.571
TOTAL	60	24	17	0.71

The p-value is 0.830295.

Table 3: Comparison Between Expected And Observed Mortality By Gender

GENDER	No. OF PATIENTS	MORTALITY EXPECTED	MORBIDITY OBSERVED	RATIO O:E
FEMALE	20	4	3	0.75
MALE	40	10	1	0.1
TOTAL	60	14	4	0.285

The p-value is 0.206813.

Table 4: Comparison Between Expected And Observed Mortality By Age:

AGE	No of Patients	MORTALITY EXPECTED	MORTALITY OBSERVED	RATIO O:E
<60	44	9	2	0.222
61-70	6	1	1	1
>70	10	4	1	0.25
TOTAL	60	14	4	0.285

The p-value is 0.10651.

- The P-POSSUM scale has gained popularity in the field of general surgery and is considered superior to other surgical risk scale as it has shown promising results in terms of sensitivity, specificity and reproducibility.
- This study highlights the importance of considering specific factors that may influence the accuracy of risk estimation in different patients.

CONCLUSIONS

- P-POSSUM has demonstrated an enhanced ability to predict postoperative mortality rates in specific patient populations.
- In fact, the accuracy of P-POSSUM in forecasting the likelihood of mortality following surgery has been commendable. Furthermore, patients who experienced complications during their postoperative recovery were found to have higher P-POSSUM scores.
- This correlation suggests that P-POSSUM not only accurately predicts postoperative mortality but also serves as a useful indicator of potential complications in patients.

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DISCUSSION