Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

"ROLE OF P-POSSUM SCORE IN PREDICTING THE MORBIDITY AND MORTALITY IN PATIENT UNDERGOING LAPAROTOMY FOR PERITONITIS"

1. DR. D. GOPIKRISHNA, MS, ASSOCIATE PROFESSOR OF SURGERY, GMC GGH KADAPA
2. DR. K. VAMSHEEDHAR., MS, ASSOCIATE PROFESSOR OF SURGERY, GMC GGH KADAPA
3. DR. G. V. RAMANAIAH., MS, ASSOCIATE PROFESSOR OF SURGERY, GMC GGH KADAPA
4. DR. M. KAVYASREE., POST GRADUATE OF SURGERY, GMC GGH, KADAPA

CORRESPONDING AUTHOR: DR. G. V. RAMANAIAH., MS, ASSOCIATE PROFESSOR OF SURGERY, DEPARTMENT OF GENERAL SURGERY, GMC & HOSPITAL, KADAPA, 516002

ABSTRACT:

INTRODUCTION: Peritonitis is a peritoneal cavity infection. Early diagnosis and intervention results in better outcome and delay will result in high morbidity and mortality. Scoring systems provide us with an indispensable tool for triage of critically ill patients and provide a quantitative assessment of the level of seriousness of the disease and will provide a realistic aid to prognosticate and estimate the grade of intervention. **Aim:** This study is aimed at testing the Role of P-POSSUM score in predicting the morbidity and mortality in patient undergoing laparotomy for peritonitis. **PATIENTS AND METHODS** : Single centre, Prospective observational study done in 40 patients admitted for laparotomy for Peritonitis in General Surgery department, Government Medical College and General Hospital, Kadapa from February 2021 to August 2022. **RESULTS**: P-POSSUM scoring method was employed to assess these patients on admission (physiological score) and intra-operatively (operative score). The patients were followed up for 4 weeks after surgery for an incident of death or other complications. 24 patients suffered complications and the remaining 16 patients did not show any evidence of complications. 14 out of 24 patients with morbidity experienced multiple complications. The sensitivity of P-POSSUM score in predicting morbidity was found to be 84.7%, while the specificity was 100%. A total of 7 patients died during the post-operative period. The sensitivity of P- POSSUM score in predicting mortality was found to be 98.9%, while the specificity was found to be 100%. Chi Square analysis of the significance of P-POSSUM score to predict morbidity and mortality among our study group patient showed a high level of significance < 0.001 for both mortality and morbidity. **CONCLUSION:** P-POSSUM score plays a major role in determining the ICU need and overall hospital stay. Greater the P-POSSUM score greater the duration of ICU stay and overall hospital stay.

KEYWORDS: Peritonitis, Laparotomy, P POSSUM Score, Morbidity, Mortality

INTRODUCTION: Peritonitis is a peritoneal cavity infection, which is a life-threatening condition and if untreated, becomes systemic infection with transmigration of microorganisms. Early diagnosis and intervention results in better outcome and delay will result in high morbidity and mortality. But in few cases persistent intraabdominal sepsis results in multiple organ system failure and suppression of immune system. Even with advancedantimicrobial agents and supportive care, the mortality remains high.

Scoring systems provide us with an indispensable tool for triage of critically ill patients and provide a quantitative assessment of the level of seriousness of the disease and will provide a realistic aid to prognosticate and estimate the grade of intervention.

An accurate scoring system should be patient specific, should take whether theprocedure is elective or emergency and incorporate all the variable presentations.

There are several such scoring systems such as APS (Acute Physiology Score), SIS (Surgical Infection Stratification), APACHE, MPI (Mannheim Peritonitis Index), POSSUM and P-POSSUM Scoring systems to stratify the patients with peritonitis. Utilization of scoring systems would be of great help in salvaging a priceless life of a patient. This study is aimed at testing the Role of P-POSSUM score in predicting the morbidity and mortality in patient undergoing laparotomy for peritonitis.

