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Nutrition support services in post operative patients in Kerala, India - An exploratory study

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Abstact

Pre-operative nutritional status and nutritional support in post operative services are critical determinants for outcome of surgery. In the present study thirty patients undergoing gastrointestinal surgery from a private hospital in Kochi, Kerala were selected as subjects for the study. Nutritional status assessment was carried out using Subjective Global Assessment (SGA) and Instant Nutritional Assessment (INA) respectively. The results indicated that fifty and fifty seven percent of subjects fell under the severely malnourished category by SGA and INA respectively. Twenty three percent of the subjects had a BMI less than 80 % of reference standards. Enteral feeding by jejunostomy and nasojejunal route was initiated 48 to 72 hours post operatively. Forty three and seventy five percent of the subjects met RDA of energy on day five and day eight respectively. Incidence of post operative complications was higher among subjects who were malnourished pre-operatively. By INA there is a reduction in percent subjects malnourished during the hospital stay .High post operative morbidity and mortality rate have been associated with malnutrition and post operative nutritional support has a significant corrective role in improving the outcome of surgery.

Key Words: Nutrition Support Services, Subjective Global Assessment, Instant Nutritional Assessment, Malnutrition

Introduction

The significance of nutrition in the hospital setting cannot be underestimated. Malnutrition among critically ill patients has not altered in the recent years. Nutrition has a significant impact on a patient's clinical course in the hospital affecting all aspects of care from cost of therapeutic intervention and rate of complication to the length of hospitalization and mortality. Critical illness is typically associated with a catabolic stress state in which patients commonly exhibit a systemic inflammatory response. This response is coupled with complications of increased infectious morbidity, multiorgan dysfunction, prolonged hospitalization and disproportionate mortality. Traditionally nutrition support in the critically ill population was regarded as adjunctive therapy, but there is a need to make these goals more focused as nutrition therapy.

There is a dearth of information regarding nutrition support services in the hospitals in Kochi, Kerala which prompted the investigator to conduct this study to assess support practices in post operative patients. Specific objectives of the study included application of a systematic approach to the diagnosis of preoperative malnutrition in hospitalized patients and its effect on the outcome of surgery, nutrition support services provided to patients, relation between pre-operative nutritional status and post-operative complications.

Methodology

Thirty post operative adult patients in the age group of 18-70 years, undergoing abdominal surgery were purposively selected for the study. Patients with advanced malignancy undergoing palliative treatment were excluded. Patients suffering from advanced cardiac, renal or nervous disorders who may not survive through the period of the study were also excluded from the study. The subjects went through assessment of nutritional status by Subjective Global Assessment (SGA) and Instant Nutritional Assessment (INA).Subjective Global Assessment is a tool based on history, dietary data, GI symptoms, functional capacity, effects of disease on nutritional requirements and physical appearance. The features of SGA include weight change, dietary intake change relevant to normal, gastrointestinal symptoms that persist for greater than two weeks, functional capacity loss, loss of subcutaneous fat, muscle wasting and ankle edema. This tool has been validated and shown to correlate well with the nutrition risk index in hospitalized patients (DeLagge and Drake, 2007).

Instant Nutritional Assessment (Seltzer, 1971) is a quick and easy method of determining patients at risk. It is based on

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serum albumin levels and Total Lymphocyte Count (TLC). The INA (Seltzer et al. 1979) uses serum albumin and blood lymphocyte counts for nutritional assessment. On the basis of these data, patients were classified in four degrees of nutritional state: first degree (serum albumin ≥3.5 g/dl; blood lymphocyte count <1500 cells/mm^3), second degree (serum albumin <3.5 g/dl; blood lymphocyte count <1500 cells/mm^3), third degree (serum albumin <3.5 g/dl; blood lymphocyte count ≥1500 cells/mm^3), and fourth degree (serum albumin <3.5 g/dl; blood lymphocyte count <l500 cells/mm^3).

