

# **ABSTRACT**

**TOPIC – PREOPERATIVE RISK SCORES TO PREDICT THE SURGICAL OUTCOMES IN LAPAROTOMIES AT THE DEPARTMENT OF GENERAL SURGERY, COIMBATORE MEDICAL COLLEGE HOSPITAL.**

## **BACKGROUND:**

Laparotomies are the most commonly performed surgical procedures in both emergency as well as elective setups in most hospitals and is associated with a high mortality. Therefore it is important to estimate the risk of mortality using a suitable scoring system by assessing the preoperative and intraoperative findings and parameters . Various scoring systems like APACHE-2, P-POSSUM are most commonly used scoring systems.

## **METHOD:**

We are going to identify risk scores in patients admitting at the Department of General Surgery, Coimbatore Medical College hospital who are requiring laparotomies both emergency as well as elective by using P-POSSUM scoring system.

## **IMPORTANCE OF THE STUDY:**

The results of the study may help us to triage, plan treatment, predict the post operative outcomes accurately and to reduce post operative morbidity and mortality. It also will help the surgeon to explain the patient about the preoperative risks and make them to better understand the post surgical outcomes. The study will also improve the quality care of the hospital.

## **AIMS AND OBJECTIVES:**

To study the impact of preoperative and intraoperative risk scores on the surgical outcomes in emergency as well as elective laparotomies using P-POSSUM scoring system.

## **STUDY DESIGN, METHODOLOGY AND TECHNIQUES**

### **TITLE OF THE STUDY:**

Preoperative risk scores to predict the surgical outcomes in laparotomies at the Department of General Surgery, Coimbatore Medical College.

### **STUDY DESIGN:**

Cohort study

### **METHODOLOGY:**

STUDY SITE: Coimbatore Medical College Hospital, Coimbatore.

DURATION OF THE STUDY: January 2017 to December 2017.

A randomized controlled study involving 100 patients who are to undergo laparotomy will be conducted at Coimbatore Medical College Hospital, Coimbatore. The patients will be assessed preoperatively using 12 preoperative parameters and six operative parameters in P-POSSUM scoring system.

SAMPLE SIZE: 100 patients

### **INCLUSION CRITERIA:**

- Patients undergoing emergency as well as elective laparotomies at the department of General Surgery, Coimbatore Medical College.
- Age 18 years and above.

### **EXCLUSION CRITERIA:**

- Patients below 18 years of age.
- Associated co morbidities like Decompensate Liver Disease, Chronic Kidney Disease, Peptic Ulcer Disease, Sepsis, Immunocompromised states, etc.,

## **OUTCOME:**

P-POSSUM is a commonly used scoring system which can be used for evaluating the preoperative risks and to predict the outcomes of laparotomies and also has an impact on improving the quality of treatment provided to patients undergoing laparotomies.

## **P-POSSUM CALCULATOR:**

### **PHYSIOLOGICAL SEVERITY:**

| Variable                               | Score      |                            |                         |                  |
|--|------------|----------------------------|-------------------------|------------------|
|  | 1          | 2                          | 4                       | 8                |
| Age (yr)                               | <60        | 61-70                      | >71                     | None             |
| Cardiac Signs                          | No failure | On cardiac drug or steroid | Oedema warfarin         | Raised JVP       |
| Chest radiograph                       | Normal     | None                       | Borderline cardiomegaly | Cardiomegaly     |
| Respiratory signs                      | Normal     | SOB on exertion            | SOB stairs              | SOB rest         |
| Chest radiograph                       | Normal     | Mild COAD                  | Moderate COAD           | Any other change |
| Systolic blood pressure(mm Hg)         | 110-130    | 131-170<br>100-109         | >171<br>90-99           | -<br><89         |
| Pulse rate (beats min <sub>-1</sub> )  | 50-80      | 81-100<br>40-49            | 101-120                 | >121<br><39      |
| Coma score                             | 15         | 12-14                      | 9-11                    | <8               |
| Serum urea (mmol litre <sub>-1</sub> ) | <7.5       | 7.6-10                     | 10.1-15                 | >15.1            |
| Serum Na (mmol litre <sub>-1</sub> )   | >136       | 131-135                    | 126-130                 | <125             |

|  |        |                       |  |                     |
|--|--------|-----------------------|--|---------------------|
| Serum K (mmol litre <sub>-1</sub> )          | 3.5-5  | 3.2-3.4<br>5.1-5.3    | 2.9-3.1<br>5.4-5.9                     | <2.8<br>>6          |
| Haemoglobin (g 100 ml <sub>-1</sub> )        | 13-16  | 11.5-12.9<br>16.1-17. | 10-11.4<br>17.1.-18                    | <9.9<br>>18.1       |
| WBC (·10 <sup>12</sup> litre <sub>-1</sub> ) | 4-10   | 10.1-20<br>3.1-3.9    | >20.1<br><3                            |                     |
| ECG  | Normal |                       | Atrial<br>fibrillation<br>(rate 60–90) | Any other<br>change |

**OPERATIVE SEVERITY:**

| Variable                  | Score    |                     |   |                                       |
|---------------------------|----------|---------------------|---|---------------------------------------|
|                           | 1        | 2                   | 3   | 4                                     |
| Magnitude                 | Minor    | Intermediate        | Major                                       | Major+                                |
| Multiple procedures       | 1        | No score            | 2   | >3                                    |
| Intraoperative blood loss | <100 ml  | 101–500 ml          | 501–999 ml                                  | >1000 ml                              |
| Peritoneal soiling        | None     | Minor(Serous fluid) | Local pus                                   | Free bowel content,pus or blood       |
| Presence of malignancy    | None     | Primary only        | Node metastases                             | Distant metastases                    |
| Timing of operation       | Elective | No score            | Emergency (<48 h)<br>Resuscitation possible | Emergency (<6 h)<br>Immediate surgery |

## **RESULTS:**

Wound infection and dehiscence (4 cases), chest infections (4 cases), faecal fistula(4 cases),septicemia(4 cases) are the complications that developed and occurred in patients with high P-POSSUM scores.

The mean hospital stay also showed an increment with the increase in physiological as well as operative severity scores and also with an increase in the overall score.

The mortality rate was found to be about 4%, all following emergency laparotomies. The deaths were associated with both high physiological severity score as well as high operative severity score

## **CONCLUSION:**

We studied 100 laparotomies, both elective (36%) and emergency cases (64%), which resulted in 4 deaths ( 4% mortality rate). The present study suggests that P-POSSUM is an accurate scoring system for predicting post operative adverse outcome among patients undergoing major general surgeries.

wound infection and chest infection are major post operative complications following laparotomies,which should be prevented. Septicemia is the cause for almost all the deaths and care should be given to prevent septicemia .

All the deaths occurred were following emergency laparotomy and with higher physiological and operative severity score ,which should be taken in to account.

Therefore this study proves the effectiveness of P-POSSUM score in predicting the post operative outcomes. P-POSSUM can be used for surgical audit to assess and improve the quality of surgical care and result in better outcome of the patient.

**KEY WORDS:**

Laparotomy, Emergency, Elective, P-POSSUM score.