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FRESENIUS KABI
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Introduction

Welcome to Fresenius Kabi’s Quarterly Abstract Bulletin for enteral nutrition. We have reviewed the following journals over the past three months, and selected any nutrition support related articles:

- Age and Ageing
- American Journal of Clinical Nutrition
- Archives of diseases in Childhood
- BMJ
- British Journal of Community Nursing
- British Journal of Nursing
- British Journal of Nutrition
- Clinical Nutrition
- Complete Nutrition
- Critical Care Medicine
- Current Opinion in Clinical Nutrition and Metabolic Care
- Dysphagia
- European Journal of Clinical Nutrition
- Gastrointestinal Nursing
- GUT
- International Journal of Palliative Nursing
- Intensive Care Medicine
- Intensive and Critical Care Nursing
- Journal of Community Nursing
- Journal of Human Nutrition and Dietetics
- Journal of Parenteral and Enteral Nutrition
- Journal of the American Geriatric Society
- Journal of Woundcare
- Lancet
- Nutrition
- Nutrition in Clinical Practice
- Nursing in Practice
- Nursing and Residential Care
- Nursing Older People
- Nursing Standard
- Nursing Times
- Paediatric Nursing
- Proceedings of the Nutrition Society

We do recommend that the original article is used for the full details and results.

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This publication and previous editions are also available online at www.fresenius-kabi.co.uk under the nutrition service section.
Permissive underfeeding and intensive insulin therapy in critically ill patients: A randomized controlled trial

Y M Arabi, H M Tamim, G S Dhar, A Al-Dawood, M Al-Sultan, M H Sakkijha, S H Kahoul and R Brits


Abstract

BACKGROUND: Nutritional support has been recognized as an essential part of intensive care unit management. However, the appropriate caloric intake for critically ill patients remains ill defined. OBJECTIVE: We examined the effect of permissive underfeeding compared with that of target feeding and of intensive insulin therapy (IIT) compared with that of conventional insulin therapy (CIT) on the outcomes of critically ill patients. DESIGN: This study had a 2 x 2 factorial, randomized, controlled design. Eligible patients were randomly assigned to permissive underfeeding or target feeding groups (caloric goal: 60-70% compared with 90-100% of calculated requirement, respectively) with either IIT or CIT (target blood glucose: 4.4-6.1 compared with 10-11.1 mmol/L, respectively). RESULTS: Twenty-eight-day all-cause mortality was 18.3% in the permissive underfeeding group compared with 23.3% in the target feeding group (relative risk: 0.79; 95% CI: 0.48, 1.29; P = 0.34). Hospital mortality was lower in the permissive underfeeding group than in the target group (30.0% compared with 42.5%; relative risk: 0.71; 95% CI: 0.50, 0.99; P = 0.04). No significant differences in outcomes were observed between the IIT and CIT groups. CONCLUSION: In critically ill patients, permissive underfeeding may be associated with lower mortality rates than target feeding.

Orally fed patients are at high risk of calorie and protein deficit in the ICU

S J Peterson, P M Sheean and C L Braunschweig


Abstract

PURPOSE OF REVIEW: Malnutrition can lead to serious complications in the ICU. Less than half of patients admitted to ICU require ventilation and for many, their optimal route of feeding is oral medical nutrition therapy, rather than enteral or parenteral nutrition. Inadequate oral intake is a prevalent and often difficult problem within this population, as increased calorie deficits are common in the ICU and associated with worse outcomes. RECENT FINDINGS: Consuming less than 75% of daily calorie requirements in the hospital setting is associated with worse outcomes. Unfortunately, oral intake is often inadequate. Little is known about the consequences of inadequate oral intake in the ICU; however, data have described worse outcomes with large calorie deficits from enteral and parenteral nutrition. Whether or not these data can be extrapolated to patients in the ICU with poor oral intake remains uncertain. SUMMARY: Despite evidence-based guidelines directing the delivery of nutrition support in the ICU, there is limited research focused on oral intake during this time of hospitalization. Future research is needed to determine the long-term associations of inadequate versus adequate oral intake in the ICU.
Managing gastric residual volumes in the critically ill patient: An update

