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Factors Affecting Morbidity in Patients Undergoing Emergency Abdominal Surgery: A Prospective Study

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Abstract: ***Background**: Emergency abdominal surgery is associated with high morbidity and mortality. This study aimed to identify factors contributing to postoperative complications in such patients. **Methods**: A prospective study was conducted at Alluri Sitarama Raju Academy of Medical Sciences, Eluru, involving 50 patients who underwent emergency abdominal surgery within 24 hours of admission. Patient demographics, clinical and biochemical parameters, and postoperative outcomes were recorded and analyzed. **Results**: Of the 50 patients, 58% developed postoperative complications, with a 6% mortality rate. Significant risk factors included age >55 years, male sex, smoking, elevated serum creatinine and blood urea, hypoalbuminemia, hyperglycemia, and longer surgery duration. **Conclusion**: Older age, poor nutritional status, impaired renal function, and prolonged surgery are associated with increased postoperative morbidity. Preoperative optimization and experienced surgical teams may improve outcomes.*

Keywords: Emergency Surgery, Abdominal Surgery, Morbidity, Postoperative Complications, Risk Factors

1. Introduction

Emergency abdominal surgery contributes significantly to surgical morbidity and mortality. These procedures are often performed under suboptimal conditions, and patients may have multiple risk factors that influence outcomes. Identifying and addressing these factors is crucial to improve surgical care, particularly in resource - limited settings.

2. Materials and Methods

This prospective study was conducted from September 2022 to August 2024 at Alluri Sitarama Raju Academy of Medical Sciences, Eluru. Fifty patients undergoing emergency abdominal surgery within 24 hours of admission were included. Patients under 12 years of age, immunocompromised, or with recent prior surgeries were excluded.

Demographic data, clinical parameters, comorbidities, laboratory investigations, and surgical details were collected. Postoperative complications were recorded up to 30 days. Data were analyzed using chi - square tests to determine associations between risk factors and complications.

3. Results

Of the 50 patients, 29 (58%) developed postoperative complications. Most common were surgical site infections and respiratory complications. Mortality was observed in 3 (6%) patients. Significant risk factors for complications included age >55 years, male sex, smoking, hyperglycemia (RBS >180 mg/dl), elevated blood urea (>45 mg/dl), elevated serum creatinine (>1.4 mg/dl), and low serum albumin (<3 g/dl). Longer surgical durations (>90 minutes) also correlated with higher morbidity.

4. Summary of Results

Parameter	Findings	Statistical Significance
Total Patients	50	-
Gender Distribution	Male: 68%, Female: 32%	Not significant
Mean Age	47 years	-
Postoperative Complications	29 patients (58%)	-
30 - day Mortality	3 patients (6%)	-
Age >55 years	Higher complication rate	$p < 0.01$
Smoking History	22 out of 25 smokers had complications	$p < 0.05$
Diabetes Mellitus	18 out of 20 diabetics had complications	$p = 0.0015$
Anemia (Hb <11 g/dL)	25 out of 29 with low Hb had complications	$p < 0.0001$
Hyperglycemia (RBS >180 mg/dL)	24 out of 30 had complications	$p < 0.0001$
Blood Urea >45 mg/dL	25 out of 30 had complications	$p < 0.0001$
Serum Creatinine >1.4 mg/dL	28 out of 31 had complications	$p < 0.0001$
Serum Albumin <3 g/dL	26 out of 40 had complications	$p < 0.005$
Operative Duration >90 mins	Increased risk of complications	$p = 0.03$
Common Complications	SSI (24%), MODS (18%), ARF (8%), Pneumonia (	4 - %)

5. Discussion

This study supports previous findings that emergency abdominal surgeries carry a high risk of complications, particularly in elderly, malnourished, and physiologically compromised patients. Smoking and hyperglycemia impair wound healing, while elevated urea and creatinine indicate renal insufficiency. Hypoalbuminemia, reflecting poor nutritional status, was also strongly linked to morbidity.

Interventions such as proper fluid resuscitation, glucose control, nutritional support, and timely surgery by experienced teams may reduce these risks.

This prospective study analyzed 50 patients undergoing emergency abdominal surgery. The overall postoperative complication rate was 58%, with a 30 - day mortality rate of 6%. The most frequent complications were surgical site infections (24%) and multiorgan dysfunction syndrome (18%).