AIM OF THE STUDY: To test the Role of P-POSSUM score in predicting the morbidity and mortality in patient undergoing laparotomy for peritonitis in GovernmentGeneral Hospital, Kadapa

OBJECTIVES: To know the efficiency of P-POSSUM score in estimating the Duration of ICU stay, Duration of hospital stay, Post-op complications, Mortality rate.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

Table no 1: Physiological & Operative Severity Score for P POSSUM Score

Physiological factors	Age (in years), Cardiac signs, Respiratory history, Blood pressure systolic (mmHg), Pulse (beats/min), Glasgow coma score, Hemoglobin (gm/100ml), White cell count (x 1012 / l), Urea (mmol/L), Sodium (mmol/L), Potassium (mmol/L), Electrocardiogram
Operative factors	Operative complexity, Multiple procedures, Blood loss, Peritoneal contamination, Extent of malignant spread, Elective versus emergency

TABLE NO 2: PHYSIOLOGICAL SCORE				
	1	**2**	**4**	**8**
Age (in years)	≤ 60	61 – 70	≥71	-
Cardiac signs	No failure	Diuretic, Digoxin, anti-anginal or hypertensive therap	Peripheraledema, warfarin therapy	Raised JVP
Chest X-Ray			Borderline cardiomegaly	Cardiomegaly
Respiratory history	No dyspnoea	Dyspnoea on exertion	Limiting dyspnoea (oneflight)	Dyspnoea at rest (rate ≥ 30/min)
Chest X-Ray		Mild COAD	Moderate COAD	Fibrosis or consolidation
SBP (mmHg)	110–130	131 – 170 100 – 109	≥ 171 90 – 99	≤ 89
Pulse (beats/min)	50 – 80	81 – 100	101 – 120	≥ 121
GCS	15	12 – 14	9 – 11	≤ 8
Haemoglobin (gm/100ml)	13 – 16	11.5 – 12.9 16.1 – 17.0	10.0 – 11.4 17.1 – 18.0	≤ 9.9 ≥ 18.1
WBC (x 10^{12} / l)	4 – 10	10.1 – 20.0	≥ 20.1	-
Urea (mmol/L)	≤ 7.5	7.6 – 10.0	10.1 – 15.0	≥ 15.1
Sodium (mmol/L)	≥ 136	131 – 135	126 – 130	≤ 125
Potassium (mmol/L)	3.5 – 5.0	3.2 – 3.4 5.1 – 5.3	2.9 – 3.1 5.4 – 5.9	≤ 2.8 ≥ 6.0
ECG	Normal	-	Atrial fibrillation Rate (60- 90/min)	Any other abnormal rhythm or ≥ 5 ectopic/min,Q waves or ST/T wave changes

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

TABLE NO 3: OPERATIVE SCORE				
	1	**2**	**3**	**4**
Operativeseverity*	Minor	Moderate	Major	Major +
Multiple procedures	1	-	2	> 2
Total bloodloss (ml)	≤ 100	101 – 500	501 – 999	≥ 1000
Peritonealsoiling	None	Minimal (serousfluid)	Local pus	Bowel content,pus or blood
Presence of malignancy	None	Primaryonly	Nodal metastases	Distant metastases
Mode ofsurgery	Elective	-	Emergencyresuscitation of >2 hours possible # Operation < 24 hoursafter admission	Emergency (immediate Surgery < 2 hours needed)

# Indicates that resuscitation is possible even if this period is not actually utilized.

PATIENTS AND METHODS

Type of Study: Single centre, Prospective observational study

Study Sample: Study was conducted on 40 patients

Study Setting: All the patients admitted for laparotomy for Peritonitis in General Surgery department, Government Medical College and General Hospital, Kadapa whoare satisfying my inclusion and exclusion criteria form the subjects of the study.