M H DeLegge


Abstract

PURPOSE OF REVIEW: Gastric residual volumes (GRVs) remain a major deterrent to adequately feeding patients with gastric-delivered enteral nutrition. The purpose of this review was to define the most up-to-date consensus of the utility of the use of GRVs for monitoring tube-feeding intolerance in gastric-fed patients. RECENT FINDINGS: The paper summarizes the pathophysiology of gastroparesis, the techniques for measuring GRVs, the significance of a large GRV, other factors to consider when measuring GRVs, the correlation between GRVs and aspiration pneumonia, national guideline statements on GRVs, the use of prokinetic agents in the treatment of high GRVs and the clinical impact of tolerating larger GRVs. The utility of GRVs for prevention of aspiration events with tube feeding has been brought into question. SUMMARY: Large GRVs usually result from some impediment in gastrointestinal motility (e.g. gastroparesis). There are numerous methods for measuring GRVs, most of which have not been standardized. It appears that there is little correlation between large GRVs and the development of aspiration pneumonia when tube feeding patients. Prokinetic agents have an inconsistent effect on the GRV size. US guidelines state that GRVs of less than 500 ml should not result in termination of enteral feeding. Allowing larger GRVs will allow patients to receive more calories when gastric fed without a deleterious clinical impact. The use of GRVs as a marker of feeding tolerance is of questionable utility.

Refeeding in the ICU: An adult and pediatric problem

M C Byrnes and J Stangenes


Abstract

PURPOSE OF REVIEW: To describe the etiology and complications of the refeeding syndrome. RECENT FINDINGS: Complications of the refeeding syndrome can include electrolyte abnormalities, heart failure, respiratory failure, and death. This syndrome is of particular importance to critically ill patients, who can be moved from the starved state to the fed state rapidly via enteral or parenteral nutrition. There are a variety of risk factors for the development of the refeeding syndrome. All of these risk factors are tied together by starvation physiology. Case reports and case series continue to be reported, suggesting that this entity continues to exist in critically ill patients. Initiation of enteral nutrition to patients with starvation physiology should be gradual and careful monitoring of electrolytes and organ function is critical during the early stages of refeeding. SUMMARY: The refeeding syndrome remains a significant issue in critically ill patients. Knowledge of the risk factors and the clinical signs of the refeeding syndrome is important to optimize outcomes.
The tight calorie control study (TICACOS): A prospective, randomized, controlled pilot study of nutritional support in critically ill patients

P Singer, R Anbar, J Cohen, H Shapiro, M Shalita-Chesner, S Lev, E Grozovski, M Theilla, S Frishman and Z Madar


Abstract

**PURPOSE:** To determine whether nutritional support guided by repeated measurements of resting energy requirements improves the outcome of critically ill patients.

**METHODS:** This was a prospective, randomized, single-center, pilot clinical trial conducted in an adult general intensive care (ICU) unit. The study population comprised mechanically ventilated patients (n = 130) expected to stay in ICU more than 3 days. Patients were randomized to receive enteral nutrition (EN) with an energy target determined either (1) by repeated indirect calorimetry measurements (study group, n = 56), or (2) according to 25 kcal/kg/day (control group, n = 56). EN was supplemented with parenteral nutrition when required.

**RESULTS:** The primary outcome was hospital mortality. Measured pre-study resting energy expenditure (REE) was similar in both groups (1,976 ± 468 vs. 1,838 ± 468 kcal, p = 0.6). Patients in the study group had a higher mean energy (2,086 ± 460 vs. 1,480 ± 356 kcal/day, p = 0.01) and protein intake (76 ± 16 vs. 53 ± 16 g/day, p = 0.01). There was a trend towards an improved hospital mortality in the intention to treat group (21/65 patients, 32.3% vs. 31/65 patients, 47.7%, p = 0.058) whereas length of ventilation (16.1 ± 14.7 vs. 10.5 ± 8.3 days, p = 0.03) and ICU stay (17.2 ± 14.6 vs. 11.7 ± 8.4, p = 0.04) were increased.

**CONCLUSIONS:** In this single-center pilot study a bundle comprising actively supervised nutritional intervention and providing near target energy requirements based on repeated energy measurements was achievable in a general ICU and may be associated with lower hospital mortality.

Optimal caloric intake for critically ill patients: First, do no harm

R N Dickerson


Abstract

Despite considerable efforts to define energy requirements for critically ill patients, no single method has been found to be precise and unbiased for all patients. As a result, clinicians have used various methods that may overestimate energy requirements for some patients. Provision of target caloric intake without regard to the complications of overfeeding, such as hyperglycemia, hypercapnia, or gastric feeding intolerance, could result in overall detrimental clinical outcome. Inadequate nutrition support is also associated with adverse clinical outcomes that necessitate optimization of delivery and tolerance of the nutrition regimen. A pivotal paper by Krishnan and colleagues published in 2003 brought these issues to the forefront of clinical practice. Key papers that support or refute the practice of “permissive underfeeding” are reviewed. Further research is necessary to determine the minimum amount of nutrition required to achieve a therapeutic benefit as well as to ascertain at what amount of additional nutrition intake offers no further improvement in clinical outcome.
Feeding the patients with upper gastrointestinal bleeding