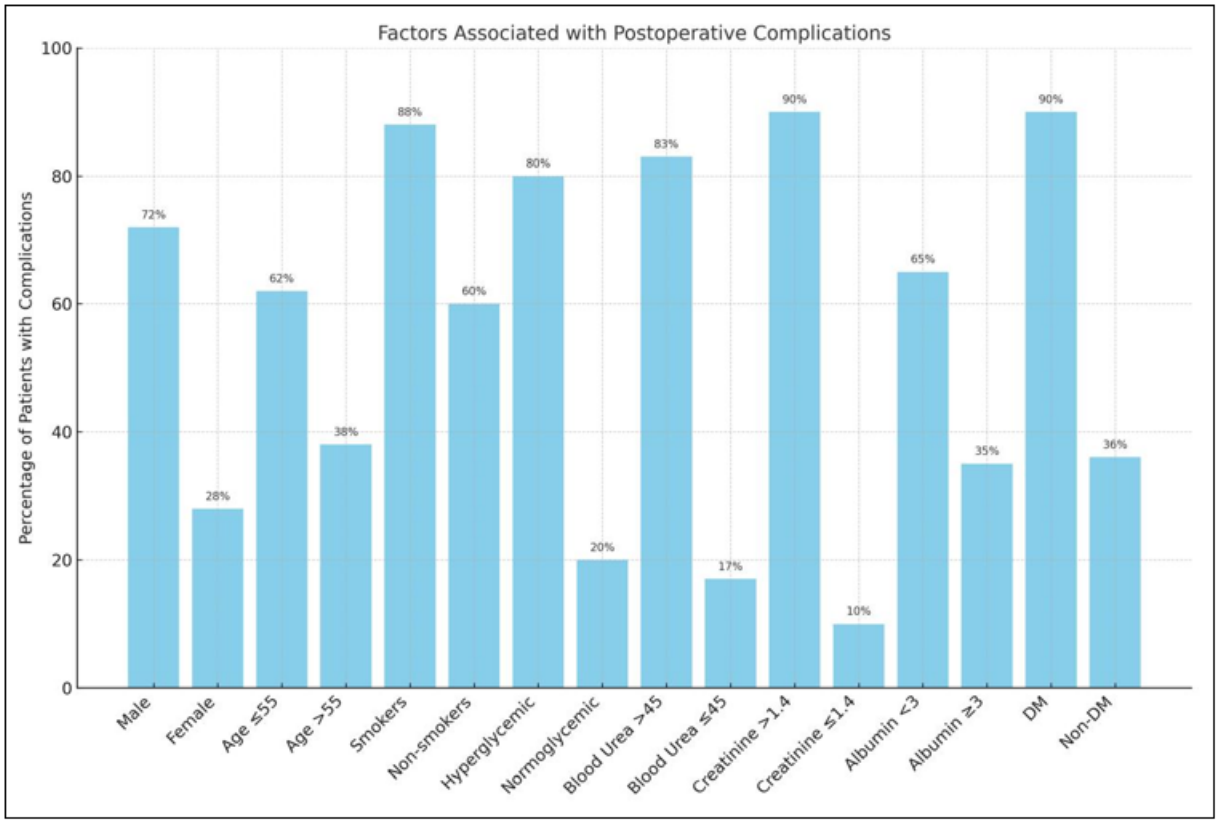
Our findings reinforce the significance of multiple preoperative variables in predicting morbidity. Patients aged above 55 years demonstrated higher complication rates (89%), consistent with global literature that identifies advanced age as a critical factor for adverse outcomes. Male patients and smokers were also at increased risk, the latter likely due to impaired immune function and delayed wound healing.

Hyperglycemia (RBS >180 mg/dL) was strongly associated with complications (80%), highlighting the importance of glycemic control in the perioperative period. Similarly, elevated blood urea (>45 mg/dL) and serum creatinine (>1.4 mg/dL) correlated with higher complication rates (83% and 90%, respectively), likely reflecting underlying renal compromise or inadequate resuscitation.

Hypoalbuminemia (serum albumin <3 g/dL) was also significantly linked to postoperative complications (65%), supporting albumin as a reliable marker of nutritional status and predictor of poor surgical outcomes. Diabetic patients showed a 90% complication rate, emphasizing the compounded risk in patients with comorbidities.

Prolonged surgical duration was associated with increased morbidity, suggesting that operative time may reflect either case complexity or inefficiency, both of which impact outcomes. These findings are in concordance with studies by Akinbami et al. and Golub et al., validating serum biochemistry and systemic factors as key predictors of postoperative course.

Efforts to optimize modifiable risk factors — such as glycemic control, nutritional support, and efficient surgical technique — can play a critical role in reducing morbidity following emergency abdominal surgery.



6. Conclusion

Emergency abdominal surgery patients are at high risk of morbidity, especially with advancing age, renal dysfunction, hypoalbuminemia, and prolonged surgery. Identification and correction of modifiable risk factors pre - and postoperatively are vital to improving outcomes.

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