Table 1: Instant Nutritional Assessment Criteria

Serum Albumin(g/dl) and Total Lymphocyte Count(cells/mm3)	Nutritional Status
>3.5 and > 1500	Normal
>.3.5 and < 1500 < 3.5 and >1500	Moderately Malnourished
<3.5 and <1500	Severely malnourished

Anthropometric data, height and weight was measured or obtained from secondary date from which the Body Mass index was computed. Energy requirement was computed using Harris Benedict Equation and activity and stress factors for hospitalized patients as depicted in the table below.

Table 2: Activity and Stress Factors for hospitalized patients (Long, 1977)

Activity factors	Stress Factors
1.15 for bed ridden patients	1.3 for low stress
1.10 for ventilator support	1.5 for moderate stress
1.25 for normal patients	2.0 or severe stress
	1-1.05 for elective operation

A questionnaire was used to obtain general information, feeding methods, complications of nutrition support services and nutrient intake versus RDA. The obtained data was interpreted appropriately and is presented below.

Results and discussion

Thirty subjects were selected for the purpose of the study the conditions included Carcinoma stomach(43.4%), Periampullary carcinoma (16.6 %), neomyocarcinoma (10%), tropical calcific pancreatitis(6.6%),Carcinoma head of pancreas(10 %), tumour head of pancreas(3.3%),Carcinoma oesophagus (3.3%) and acute pancreatitis(6.6%).The surgical procedures that the patients were subjected to include Whipples pancreato duodectomy(46.6%),Total, partial and distal gastrectomy (26.6%,6.6% and 3.3% respectively), psuedobiliary gastric bypass(3.3%), hepatectomy (6.6%) radial oesophagogastrectomy (3.3%) and wide excision of neomyosarcoma (3.3%).

Subjective Global Assessment (SGA) is an 'eye ball' technique that requires good clinical judgment. When the subjects were assessed by SGA it was found that of the total 23.3 % of the subjects were normal, 26.7 % of the subjects were moderately malnourished while 50 % of the subjects were severely malnourished. Another method of assessing the nutritional status of the subjects Instant Nutritional Assessment (INA) revealed that only 3.3% of the subjects were normal, 40 % were moderately malnourished and 56.7 % were severely malnourished. On studying the Body Mass Index of the subjects it was observed that 60 % of the subjects had greater than 80 % of desirable BMI. Pre operative weight loss was studied in the subjects and it was found to be greater than six percent loss in eighty percent of the subjects, less than six percent in 16.7 % of subjects and no weight loss for 3.3 % of the subjects. It has been reported that a weight loss of greater than six percent is a positive risk factor for post operative complications.

On studying the type of feeding that was initiated post operatively, parenteral feeding was the preferred route on the day of surgery and day one while by day two enteral was initiated there was dual transition feeding from day four to eight depending on the tolerance to feeds and the overall condition of the patient. Early enteral feeding refers to tube feeding that is initiated within 72 hours of the critical event which was observed in all the subjects. The routes of enteral feeding as evidenced in this study include nasojejunal feeding (6.7%) and jejunostomy feeds (93.3%). Nasogastric and gastrostomy feeds were not preferred because of the risk of pulmonary aspiration. The formulas used include blenderised (73.3%) and semi elemental (26.7%) respectively. Blenderised feeds are indigenous and are less expensive than commercial enteral formulas. All subjects studied received continuous feeding after surgery by gravity flow. It has been reported that continuous feeding through infusion pump or gravity flow minimizes the risk of high gastric residue and pulmonary respiration. The primary complication that was observed among the tube fed patients in the present study includes abdominal distension (86.7%), diarrhea (16%) and nasopharyngeal irritation in three percent of the subjects respectively. Restricted movement of surgical patients as well as over hydration by feeding is the primary cause of abdominal distension. Diarrhea may be caused by hyper tonicity, contamination and inappropriate infusion time respectively. It is now firmly established that the enteral route is the preferred for nutritional support (4-6) .To emphasize the importance of the enteral route, Livingston *et al*. very aptly coined their article "If the gut works use it," a phrase commonly used today(7). Current recommendations advocate the initiation of feeds within 24 h of ICU admission through the enteral route, if possible. However, there is controversy about the level of nutritional support, its composition, and supplements which are deemed to modify the disease severity. As better conducted studies emerge, the perceptions among clinicians on role of "immunonutrients" is changing with an emphasis on targeting specific subsets of population, which are likely to benefit from the therapy, thus reducing costs.