X Hébuterne and G Vanbiervliet


Abstract

PURPOSE OF REVIEW: It is usually believed that in case of upper gastrointestinal bleeding patients must be systematically fasted. This review will focus on oral and/or enteral feeding in patients with or at risk of upper gastrointestinal bleeding. RECENT FINDINGS: In case of upper gastrointestinal bleeding, an endoscopy is always required in order to determine the pathophysiology of the bleeding, and in some cases to perform an endoscopic treatment. In patients hospitalized in ICU, enteral nutrition is the best stress ulcer prophylaxis. In patients with enteral nutrition the concomitant use of histamine-2 receptor blockers or proton-pump inhibitors may be harmful. In case of bleeding due to gastric erosions, enteral nutrition can be resumed as soon as the patient tolerates. In patients with liver cirrhosis nonbleeding oesophageal varices are not a contraindication for enteral nutrition nor nasogastric tube. In patients hospitalized for acute upper gastrointestinal bleeding due to an ulcer with high risk of rebleeding (Forrest I-IIb) or with variceal bleeding it is recommended to wait at least 48 h after endoscopic therapy before initiating oral or enteral feeding. In case of ulcer with low risk of rebleeding (Forrest IIC and III) or in patients with gastritis, Mallory–Weiss, oesophagitis, or angiodyplasia, there is no need to delay refeeding, and they can be fed as soon as tolerated. SUMMARY: Understanding the cause of the diagnosis is always necessary to adapt nutrition in patients with upper gastrointestinal bleeding.

Lactobacillus GG as treatment for diarrhea during enteral feeding in critical illness

S Ferrie and M Daley


Abstract

BACKGROUND: Diarrhea is a common problem in critical illness. The aim of this study was to investigate the effect of probiotic treatment with Lactobacillus rhamnosus GG on established diarrhea in critically ill patients. METHODS: This prospective randomized blinded trial in the adult intensive care unit of a large tertiary referral teaching hospital compared probiotic treatment with placebo. Thirty-six consecutive critically ill enterally fed adults with diarrhea were randomized to receive 2 capsules per day for 7 days of either Lactobacillus GG in an inulin base (Culturelle) or inulin alone (placebo). Diarrhea was defined as ≥3 unformed stools or >200 mL stool volume within 24 hours. Prospectively defined primary end point was duration of diarrhea, and secondary end point was mean number of loose stools per day during the 14 days from the first capsule. RESULTS BY INTENTION-TO-TREAT ANALYSIS: No significant difference was observed for any end point. There was a trend toward more diarrhea in the probiotic treatment group. Mean (standard deviation) duration of diarrhea was 3.83 (2.39) days for the probiotic group and 2.56 (1.85) days for the placebo group (P = .096). Mean number of loose stools per day during the 14 days from the first capsule was 1.58 (0.88) in the probiotic group and 1.10 (0.79) in the placebo group (P = .150). CONCLUSIONS: This study does not support the use of Lactobacillus GG as a treatment for established diarrhea in enterally fed critically ill patients.
Relationship between energy expenditure, nutritional status and clinical severity before starting enteral nutrition in critically ill children

M Botrán, J López-Herce, S Mencía, J Urbano, M J Solana, A García and A Carrillo


Abstract

The objective of the present study was to investigate the relationship between energy expenditure (EE), biochemical and anthropometric nutritional status and severity scales in critically ill children. We performed a prospective observational study in forty-six critically ill children. The following variables were recorded before starting nutrition: age, sex, diagnosis, weight, height, risk of mortality according to the Paediatric Risk Score of Mortality (PRISM), the Revised Paediatric Index of Mortality (PIM2) and the Paediatric Logistic Organ Dysfunction (PELOD) scales, laboratory parameters (albumin, total proteins, prealbumin, transferrin, retinol-binding protein, cholesterol and TAG, and nitrogen balance) and EE measured by indirect calorimetry. The results showed that there was no relationship between EE and clinical severity evaluated using the PRISM, PIM2 and PELOD scales or with the anthropometric nutritional status or biochemical alterations. Finally, it was concluded that neither nutritional status nor clinical severity is related to EE. Therefore, EE must be measured individually in each critically ill child using indirect calorimetry.