Study Period: February 2021 to August 2022.

Inclusion Criteria: Male and female Patients 1. with age more than12 yrs admitted in Dept. of General Surgery With evidence of Peritonitis (clinical/radiological) due to Hollow ViscousPerforation

Exclusion Criteria: Patients below the age of 12 years, Pregnant woman, Psychiatric patients, Patients with peritonitis due to trauma or gynecological problems

Methodology:

Institute Ethical Committee clearance was obtained before the start point ofthe study. Prior to being enrolled in the study, patients were completely informed of the aims and objectives of the study and provided with a comprehensive written agreement. During hospitalization, the patient's pertinent medical history was gathered,and normal protocols were followed to conduct the necessary investigations.

A score was assigned to each patient based on their physiological parameters, the intra-operative findings were noted, and a final predicted mortality rate was determined. The patient's mortality and morbidity are predicted by the combination of the two scores in the equation, not by the total score alone.

Following surgery, the patients were monitored for a total of 30 days, during which time any problems were reported based on the following P-POSSUM rating criteria. All patients receiving emergency laparotomies within the designated time period had their data gathered using a proforma created specifically for the research.At the time of admission, the physiological scores of each patient were recorded. Based on the operating surgeon's documentation of the intra-operative findings, an operational severity score was generated. The rates of morbidity and death were computed using the following formulae:

Loge[R/1-R] = (0.1692xPS) +(0.155x OS)-9.065 Where R=risk of mortality

Loge[R/1-R] = -5.91 + (0.16x PS) + (0.19x OS) Where R=risk of morbidity. PS= Physiological score and OS= Operative score

Any postoperative morbidity or inpatient deaths were noted. The results ofthe analysis were then statistically analysed.

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

Statistics: SPSS 16.0 was used to analyze the gathered data. Descriptive statistics such as frequency analysis and percentage analysis were employed to characterize the data, while the mean and standard deviation were utilized to characterize the continuous variables. The Chi-Square test was used to determine statistical significance. A significance threshold of.05 is used in all of the following statistical methods.

OBSERVATIONS AND RESULTS

Sex	No. of Patients
Male	30 (75%)
Female	10 (25%)
Total	40 (100%)

TABLE NO 4: SEX-WISE DISTRIBUTION OF STUDY SUBJECTS

Age	No. of Patients
<60yrs	30 (75%)
61-70yrs	5 (12.5%)
>71yrs	5(12.5%)
Total	40 (100%)

TABLE NO 5: AGE-WISE DISTRIBUTION OF STUDY SUBJECTS

	Score	No. of Patients
Physiological score	<30	26 (65%)
	31-45	14 (35%)
	>45	0
Operative Score	<15	8 (20%)
	16-30	32 (80%)
	31-45	0

TABLE NO 6: PHYSIOLOGICAL SEVERITY AND OPERATIVE SEVERITY OF P-POSSUM SCORE

Indications	No. Of Patients
Gastric Perforation	20 (50%)
DU Perforation	14 (35%)
Ileal Perforation	6 (15%)
Total	40 (100%)

TABLE NO 7: INDICATIONS FOR LAPAROTOMY

Type of surgery	No. of patients
Perforation Closure with Omental patch	34 (85%)
Resection - Anastomosis	3 (7.5%)
Stoma	3 (7.5%)
Total	40 (100%)

TABLE NO 8: TYPES OF SURGERIES

Physiological Severity	Duration Of ICUStay
<30 (26 cases)	< 5 days
	5 – 10 days
	> 10 Days
31- 45 (14 cases)	< 5 days
	5 – 10 days
	> 10 Days

TABLE NO 9: DURATION OF ICU STAY V/S PHYSIOLOGICAL SEVERITY OF P-POSSUM SCORE <30 AND 31 – 45

Operative Severity	Duration Of ICUStay	No. Of Patients
<15 (8 cases)	< 5 days	3 (50%)
	5 – 10 days	2 (33.3%)
	> 10 Days	1 (16.7%)
16- 30 (32 cases)	< 5 days	20 (62.5%)
	5 – 10 days	10 (31.3%)
	> 10 Days	2 (6.3%)

