ORIGINAL ARTICLE

Nutritional Status and its Effect on Emergency Surgery

SOHAIL SAFDAR, LIAQAT ALI KHAN*, SAGHEER AHMED**

ABSTRACT

Aim: To determine the effects of pre-existing malnutrition on the overall outcome of surgery in emergency situation.
Methods: A cross sectional comparative–analytical study was performed in emergency unit of Allama Iqbal Medical College, Lahore from February 2014 to January 2015. One hundred malnourished (Cases) and 100 properly nourished (Control) were selected. Patients with BMI < 18.50 was labeled as malnourished and patients with BMI 18.50-24.99 was labeled as properly nourished.
Results: Malnourished patients were compared with properly nourished patients for post-operative chest infection. Out of 100 malnourished patients, 27(27%) had post-operative chest infection vs 14 (14%) in properly nourished. Post-operative wound infection was observed in 29 % of malnourished patients & 18% properly nourished subjects. Mean hospital stay was also significantly longer in malnourished patients.
Conclusion: Malnutrition is an important risk factor for the occurrence of postoperative Complications.
Keywords: Malnutrition, post-operative chest complications, longer hospital stay.

INTRODUCTION

Malnutrition is defined as deviation from normal nutritional status with respect to age, sex, race and genetic make up[1]. Malnutrition is caused by multitude of factors, some of which are biological. Others are environmental, cultural or social[2]. There is no routine assessment done to determine the patient's nutritional status at the time of admission and at discharge which increase the morbidity and mortality both[3]. In adult population, weight for age is the parameter commonly used to judge nutritional status. The body mass index (BMI) is commonly used for this purpose[4]. Nutritional status is an important determinant of outcome after surgical treatment.[5] It has been proved that malnutrition could result in poor wound healing, disruption of gut anastomosis, disturbed metabolism of drugs and poor tolerance against radio and chemotherapy[6].

METHODOLOGY

A cross sectional comparative–analytical study was performed in emergency unit of Allama Iqbal Medical College, Lahore from February 2014 to January 2015. One hundred malnourished (Cases) and 100 properly nourished (Control) were selected. Patients with BMI < 18.50 was labeled as malnourished and patients with BMI 18.50-24.99 was labeled as properly nourished. Malnourished and properly nourished patients presenting with acute appendicitis, obstructive hernia, peritonitis of less than 2 days duration and blunt or penetrating soft tissue injuries, both genders, age 15-60 years, patients requiring surgical procedure within 12 hours of their admission, patient with ASA-1 and ASA-II are included. Sick patients with ASA beyond II, Patients with Diabetes Mellitus, Chronic debilitation disease (Chronic hepatitis B and C) and those who are immuno-compromised were excluded from the study. Both groups underwent appendicectomy for acute appendicitis, inguinal herniotomy for obstructive hernia, laparotomy for peritonitis of less than 2 days duration and blunt or penetrating soft tissue injuries.

RESULTS

The detail of results is given in tables 1, 2 and 3. A total of 200 cases were included in the present study. Patients were divided into 2 groups, malnourished (100 cases); properly nourished (100 cases). Malnourished patients were compared with properly nourished patients for postoperative chest infection. Out of 100 malnourished patients, 27(27%) had postoperative chest infection.14 (14%) properly nourished patients had postoperative chest Infection . Our study revealed that there was a relationship between Malnourishment & chest infection after surgery and this relationship was statistically found to be significant. Malnourished patients were compared with properly nourished patients for post-operative wound infection. It occurred in 29% of malnourished patients & 18% properly nourished patients. It was noticed that there was a difference of frequency of wound infection in malnourished and properly nourished patients but it was statistically found to be insignificant.

*Assistant Professor, Department of Community Medicine, University Medical and Dental College, Faisalabad.
**S R Surgery, Bahawal Victoria Hospital, Bahawalpur.
Correspondence to Dr. Sohail Safdar, Senior Demonstrator Community Medicine, Allama Iqbal Medical College, Lahore.

Table 1: Distribution of patients

Nutritional Status	Appendicitis	Peritonitis	Obstructive hernia	Injuries	Total
Malnourished	60	20	14	06	100
Properly nourished	60	20	14	06	100
Total	120	40	28	12	200

Table 2: Chest Complications in relation to nutritional status

Nutrition Status	Chest complication		Total
	Yes	No	
Malnourished	27(27%)	73(73%)	100
Properly nourished	14(14%)	86(86%)	100
Total	41	159	200

P = 0.035 (significant)

Table 3: Wound infection and nutritional status

Nutrition Status	Wound infection		Total
	Yes	*No*	
Malnourished	29(29%)	71(71%)	100
Properly nourished	18(18%	82(82%)	100
Total	47	153	200

P = 0.095 (Insignificant)

DISCUSSION

The importance of nutritional depletion as a major determinant of the development of postoperative complications has subsequently been confirmed by Giner *et al*[7]. Nutritional depletion is associated with changes in body composition, tissue wasting and impaired organ function, which leads to impaired immune and muscle function. Thus, depleted patients are at risk from infectious complications and cardio respiratory impairment [9]. This study revealed that the rate of pulmonary complication is higher in malnourished patients (27%) than in properly nourished patients (14%) and these results are consistent with a prior study done in Brazil which shows that 28.2% patients with abnormal BMI undergoing emergency abdominal surgery develop post operative chest complications[8]. Recent studies showed that malnourished patients have a reduced respiratory muscle strength and that nutritional intervention can return muscle ventilatory function to normal levels. Furthermore, it seems very likely that the ventilatory drive can be influenced by dietary intake of amino acids and glucose.

CONCLUSION

Preoperative malnutrition increases the morbidity rate and as such results in longer hospital stay of patients undergoing different surgical procedures.

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