Accuracy of home enteral feed preparation for children with inherited metabolic disorders

S Evans, F Preston, A Daly, C Neville and A MacDonald


Abstract

BACKGROUND: Many children with rare chronic disorders require home enteral tube feeds (HETF) consisting of multiple modular ingredients. Feeds are often complex and the risk of errors during their preparation is high. The consequences of over- or under-concentration can be critical. The aim of the present prospective observation study was to assess the accuracy, skills and technique of caregivers when preparing and administering HETF.

METHODS: Fifty-two HETF patients (median age 7.5 years, range 0.7-18.0 years) with inherited metabolic disorders (IMD) requiring special feeds were recruited. Using observation and a structured questionnaire, a practical assessment of feed preparation and storage by the main caregiver was undertaken by an independent dietitian and nurse in the child’s home, including hygiene practices, accuracy of measuring recipe ingredients, and storage of both ingredients and prepared feeds.

RESULTS: The majority (85%; n = 44) of feeds were based on >1 ingredient (median 3; range 1-6). Almost half (48%; n = 25) of caregivers measured feed ingredients inaccurately. Of the 31% (n = 16) using scoops, 31% used incorrect measuring spoons and 25% did not level scoops appropriately. Some 45% (n = 20/44) of carers measured liquid ingredients inaccurately. Hygiene practices during feed preparation were poor, including a lack of hand washing (31%; n = 16) and incorrect storage procedures for unused feed ingredients (56%; n = 29).

CONCLUSIONS: Practices in the preparation of modular HETF for children with IMD were not ideal. A combination of inaccuracy, poor hygiene, inappropriate storage, and long feed hanging times increases both metabolic and microbial risk. Better education, regular monitoring and the development of ready-to-use or preweighed ingredients would be beneficial.
Early decision of gastrostomy tube insertion in children with severe developmental disability: A current dilemma

C Martínez-Costa, S Borraz, C Benlloch, A López-Sáiz, V Sanchiz and J Brines
Journal of Human Nutrition and Dietetics (2011) 24 (2): 115-121

Abstract
BACKGROUND: Healthcare professionals advise earlier gastrostomy tube (GT) placement in children with severe developmental disabilities, marked feeding disorders and risk of malnutrition. However, a delay in acceptance of the procedure by parents/guardians is the main issue of concern. The present study aimed to investigate: (i) parental satisfaction with GT feeding and whether parents/carers would have accepted earlier GT placement and (ii) subsequent nutritional outcome. METHODS: Twenty-six disabled children with GT feeding were recruited. A structured questionnaire by telephone was held to record parental perceptions of GT (mainly satisfaction with the procedure and patient management). A longitudinal study (0-6-12 months) was designed to investigate anthropometric outcome. Nutritional support mode and GT-related complications were also recorded. RESULTS: Parents/carers showed high satisfaction (91%). Furthermore, 87% recognised that they would have accepted an earlier placement of the GT had they anticipated the outcome. Patient management and family dynamics were acknowledged to have improved considerably. Nutritional assessment demonstrated a positive trend in weight. Height improved significantly 6 months post-implantation (P = 0.045) and body mass index improved after 12 months (P = 0.041). When comparing nutritional outcome between children in whom the GT was placed before 18 months of age and those in whom it was placed later, height was found to improve significantly in the first group (P = 0.04). CONCLUSIONS: Most parents/carers would have agreed to earlier GT feeding of their children had they acknowledged its benefits. Although nutritional response was positive, it was less so than the parental perception of children's overall improvement. Growth rates were significantly increased when GT was placed early in life.

Percutaneous endoscopic gastrojejunostomy tube feeding in children

W El-Matary
Nutrition in Clinical Practice (2011) 26 (1): 78-83

Abstract
Managing infants and children with difficult feeding problems, such as intractable vomiting and dysmotility, can be challenging. Maintaining sufficient enteral feeding is the ultimate goal. However, the options for establishing this goal may be limited. One option is gastrojejunostomy tube feeding, a technique developed in 1984. This review discusses indications and limitations of gastrojejunostomy tube feeding in children. It also discusses alternative options for gastrojejunostomy tube feeding in view of the available evidence.
Balloon gastrostomy tubes for long-term feeding in the community