TABLE NO 10: DURATION OF ICU STAY V/S OPERATIVE SEVERITY OF P-POSSUM SCORE <15 AND 16- 30

Physiological Severity	Duration Of Hospital Stay	No. Of Patients
<30 (26 cases)	<15days	23 (88.5%)
	16-20 days	3 (11.5%)
	> 20days	0
31- 45 (14 cases)	<15days	7 (50%)
	16-20 days	3 (21.4%)
	> 20days	4 (28.6%)

TABLE NO 11: DURATION OF HOSPITAL STAY V/S PHYSIOLOGICALSEVERITY OF P-POSSUM SCORE <30 AND 31 – 45

Operative Severity	Duration Of ICUStay	No. Of Patients
<15 (8 cases)	< 5 days	6 (75%)
	5 – 10 days	2 (25%)
	> 10 Days	0

Complications	No. of Patients
Deep infection alone	0
Wound infection alone	6
Chest Infection alone	2
Septicaemia alone	0

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

16- 30 (32 cases)	< 5 days	24 (75%)
	5 – 10 days	4 (12.5%)
	> 10 Days	4 (12.5%)

TABLE NO 12: DURATION OF HOSPITAL STAY V/S OPERATIVE SEVERITY OFP-POSSUM SCORE <15 AND 16 – 30

Wound dehiscence alone	2
Impaired renal function alone	0
Cardiac failure alone	0
Hypotension alone	0
Multiple Complications	14
No Complications	16
Total	24

TABLE NO 13: POST-OP COMPLICATIONS

Outcome	No. of patients
Discharged	33 (82.5%)
Dead	7 (17.5%)
Total	40 (100%)

TABLE NO 14: OUTCOME OF PATIENTS

ANALYSIS OF FACTORS: PHYSIOLOGICAL FACTORS:

Age	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
< 60 Yrs.	5 (5.8%)	5 (1.4%)	30 (5%)
61 - 70 Yrs.	4 (2.1%)	1 (4.3%)	5 (2.5%)
> 71 Yrs.	4 (2.1%)	1 (4.3%)	5 (2.5%)
Total	33	7	40
Mean Age	56.73 ± 9.579	62.43±7.423	59.58±8.512

TABLE NO 15: AGE VS OUTCOME

CVS	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
No failure	33	7	40
Diuretic, Digoxin, Anti-Anginal or Oral AntiHTN Therapy	0	0	**0**
Peripheral Oedema, Warfarin Therapy, Borderline Cardiomegaly	0	0	**0**
Raised JVP, Cardiomegaly	0	0	**0**
Total	33	7	40

TABLE NO 16: CVS VS OUTCOME

Respiratory System	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
If no dyspnoea	24(72.7%)	0	24(60%)
If dyspnoea on exertion	2 (6.1%)	0	2 (5%)
If limiting dyspnoea (One flight of stairs), Mild COAD	6 (18.2%)	1 (14.3%)	7 (17.5%)
if Dyspnoea at rest (> 30/Min), Fibrosis or consolidation	1 (3%)	6(85.7%)	7 (17.5%)
Total	33(100%)	7(100%)	40

TABLE NO 17: RS VS OUTCOME

Systolic BP	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
110-130	26(78.8%)	5 (71.4)	31(77.5%)
131-170	7 (21.2%)	5 (28.6%)	9 (22.5%)
≥ 171, 90-99	0	0	0
≤ 89	0	0	0
Total	33 (100%)	7 (100%)	40

