



HYPOALBUMINEMIA AS AN INDEPENDENT PROGNOSTIC RISK FACTOR FOR ADVERSE POST OPERATIVE OUTCOMES IN EMERGENCY LAPAROTOMY

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ABSTRACT **Aim And Objective:** Laparotomies are one of the most common surgeries performed on emergency basis in department of general surgery in tertiary care hospitals. In general, patients undergo emergency laparotomies for emergencies like perforation peritonitis, intestinal obstruction, blunt trauma and penetrating trauma. Adverse post operative outcomes commonly encountered after laparotomy in these patients are wound infection, wound dehiscence, post operative fever, pulmonary and renal complications. The aim of this study is to determine hypoalbuminemia is an independent prognostic risk factor for adverse post operative outcomes in emergency laparotomy. **Results:** Prevalence of hypoalbuminemia is as high as 86% in patients undergoing emergency laparotomy. Hypoalbuminemia has a strong positive correlation to post operative adverse outcomes like wound dehiscence, pulmonary complications and mortality. **Conclusion:** Hypoalbuminemia is significant and effective prognostic risk factor which predicts adverse post operative outcomes in patients undergoing emergency laparotomy.

KEYWORDS : hypoalbuminemia, emergency laparotomy, prognosis, risk factor

INTRODUCTION:

Laparotomies are one of the most common surgeries performed on an elective/emergency basis in the department of general surgery in tertiary care hospital. Common conditions for which patients undergo laparotomy include intestinal obstruction, blunt trauma, penetrating trauma and perforation peritonitis. Post operatively patients may require ICU care. Adequate nutrition is necessary for early return to normal activity. Hence it is important to know the adverse effects of hypoalbuminemia in these patients. Adverse post operative outcomes that are commonly encountered after laparotomy are wound infections, wound dehiscence, post operative fever, pulmonary complications.

CASE STUDY

Prospective study was conducted at the department of surgery, King George hospital, Visakhapatnam. A total of 225 patients were studied on the basis of history, physical examination and relevant investigations to confirm the diagnosis for which emergency laparotomy was done and followed up till 20 days post operatively for post operative adverse outcomes.

Inclusion Criteria:

All patients in the age group 18 to 60 years who underwent emergency laparotomy with a midline incision in the Department of General Surgery. All patients were followed for adverse postoperative outcomes as described above till 20 days post operatively with estimating albumin levels at admission.

Albumin more than 3g/dl was defined as normal.

Hypoalbuminemic patients were further regrouped into Group 1: 2.5-3g/dl

Group 2: 2-2.5g/dl

Group 3: <2 g/dl. All postoperative adverse outcomes were individually studied in these groups. A control group consisted of patients with similar characteristics but normal albumin levels i.e. >3g/dl.

Exclusion Criteria:

Patients having normal albumin >3g/dl. Laparotomy through incisions other than midline. Patients who were lost in follow up before 20 days.

Statistical Analysis:

All continuous variables were expressed as mean and number of percentages were used for categorical variables. Chi square test and students t test and multivariate logistic analysis were used. $P < 0.05$ was considered statistically significant.

RESULTS:

Prevalence of Hypoalbuminemia:

Total number of patients enrolled in the study-225

Prevalence of hypoalbuminemia-188 i.e. 83.6% [p value <0.03]. This was statistically significant.

Normal albumin level- 37 i.e. 16.4%.

Prevalance of Hypoalbuminemia



■ Hypoalbuminemia ■ Normal albumin

GENDER-WISE DISTRIBUTION AND PREVALANCE



■ Total ■ Hypoalbuminemia

Gender wise distribution and Prevalance:

Total number of male patients – 141 (62.7%)

Total number of female patients – 84 (37.3%)

Prevalance of hypoalbuminemia in Males -122 i.e. 86.5% ($p < 0.001$)

Prevalance of hypoalbuminemia in Females – 66 i.e. 78.6% ($p < 0.03$)

Therefore, the prevalence of hypoalbuminemia found in males and females were statistically significant.

Complications:

Complication	Prevalance	p - value
Pulmonary	92.2%	$p < 0.002$
Renal	77.4%	$p < 0.02$

Mortality And Albumin Levels:

Out of total patients studied 28 were deceased. All deceased patients had hypoalbuminemia ($p < 0.002$), this was statistically significant.

DISCUSSION:

Hypoalbuminemia is a common and vexing complication seen not only in patients undergoing emergency surgeries but also in majority of hospitalised patients. Laparotomy is one of the commonest surgical procedure performed in tertiary care hospitals. The complications encountered are much more in emergency laparotomy compared to elective surgery.

Prevalence of hypoalbuminemia found in my study is 87%. The incidence of hypoalbuminemia is 63% in males and 37% in females in the study population. This study included all patients undergoing emergency laparotomy in the age group 18 to 60 years. Upper limit was kept at 60 years because there is a physiological drop in serum albumin level by 0.5 g/dl for every decade after 60 years. Hence confounding factor was eliminated. Mean age at surgery was 34 years. Prevalence of hypoalbuminemia in patients who developed pulmonary complications was 92% and renal complications was 77%. There was 100% prevalence of hypoalbuminemia in all deceased patients. Total number of patients who died are 28 (12%), cause of death in majority were ARDS, AKI and MODS.

CONCLUSION:

From this study it can be concluded that serum albumin is a significant inflammatory marker whose levels decrease drastically in acute inflammation like sepsis causing adverse outcomes in the recovery of the patient. Hypoalbuminemia is an independent prognostic risk factor which has strong positive correlation to adverse post operative outcomes and effectively shows the degree of inflammation. So, serum albumin stands as a simple, easy, effective marker for predicting post operative complications in patients undergoing emergency laparotomy.

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