O Ojo

Abstract

AIM: Dysphagic patients with functional guts often receive nutritional and hydration support through enteral feeding tubes. These include percutaneous endoscopic gastrostomy (PEG) and radiologically inserted gastrostomy (RIG) tubes. The balloon gastrostomy tube (BGT) as a primary tube of choice in tube-fed patients, including head and neck cancer patients, offers a new approach to enteral tube feeding in the community. There are complications associated with the use of enteral feeding tubes. This study compared the complication rates and the costs of PEG tubes and BGTs in patients on long-term enteral feeding in the community and looked at the possible use of BGTs as an alternative to PEG tubes. METHODS: The records of all 15 BGT-fed patients on the caseload and 15 randomly selected PEG tube-fed patients were reviewed. The study was based on two consecutive visits to these patients. Tube and stoma complications were clinically scored in order of increasing severity (0-10) and statistically tested. The prevalence of stoma and tube complications was expressed in percentages. RESULTS: There was no significant difference (P>0.05) in the overall clinical scores between BGT-fed and PEG tube-fed patients at both initial and final visits. However, with regard to specific complications-infected sites, tube dislodgement, overgranulation, and infection with overgranulation-significant differences were observed between the two groups of patients at the initial and final visits. In addition, the total costs of inserting and managing BGTs were significantly higher than those for PEG tubes. CONCLUSIONS: Although BGTs may be used as an alternative to PEG tubes in patients on long-term enteral feeding in the community, the higher cost of using BGTs over PEG tubes should be considered when selecting feeding tubes for these patients.

Predictive factors of mortality After PEG insertion: Guidance for clinical practice

Y Zopf, J Maiss, P Konturek, C Rabe, E G Hahn and D Schwab

Abstract

BACKGROUND: Percutaneous endoscopic gastrostomy (PEG) is considered the preferred route for long-term enteral feeding. The aim of this study was to determine predictors of an increased mortality risk after PEG insertion. METHODS: A retrospective study was conducted during a 13-year period in the gastroenterology department of Erlangen University Hospital. The authors completed a questionnaire with details of demographic data, diagnosis, indication for PEG, type of tube, and cause of death. Patients were contacted regularly at scheduled appointments. RESULTS: In total, 787 patients (574 male [72.9%]) underwent PEG placement by the pull technique. The main underlying disease was malignant (75.6%). By the end of the study period, 614 patients had died. The average survival time was 720 days. The 30-, 60-, 90-day, and 1-, 3-, and 5-year mortality rates amounted to 6.5%, 9.8%, 13%, 32.1%, 59.3%, and 69.8%, respectively. Predictive factors of increased 30-day mortality were higher age, lower body mass index (BMI), and the presence of diabetes mellitus. The presence of all 3 variables served as an indicator to detect high-risk patients, with a sensitivity of 0.80 and a specificity of 0.64. CONCLUSION: Mortality predictors for patients after PEG insertion are higher age, lower BMI, and the presence of diabetes mellitus. To avoid unnecessary and dangerous examinations in high-risk patients, the above-mentioned predictive factors of mortality should be checked before PEG placement.
Early jejunal feeding initiation and clinical outcomes in patients with severe acute pancreatitis

R Hegazi, A Raina, T Graham, S Rolniak, P Centa, H Kandil and S J O’Keefe

Abstract

BACKGROUND: Compared with parenteral nutrition, enteral nutrition reduces infectious complications and mortality in patients with severe acute pancreatitis (SAP). This study used clinical outcomes to investigate the association between time to initiation of distal jejunal feeding (DJF) and time to achievement of goal enteral feeding with clinical outcomes. METHODS: A retrospective chart review was performed on all patients with SAP admitted to the medical intensive care unit (ICU) during a 1-year period. Collected data included demographic information, body mass index (BMI; kg/m²), Acute Physiology and Chronic Health Evaluation (APACHE) II scores at admission, time of onset of DJF, time to goal feeding, ICU length of stay, and mortality. RESULTS: Time to starting DJF was longer in nonsurvivors (n = 4) than in survivors (n = 12) (17 vs 7 days, P < .05). All nonsurvivors had BMI >30 kg/m² (50% had BMI > 50 kg/m²). ICU length of stay was significantly associated with achievement of goal feeding. Three patients never reached goal feeding and spent 45.3 ± 19.6 days in the ICU; 7 patients reached goal feeding within 3 days of initiating DJF and spent 18 ± 1.7 days in the ICU; and 4 patients reached goal feeding within 3 days and spent 10.5 ± 3.5 days in the ICU. APACHE II scores were not significantly different among the 3 groups (16.7 ± 1.5, 12 ± 0.7, and 16.2 ± 1.2, respectively, P > .05). CONCLUSIONS: Early initiation of DJF in the ICU was associated with reduced mortality in this cohort of patients with SAP. Early achievement of jejunal feeding goal early was associated with a shorter ICU length of stay, irrespective of the severity of SAP.