TABLE NO 18: SBP VS OUTCOME

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

Pulse Rate	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
50-80	3(9.1%)	0	3(7.5%)
81-100, 40-49	8(24.2%)	1(14.3%)	9 (22.5%)
101-120	13(39.4%)	1(14.3%)	4(5%)
≥121, ≤39	9(27.3%)	5(71.4%)	14(35%)
Total	33(100%)	7(100%)	40

TABLE NO 19: PR VS OUTCOME

GCS	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
15	33(100%)	7(100%)	40(100%)
12-14	0	0	0
9-11	0	0	0
<8	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 20: GCS VS OUTCOME

Hb in g%	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
13-16	15(45.5%)	1(14.3%)	16(40%)
11.5-12.9 16.1-17	6(18.2%)	1(14.3%)	7(17.5%)
10-11.4 17.1-18	8(24.2%)	4(57.1%)	12(30%)
≤9.9or ≥18.1	4(12.1%)	1(14.3%)	5(12.5%)
Total	33(100%)	7(100%)	40(100%)

TABLE NO 21: HB VS OUTCOME

WBC Count	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
4-10	7(21.2%)	0	7(17.5%)
10.1-20 or 3.1-4	24(72.7%)	2(28.6%)	26(65%)
≥20.1 or ≤3.1	2(6.1%)	5(71.4%)	7(17.5%)
Total	33(100%)	7(100%)	40(100%)

TABLE NO 22: WBC VS OUTCOME

Urea in mmol/l	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
≤7.5	0	0	0
7.6-10	1(3%)	0	1(2.5%)
10.1 15	13(39.4%)	0	13(32.5%)
≥15.1	19(57.6%)	7(100%)	26(65%)
Total	33(100%)	7(100%)	40(100%)

TABLE NO 23: BLOOD UREA VS OUTCOME

Na in mmol/l	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
≥ 136	27(81.8%)	0	27(67.5%)
131-150	3(9.1%)	5(71.4%)	8(20%)
126-130	3(9.1%)	2(28.6%)	5(12.5%)
≤125	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 24: SR. NA+ VS OUTCOME

K in mmol/l	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
3.5-5.0	28(84.8%)	4(57.1%)	32(80%)
3.2-3.4 or 5.2-5.3	3(9.1%)	3(42.9%)	6(15%)
2.9-3.1 or 5.4-5.9	2(6.1%)	0	2(5%)
≤2.8 or ≥6	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 25: SR. K+ VS OUTCOME

ECG	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
Normal	33(100%)	7(100%)	40(100%)
Atrial fibrillation (rate 60-90)	0	0	0
Other abnormal rhythm or >5 ectopic/min, Q waves or ST/T wave changes	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 26: ECG VS OUTCOME

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

OPERATIVE FACTORS

Operative Complexity	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
Minor	0	0	0
Moderate	0	0	0
Major	33(100%)	7(100%)	40(100%)
Major +	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 27: OPERATIVE COMPLEXITY VS OUTCOME

Multiple procedures	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
Single	33(100%)	7(100%)	40(100%)
2 procedures	0	0	0
>2 procedures	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 28: MULTIPLE PROCEDURE VS OUTCOME

Total Blood Loss in ml	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
<100	32(97%)	7(100%)	39(97.5%)
100-500	0	0	0
501-999	0	0	0
≥ 1000	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 29: TOTAL BLOOD LOSS (TBL) VS OUTCOME

Peritoneal Soiling	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
None	0	0	0
Minor (serous fluid)	9(27.3%)	0	
Local pus	0	0	0
Free bowel contents, pus orblood	24(72.7%)	7(100%)	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 30: PERITONEAL SOILING PS VS OUTCOME

Presence of malignancy (MAL)	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
None	33(100%)	7(100%)	40(100%)
Primary	0	0	0
Nodal Metastasis	0	0	0
if distant metastasis	24(72.7%)	7(100%)	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 31: PRESENCE OF MALIGNANCY MAL VS OUTCOME