The energy requirement of the patient was computed and the percent RDA of energy met was evaluated. The percent RDA of energy met on post operative day three, day five and day eight was 61,100 and 125 % respectively. The figures indicate that there is a steady increase in the energy intake among the subjects and the intake on day eight meets 125 % of the RDA of energy requirement thus helping in quick post operative recovery. On day five it was observed that 56.7 % subjects met the RDA of energy while 43.3% could not meet the RDA of energy but by day eight 70 % could meet the RDA of energy (Table 3).

Table 3: Percent subjects meeting RDA of calories post operatively

Achievement of RDA for energy	Percent subjects on Post Operative Day Five	Percent subjects on Post Operative Day Eight
Yes	56.7	70
No	43.3	30

On studying the risk of post operative complications among the subjects by pre operative nutritional status it was observed that in subjects who had a weight loss of greater that six percent near 52 % had post operative complications while in subjects who had less than six percent weight loss complications were only ten percent. On studying the post operative complications in subjects by INA 47 percent of the

severely malnourished subjects and seventeen percent of moderately malnourished subjects had complications. No complications were observed among the subjects rated normal by INA. By Subjective Global Assessment severely malnourished had 43 percent complications followed by ten percent each in moderately malnourished and normal subjects. It has been observed that both Subjective Global Assessment and Instant Nutritional Assessment were of predictive value and combination of these variables was useful in differentiating low risk from high risk patients.

Table 4: Incidence of post operative complications based on preoperative nutritional status

Criteria	Percent subjects with post operative complications	Percent subjects without post operative complications
Weight loss		
Greater than 6 percent	51.7	48.3
Lesser than 6 percent	10	90
Subjective Global Assessment		
Normal	10	90
Moderately Malnourished	10	90
Severely malnourished	43	57
Instant Nutritional Assessment		
Normal	NIL	100
Moderately malnourished	17	83
Severely malnourished	47	53

The outcome of our study shows that involuntary weight loss and malnutrition continue to be prevalent among hospitalized patients. It could be said that weight loss and malnutrition have a great impact on the health-care system, resulting in reduced quality of life for the affected patient, compromised recovery, and added financial costs to the institution where the patient is receiving care and patients who had preoperative malnutrition are at greater risk for post operative complications.

Conclusion and recommendations

Under nutrition is consistently common among critically ill patients around the world even today. There is a need to emphasize that nutritional support of critically ill is a primary therapeutic strategy. Increased survival of severely ill patients has been made possible by improvement in the understanding of nutrition requirements and techniques to deliver nutrients. As our understanding of nutrition in the critically ill advances, the trio of physician, dietician, and nursing staff need to be periodically updated on the current recommendations by expert groups to enable better practices and thereby improve outcomes.

References

DeLagge M, Drake L, (2007) Nutritional assessment. Gastroenterol Clin North Am 36:1

Heighes PT, Doig GS, Sweetman EA, Simpson F (2010) An overview of evidence from systematic re-views evaluating early enteral nutrition in critically ill patients: More convincing evidence is needed. Anaesth Intensive Care. 38:167–74.

Heyland DK, Dhaliwal R, Drover JW, Gramlich L, Dodek P (2003) Canadian clinical practice guidelines for nutrition support in mechanically ventilated, critically ill adult patients. Journal of Parenteral and Enteral Nutrition 27:355–73.

Livingston A, Seamons C, Dalton T (2000). If the gut works use it. Nurs Manage. 31:39–42.

Long CL and Scahffd N (1977) Metabolic response to injury and illness, Estimation of energy and protein need from indirect calorimetry and nitrogen balance. Journal of Parenteral and Enteral Nutrition 3: 452-456.

McClave SA, Martindale RG, Vanek VW et al (2009). Guidelines for the Provision and Assessment of Nutrition Support Therapy in the Adult Critically Ill Patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Journal of Parenteral and Enteral Nutrition 33:277–316.

Seltzer MH Fletcher HS and Slocum BA (1971) Instant Nutritional Assessment in intensive care unit. Journal of Parenteral and Enteral Nutrition 5: 70-72