The feeding tube bridle: One inexpensive, safe, and effective method to prevent inadvertent feeding tube dislodgement

C McGinnis
Nutrition in Clinical Practice (2011) 26 (1): 70-77

Abstract

Nasally placed feeding tubes are heavily relied on in healthcare. Inadvertent tube removal not only poses safety hazards and discomfort for the patient, but also causes strain on valuable healthcare resources. Because use of restraints can agitate patients, increase safety hazards, and create a sense of depersonalization, alternative methods to prevent inadvertent tube removal are desirable. This article describes a feeding tube bridle constructed with supplies that are inexpensive and readily available to most patient care units. This method has been successfully utilized for patients at significant risk for self-initiated feeding tube removal in one Midwestern facility for many years without adverse effects. The method of bridling feeding tubes described here is effective, safe, and relatively comfortable as well as minimally noticeable to the patient and others.
Accuracy of a digital skinfold system for measuring skinfold thickness and estimating body fat

T F Amaral, M T Restivo, R S Guerra, E Marques, M F Chousal and J Mota


Abstract
The use of skinfold thickness measurements to evaluate the distribution of subcutaneous adipose tissue and to predict body fat has recognised advantages. However, the different types of skinfold calliper available present limitations that make them unattractive and perhaps less used in daily practice. The purpose of the present study was to evaluate the accuracy and functionality of a new digital skinfold system, the Liposoft 2008+Adipsmeter VO (LA), for measuring skinfold thickness and determining body fat proportion (%BF). Skinfold thickness measurements made by the LA were compared with those obtained with a Harpenden (H) calliper from two samples of adults (n 45) and older adults (n 56) in a university-based cross-sectional study. A comparison was also conducted between estimated %BF from skinfolds and dual-energy X-ray absorptiometry. Bland and Altman plots show that skinfolds measured by the LA and H calliper are in high agreement, with a mean difference of 0·3 (95 % CI −3·1, 3·4) mm. In regard to the %BF estimated from LA and H skinfolds measurement, the LA produced a similar approximation to dual-energy X-ray absorptiometry %BF, with a mean difference of 0·2 (95 % CI −0·8, 1·2 %), compared with %BF obtained with the H calliper. The LA system is an accurate instrumentation and represents an innovation in the evaluation of skinfold thickness and body composition based on anthropometric measurement.

Complementarity of Subjective Global Assessment (SGA) and Nutritional Risk Screening 2002 (NRS 2002) for predicting poor clinical outcomes in hospitalized patients

M Raslan, M C Gonzalez, R S M M Torrinhas, G R Ravacci, J C R Pereira and D L Waitzberg


Abstract
BACKGROUND & AIMS: We evaluated the ability of Nutritional Risk Screening 2002 (NRS 2002) and Subjective Global Assessment (SGA) to predict malnutrition related to poor clinical outcomes. METHODS: We assessed 705 patients at a public university hospital within 48 h of admission. Logistic regression and number needed to screen (NNS) were calculated to test the complementarity between the tools and their ability to predict very long length of hospital stay (VLLOS), complications, and death RESULTS: Of the patients screened, 27.9% were at nutritional risk (NRS+) and 38.9% were malnourished (SGA B or C). Compared to those patients not at nutritional risk, NRS+, SGA B or C patients were at increased risk for complications (p = 0.03, 0.02, and 0.003, respectively). NRS+ patients had an increased risk of death (p = 0.03), and SGA B and C patients had an increased likelihood of VLLOS (p = 0.008 and p < 0.0001, respectively). Patients who were both NRS+ and SGA C had lower estimates of NNS than patients who were NRS+ or SGA C only, though their confidence intervals did overlap. CONCLUSIONS: The concurrent application of SGA in NRS+ patients might enhance the ability to predict poor clinical outcomes in hospitalized patients in Brazil.
Comparison of four nutritional screening tools to detect nutritional risk in hospitalized patients: A multicentre study

C Velasco, E García, V Rodríguez, L Frias, R Garriga, J Álvarez, P García-Peris and M Leons


Abstract

BACKGROUND/OBJECTIVES: The prevalence of malnutrition in hospitals is high. No nutritional screening tool is considered the gold standard for identifying nutritional risk. The aims of this study were to evaluate nutritional risk in hospitalized patients using four nutritional screening tools. SUBJECTS/METHODS: Four nutritional screening tools were evaluated: nutritional risk screening (NRS-2002), the malnutrition universal screening tool (MUST), the subjective global assessment (SGA) and the mini nutritional assessment (MNA). Patients were assessed within the first 36 h after hospital admission. Date of admission, diagnosis, complications and date of discharge were collected. To compare the tools, the results were reorganized into: patients at risk and patients with a good nutritional status. The statistical analysis included the χ²-test to assess differences between the tests and the κ statistic to assess agreement between the tests.