Mode of Surgery (MS)	Alive	Death	Total
	No. of Patients	No. of Patients	No. of Patients
if elective	0	0	0
emergency resuscitation of >2 hours possible, operation <24 hoursafter admission	33(100%)	7(100%)	40(100%)
if emergency immediate surgery <2hours needed	0	0	0
Total	33(100%)	7(100%)	40(100%)

TABLE NO 32: MODE OF SURGERY MS VS OUTCOME

Expected Mortality (in %)	**Total no. of patients**	**No. of patients with Morbidity**	**%**
30-40	1	0	0
40-50	3	0	0
50-60	2	2	2
60-70	1	0	0

	Value	**df**	**Asymptotic Significance (2-sided)**
Pearson Chi-Square	22.937[a]	6	.001
Likelihood Ratio	30.189	6	.000
Linear-by-Linear			

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

70-80	7	2	28.6
80-90	12	8	66.7
90-100	14	14	100
Total	40	24	60

TABLE NO 33: COMPARISON OF P-POSSUM PREDICTED MORBIDITY WITHOBSERVED MORBIDITY IN OUR STUDY

Association	19.572	1	.000
N of Valid Cases	40		

a. 11 cells (78.6%) have expected count less than 5. The minimum expected count is.40.

TABLE NO 34: ANALYSIS FOR SIGNIFICANCE OF P-POSSUM SCORE FORMORBIDITY (CHI - SQUARE TESTS)

Expected Mortality (in %)	Total no. of patients	No. of patients with Morbidity	%
< 10	14	0	0
10 - 20	11	0	0
20 - 30	4	0	0
30 - 40	3	0	0
40 - 50	2	1	50
50 - 60	1	1	100
60 - 70	5	5	100

TABLE NO 35: COMPARISON OF P-POSSUM PREDICTED MORTALITY WITHOBSERVED MORTALITY IN OUR STUDY

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	36.537a	6	.000
Likelihood Ratio	34.326	6	.000
Linear-by-Linear Association	28.910	1	.000
N of Valid Cases	40		

TABLE NO 36: ANALYSIS FOR SIGNIFICANCE OF P-POSSUM SCORE FORMORTALITY (CHI - SQUARE TESTS)

DISCUSSION

TABLE NO 38: SOME OF THE SCORING SYSTEMS ARE [1]:

	Scores predicting Mortality	Scores predicting Morbidity
Scores not requiring Operative information	ASA APACHE-II Sickness Assessment ScoreBoey Score Hacetteppe Score Physiological POSSUM	APACHE-II Veltkamp Score VA Pneumonia PredictionIndex VA Respiratory Failure Score
Scores requiring Operative information	Mannheim Peritonitis IndexReiss Index Fitness Score POSSUM, P-POSSUM	POSSUM, P-POSSUM

The POSSUM and P-POSSUM scoring systems would be especially usefulin the emergency unit, where a comparison of observed and expected morbidity and mortality rates is expected to yield significant results and were identifying the potentialcauses of the adverse outcome in patients who die after surgery is more important.

The P-POSSUM score has been shown to be a good predictor of mortality and morbidity when compared to other grading systems. It has been effectively used as an instrument for surgical audit, and its validity has been confirmed by several writers from across the world.

Age Distribution:

Among the 40 subjects of the study, 30 patients were under the age of 60 years, 5 between the ages of 61 and 70 years, another 5 above 70 years of age, indicating the age group less than 60 years to be more prone for causes of peritonitis. There was a statistically relevant difference in the incidence of peritonitis across age groups, with the highest percentage seen among those aged 51 to 60 (32.5%). It is similar to the study by Sanjay Maitra et al [2] that showed the highest incidence in the age groups of 51-60years (30%). However, in a study by RamchandraML et al [3], the highest incidence was noted in the age group of 21-30 years (32%). And in another study by Jhobta RS et al [4] also the highest incidence was noted in theage group of 21-30 years (28%).

