



"EVALUATION OF RISK FACTORS FOR MORTALITY AND WOUND DEHISCENCE FOLLOWING EMERGENCY LAPAROTOMY IN NON-TRAUMATIC INDICATION"

Surgery

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ABSTRACT

This study evaluates the socio-demographic profile, risk factors, and mortality outcomes of patients undergoing emergency laparotomy for non-traumatic indications. Conducted over 18 months, the research includes 194 participants, with a focus on age, gender, BMI, smoking, comorbidities, and nutritional status. Findings reveal that older age, obesity, smoking, and comorbid conditions significantly correlate with increased mortality rates. Key factors such as hemoglobin levels and serum protein status also impact surgical outcomes. The results emphasize the importance of comprehensive preoperative assessments and targeted interventions to optimize patient management and improve surgical outcomes in high-risk populations.

KEYWORDS

INTRODUCTION

Emergency laparotomy is a high-risk surgical procedure performed to address various life-threatening abdominal conditions, predominantly non-traumatic in nature. Non-traumatic indications for emergency laparotomy include perforated peptic ulcers, intestinal obstructions, gastrointestinal malignancies, and complicated appendicitis. These conditions require immediate surgical intervention to prevent severe complications like sepsis, peritonitis, and multi-organ failure. However, postoperative outcomes following

highlights a diverse cohort, with participants under 20 years constituting 7.20% of the sample, while those aged 20 to 30 years accounted for 20.60%. The highest representation was seen in the 41 to 50 age group (21.10%), followed closely by those over 60 years (21.60%). This suggests that the majority of patients undergoing emergency laparotomy for non-traumatic indications fall within the middle-aged to older demographics, reflecting the increased prevalence of abdominal surgical conditions in these age groups. Body Mass Index (BMI) categories indicate that 34.00% of participants fell within the normal weight range, while 24.70% were classified as preobese. The proportion of obese individuals (class I and II combined) was notable at 38.20%, suggesting a concerning trend towards obesity among patients undergoing surgery. This aligns with existing literature that identifies obesity as a significant risk factor for postoperative complications, including wound dehiscence and increased mortality rates. Marital status reveals that a significant majority of the participants were married (84.50%), which may influence social support systems post-surgery. Residential status indicates a predominance of rural dwellers (76.30%), potentially affecting access to healthcare resources and timely surgical intervention. Gender distribution shows a higher prevalence of males (129 participants, mean age: 48.3 years) compared to females (65 participants, mean age: 40.0 years). This difference in mean age between genders, with males being older on average, may be significant in understanding the demographic dynamics affecting surgical outcomes, as age and gender have been shown to correlate with postoperative recovery and complication rates. Overall, these socio-demographic factors play a crucial role in assessing the risk profiles of patients undergoing emergency laparotomy, facilitating targeted interventions to improve surgical outcomes.

Table 2: Distribution According To Risk Factors

Variable	Category	Counts	% of Total
Alcohol	Yes (Y)	54	27.80%
	No (N)	140	72.20%
Smoking	Yes (Y)	51	26.30%
	No (N)	143	73.70%
Smokeless Tobacco	Yes (Y		

age group, 6.9% for 31 to 40, 2.4% for 41 to 50, 7.1% for 51 to 60, and a substantial 26.2% for those over 60. The odds ratios indicate an escalating risk of mortality with advancing age, particularly pronounced in those aged over 60, with an odds ratio of 5.81, underscoring the vulnerability of older patients to postoperative complications. Gender-wise, males displayed a higher mortality rate (11.6%) compared to females (4.6%), with an odds ratio of 1.71 for males. However, the p-value of 0.112 suggests that this difference is not statistically significant, indicating that gender may not be a major determinant of mortality in this cohort. BMI analysis reveals critical insights, with individuals classified as underweight experiencing a 100% mortality rate, though only six patients were included in this category. Notably, those with a normal BMI had no recorded deaths. Mortality rates increased in overweight and obese classifications, with obese class II patients showing a staggering 66.6% mortality rate and an odds ratio of 1.87. The p-value of 0.0401 for BMI indicates statistical significance, highlighting the strong association between higher BMI categories and increased mortality risk. Overall, the findings from Table 3 clearly illustrate the significant impact of age and obesity on mortality following emergency laparotomy, emphasizing the need for targeted preoperative assessments and tailored interventions to mitigate risks in these high-risk populations.

Table 4: Mortality And Risk Factors

Variable	Category	Mortality		Total	p-value	Chi-squared
		Y	N			
	No	2	141	143	0.022	3.38
		(1.3%)	(98.7%)			

reveals a strong correlation with mortality rates. Patients with hemoglobin levels below 7 g/dL had a 100% mortality rate, while those with levels between 7-9 g/dL experienced a mortality rate of 38.4%. This underscores the importance of preoperative hemoglobin optimization to improve surgical outcomes. Previous studies have similarly emphasized the role of anemia in contributing to adverse surgical outcomes, highlighting the need for timely intervention and management of hemoglobin levels prior to surgery (Kumar et al., 2020). Table 3 shows a clear association between age, BMI, and mortality rates. Older patients (over 60 years) had the highest mortality rate (26.2%), and the odds ratio increased significantly with age. This finding is in line with existing studies that highlight the increased vulnerability of older adults to surgical complications due to age-related physiological decline (Lahiri et al., 2018). Regarding BMI, the highest mortality rates were observed in the obese class II category (66.6%), further emphasizing the impact of obesity on surgical outcomes. The statistical significance associated with BMI ($p=0.0401$) indicates a strong correlation between increased body weight and mortality risk, corroborating evidence from other studies that suggest obesity can lead to higher rates of complications, including infections and delayed recovery (Jensen et al., 2019). The importance of preoperative weight management and optimization cannot be overstated, particularly in this population at risk for poor outcomes. In addition to age and BMI, hemoglobin and serum protein levels were significant predictors of mortality. Table 4 illustrates that patients with decreased serum protein levels had a higher mortality rate (9.5%) compared to those with normal levels. This finding supports the hypothesis that nutritional status, as reflected by serum protein levels, plays a critical role in postoperative recovery (Barker et al., 2021). Adequate nutritional support is essential in the perioperative period, as malnutrition can adversely affect wound healing and immune function, leading to increased complication rates (Scholz et al., 2020). The presence of comorbidities was also a critical factor influencing mortality rates. The study found that patients with tuberculosis had a mortality rate of 23.1%, which highlights the increased risk faced by individuals with active infections or chronic conditions (Baba et al., 2020). The management of these conditions preoperatively is crucial to minimizing risks during and after surgery.

This study highlights the significant associations between various socio-demographic characteristics and risk factors in patients undergoing emergency laparotomy for non-traumatic indications. The findings indicate that older age, obesity, smoking, anemia, and the presence of comorbidities are critical factors that correlate with increased mortality. To improve outcomes in this high-risk population, targeted interventions focusing on preoperative optimization of nutritional status, management of comorbidities, and smoking cessation programs are recommended. Furthermore, enhancing access to surgical care, particularly for vulnerable populations residing