RESULTS: The study sample comprised 400 patients (159 women, 241 men), mean age 67.3 (16.1) years. The prevalence of patients at nutritional risk with the NRS-2002, MUST, SGA and MNA was 34.5, 31.5, 35.3 and 58.5%, respectively. Statistically significant differences were observed between the four nutritional screening tools (P<0.001). The agreement between the tools was quite good except for the MNA (MNA–SGA κ=0.491, NRS-2002–SGA κ=0.620 and MUST–SGA κ=0.635). Patients at nutritional risk developed more complications during admission and had an increased length of stay. CONCLUSIONS: The prevalence of nutritional risk in hospitalized patients was high with all the tools used. The best agreement between the tools was for NRS-2002 with SGA and MUST with SGA. At admission, NRS-2002 and MUST should be used to screen for nutritional status.

The facilitated early enteral and dietary management effectiveness trial in hospitalized patients with malnutrition

M Somanchi, X Tao and G E Mullin


Abstract

BACKGROUND: The prevalence of malnutrition in the hospitalized setting is 30% to 55%. Previous studies reported an association of malnutrition with an increased hospital length of stay (LOS), morbidity, and mortality of patients. This study evaluated the role of early nutrition intervention on LOS, diagnosis coding of malnutrition cases, calculating case mix index, and reducing delays in implementing nutrition support to patients. METHODS: Demographic data, anthropometric measurements, LOS, and serum albumin levels were collected from 400 patients in 2 medical wards to determine the prevalence of malnutrition and potential delays in nutrition consultation. Based on these results, a nutrition intervention study was conducted in 1 ward; the other ward served as a control. Patients were classified as normally nourished or malnourished. Multivariate general linear regressions were used to reveal the impact of intervention on the change in LOS, controlling for other potential confounding factors on the cohort and a subset with severe malnutrition. RESULTS: Of the 400 patients assessed, 53% had malnutrition. Multiple general linear regressions showed that nutrition intervention reduced LOS an average of 1.93 days in the cohort group and 3.2 days in the severe malnourished group. Case mix index and female gender were positively associated with LOS in the malnourished group. Nutrition intervention reduced the delays in implementing nutrition support to patients by 47%. CONCLUSIONS: Results highlight the positive impact of nutrition intervention in terms of reduced LOS in malnourished hospital patients. Reduction in LOS with diagnosis coding of malnutrition cases yielded substantial economic benefits.
Nutrition status and risk factors associated with length of hospital stay for surgical patients

V A Leandro-Merhi, J L Braga de Aquino and J F S Chagas


Abstract

OBJECTIVE: To diagnose the nutrition status of hospitalized patients and identify the risk factors associated with hospital length of stay (LOS). METHODS: The subjective approach and the body mass index (BMI) were used to classify the nutrition status, and other indicators (anthropometry, biochemistry, and energy intake) were analyzed regarding their association with length of hospital stay of 350 patients. The chi-square test was used to compare proportions, and the Mann-Whitney or Kruskal-Wallis test was used to compare continuous measures. Linear association was verified using Spearman’s rank correlation coefficient. Cox’s regression model was used to investigate factors associated with LOS. RESULTS: Disease was the factor that influenced LOS the most in the studied population. Longer LOS prevailed in males (P < .0001), patients aged ≥60 years (P = .0008), patients with neoplasms (P < .0001), patients who lost weight during their hospital stay (P < .0001), and malnourished patients (P = .0034). There was a negative and significant, but weak, correlation between LOS and nutrition indicators (calf circumference, arm circumference, triceps skinfold thickness, subscapular skinfold thickness, arm fat area, lymphocyte count, and hemoglobin). Among adults, well-nourished patients were 3 times more likely to be discharged sooner (P = .0002, RR = 3.3 [1.7-6.2]) than those who had some degree of malnutrition. Well-nourished patients with digestive tract diseases (DTD) were also discharged sooner than malnourished patients with the same condition (P = .02, RR = 2.5 [1.1-5.8]). In patients with neoplasms, arm circumference was an independent risk factor to assess LOS (P = .009, RR = 1.1 [1.0-1.1]). CONCLUSIONS: LOS was associated with disease and nutrition status. Among the more common diseases, nutrition status according to the subjective approach determined the LOS for patients with DTD and nutrition status according to arm circumference determined the LOS for patients with neoplasms.