Sex Distribution:

Around seventy-five percent of the subjects are males, with a male: femaleratio of 3:1. Researchers

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

revealed widely varying estimates of the male to female population ratio. Comparing the current research's Male: Female Ratio of 3:1 to that of another study by Sanjay Maitra et al [2] that shows a ratio of 2.6: 1. Jhobta RS et al[4] had a higher ratio of, 5.2:1. Although Kitara DL et al [5]. (2006) found a male to female ratio of 2:1, Afridi SP et al.[6] (2008) found a ratio of 2.1:1, Srinath S et al [7] found a ratio of 2.3:1. It's possible that the differing rates result from the research only includinga sample of patients.

Prevalence of Morbidity & Relevance of P-POSSUM Score for predictingMorbidity:

Out of 33 patients who got discharged, a total of 24 patients suffered complications and the remaining 16 patients did not show any evidence of complications. 14 out of 24 patients with morbidity experienced multiple complications.Morbidity rate in this study is 60% which is similar to that of 58.6% and 61% in the studies by Paul VA et al [8] and Ambarish et al [9] respectively. In other studies, by Yadav et al [10] and Mohil et al [11], the morbidity rates were 54% and 51.7% respectively.

The most common post-op complication in the study is Wound infection accounting to 27.5%. It is similar to that observed in the studies by Paul VA et al and Sanjay Maitra et al that showed wound infection rates of 28% and 24% . As with these studies, wound infection was the most common complication in the studies by Yadavet al and Mohil et al also.

Prevalence of Mortality & Relevance of P-POSSUM Score for predicting Mortality:

Out of the 40 patients that underwent laparotomy, 7 patients were dead during the post-operative period. The Crude mortality rate in the present study is 17.5%. This is similar to that observed in the studies by Ambarish et al [9] and Sreeharsha et al [11], the showed the crude mortality rates of 18% and 15% respectively.In a study by Sanjay Maitra et al [2], the mortality rate was found to be 14%.

Relevance of P-POSSUM score with duration of ICU stay:

Morbidity from peritonitis may be ascertained by how long a patient remainsin the ICU care or the hospital overall. In the present study, with respect to the ICU stay, out of 26 patients with physiological score <30, 12(46%) were in ICU care for <5 days, 6(23%) patients for 5-10 days and 2(7%) patients for >10 days. And out of 14 patients with physiological score >30, 5(35%) were in ICU care for <5 days, 2(14%) patients for 5-10 days and 2(14%) patients for >10 days. Compared to 7% of the patients with physiological score <30 with ICU stayfor >10 days, patients with physiological score >30 with ICU stay for >10 days were 14%. 0ut of 8 patients with operative score <15, 3(37%) were in ICU care for <5 days, 2(25%) patients for 5-10 days and 1(13%) patient for >10 days. And out of 32 patients with operative score >15, 15(46%) were in ICU care for <5 days, 10(31%) patients for 5-10 days and 2(6%) patients for >10 days. Compared to 13% of the patients with operative score <15 with ICU stay for >10 days, patients with operative score >30 with ICU stay for >10 days were 6%.

Relevance of P-POSSUM score with duration of Hospital stay:

With regards to the overall hospital stay, out of 26 patients with physiological score <30, 23(88%) were discharged within 15 days, 3(12%) patients discharged within 16-20 days and no patient stayed in hospital for >20 days. And outof 14 patients with physiological score >30, 7(50%) were discharged within 15 days, 3(21%) patients discharged within 16-20 days and 4(29%) patients stayed on hospital for >20 days. Compared to 12% of the patients with physiological score <30 with hospital stay for >15 days, patients with physiological score >30 with hospital stay for >15 days were 50%. Out of 8 patients with operative score <15, 6(75%) were discharged within 15 days, 2(25%) patients discharged within 16-20 days and no patient stayed in hospital for >20 days. And out of 32 patients with operative score >30, 24(75%) weredischarged within 15 days, 4(12.5%) patients discharged within 16-20 days and 4(12.5%) patients stayed on hospital for >20 days. Compared to 0% of the patients with operative score <15 with hospital stayfor >20 days, patients with operative score >15 with hospital stay for >15 days were 25%.

Thus P-POSSUM score plays a major role in determining the ICU need and overall hospital stay. Greater the P-POSSUM score greater the duration of ICU stay and overall hospital stay.

CONCLUSION

P-POSSUM score plays a major role in determining the ICU need and overall hospital stay. Greater the P-POSSUM score greater the duration of ICU stay and overall hospital stay. To evaluate the anticipated

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 08, 2023

result of a surgery in today's world, when patient safety and effective patient care are of paramount significance, simply the expected outcome of the process must be known. If we could identify patients who were likely to experience complications and mortality, we could take preventative measures and improve their care.

A good scoring system should be able to predict morbidity and mortality with adequate **sensitivity** and specificity, and it should be applicable to a broad variety of general surgical operations (both elective and emergency).

Many other scoring systems, including the ASA and APACHE II, have been used historically to assess the likelihood of morbidity and death in surgical patients. However, neither the simplicity nor the complexity of the currently available scoring systems makes them suitable for universal use with all patients. It has been shown that P-POSSUM is a reliable scoring system for estimating the probability of morbidity and mortality.

REFERENCES

1. Thomas E R and Tom Bates World Journal of Emergency Surgery 2007, 2:16.
2. Sanjay Maitra, Swathi Sankar, Aditya Chowdhury, & Mandal, M. (2022). Efficacy of the P-POSSUM scoring system in prediction of post-operative mortality and morbidity in patients undergoing emergency exploratory laparotomy in a tertiary institute in East India. Asian Journal of Medical Sciences, 13(4), 23–30.
3. Ramchandra ML, Jagdesh B, Chandra SBC. Clinical study and management of secondary peritonitis due to perforated hollow viscous. Arch Med Sci. 2007;3(1):61-68.
4. Jhobta RS, Attri AK, Kaushik R, Sharma R, Jhobta A. Spectrum of perforation peritonitis in India – Review of 504 consecutive cases.World J EmergSurg 2006; 1:26.
5. Kitara DL, Kakande I, Mugisa BD. POSSUM Scoring System In Patients Undergoing Laparotomy In Mulago Hospital. East and Central African Journal of Surgery 2006;12(2):133-142.
6. Afridi SP, Malik F, Rahman SU, Shamim S, Khursheed AS. Spectrum of perforation peritonitis in Pakistan: 300 cases Eastern experience. World J Emerg Surg. 2008;3:31 doi:10.1186/1749-7922- 3-31
7. Srinath S, Naveen H. M, Suma K.R. “Evaluation of P Possum equation in Emergency Laparotomy”. Journal of Evolution of Medical and Dental Sciences 2013; Vol2, Issue 35, September 2; Page: 6696-6705.
8. Paul VA, Anusha A, Chandra AS. Evaluation of the validity of POSSUM and PPOSSUM score in predicting the risk of morbidity and mortality respectively in patients undergoing emergency laparotomy. Int Surg J 2020;7:3224-9.
9. Ambarish, Chatterjee (2014) Validation of modified possum scoring system in perforative peritonitis. Masters thesis, Coimbatore Medical College, Coimbatore.
10. Yadav K, Singh M, Griwan M, Mishra TS, Kumar N and Kumar H. Evaluation of POSSUM and P-POSSUM as a tool for prediction of surgical outcomes in the Indian population. Australas Med J.2011;4(7):366-373.
11. Mohil RS, Bhatnagar D, Bahadur L, Rajneesh, Dev DK and Magan M. POSSUM and P-POSSUM for risk-adjusted audit of patients undergoing emergency laparotomy. Br J Surg. 2004;91(4):500-503.