Individualized nutritional intervention during and after hospitalization: The nutrition intervention study clinical trial

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Abstract

OBJECTIVES: To test the hypothesis that individualized nutritional treatment during and after acute hospitalization will reduce mortality and improve nutritional outcomes. DESIGN: Randomized, controlled trial. SETTING: Internal medicine departments. PARTICIPANTS: Two hundred fifty-nine hospitalized adults aged 65 and older at nutritional risk were recruited and randomized according to hospitalization ward into one intervention and two control groups during hospitalization. INTERVENTION: Group 1 (intervention group) received individualized nutritional treatment from a dietitian in the hospital and three home visits after discharge. Group 2 received one meeting with a dietitian in the hospital. Group 3 received standard care. Groups 2 and 3 were combined into a single group that served as the control group in the analysis. MEASUREMENTS: Mortality, health status, nutritional outcomes, blood tests, cognition, emotional, and functional parameters were assessed at baseline and after 6 months. All participants were contacted monthly. RESULTS: The overall dropout rate was 25.8%. After 6 months, rise in Mini Nutritional Assessment score, adjusted for education and hospitalization ward, was significantly higher in the intervention group than in the control groups (3.01 ± 2.65 vs 1.81 ± 2.97, P=.004) mainly on the subjective assessment part (0.34 ± 0.86 vs. −0.04 ± 0.87, P=.004). The only laboratory parameter for which a difference was observed between the groups was albumin; 9.7% of the intervention group had serum albumin levels of less than 3.5 g/dL, versus 22.9% of the control group (P=.03). Mortality was significantly lower in the intervention group (3.8%) than in the control group (11.6%, P=.046). CONCLUSION: Lower mortality and moderate improvement in nutritional status were found in patients receiving individualized nutritional treatment during and after acute hospitalization.
Managing dysphagia in older people with dementia

G Kyle

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Abstract
In the UK there is an increasing ageing population, bringing with it a host of degenerative conditions such as dementia. Dementia is a common condition among older people. In the UK there are estimated to be over 750 000 people with dementia and numbers are expected to double in the next 30 years (Comas-Herrera et al, 2007). The term ‘dementia’ is used to describe a syndrome which may be caused by a number of illnesses and is associated with ongoing decline of the brain and its abilities. There are many types of dementia, the most common are Alzheimer’s disease, vascular dementia and dementia with Lewy bodies. The most common form of dementia is Alzheimer’s which accounts for 62% of all cases. Vascular dementia either alone or co-existent with Alzheimer’s, is the second most common subtype of dementia (Knapp et al, 2007). Dementia is associated with complex needs especially in the later stages, and can have a devastating effect on the individual, their family and friends. The care needs often challenge the skills and capacity of carers especially when normal everyday activities decline. Food and drink are fundamental to living. Consequently observing individuals struggling with eating and drinking not only poses difficulties for professionals but also raises emotional issues for the individual and their family.

Oral feeding options for people with dementia: A systematic review

L C Hanson, M Ersek, R Gilliam and T S Carey


Abstract
OBJECTIVES: To review the benefits of oral feeding options in people with dementia. DESIGN: Systematic literature search with review of potentially eligible studies by two independent investigators. SETTING: PubMed/MEDLINE, EMBASE, the Cochrane Library, CINAHL, and PsychINFO literature indices between January 1990 and October 2009. PARTICIPANTS: Clinical trials with random or nonrandom control groups were included if they reported on clinical outcomes of oral feeding interventions for people with dementia. MEASUREMENTS: Investigators abstracted data from included studies using a structured instrument. Studies were graded on quality and potential bias, and overall strength of evidence was summarized. RESULTS: Thirteen controlled trials provided data on use of supplements for people with dementia, and 12 controlled trials tested assisted feeding or other interventions. Studies provide moderate-strength evidence for high-calorie supplements, and low-strength evidence for appetite stimulants, assisted feeding, and modified foods to promote weight gain in people with dementia. The few studies measuring function or survival showed no difference. CONCLUSION: High-calorie supplements and other oral feeding options can help people with dementia with feeding problems to gain weight; they are unlikely to improve other outcomes. These treatments can be offered alone or in combination as an alternative to tube feeding.
Further references on nutrition support articles and studies published in the last quarter

- Baic S (2011) Providing food for residents needing texture-modified meals. Nursing & Residential Care 13 (1): 26-31. This article provides guidance on the provision of nutritious, varied and attractive texture-modified meals within a care home setting.


- Holmes S (2011) Understanding cachexia in patients with cancer. Nursing Standard 25 (22):47-56. This paper discusses the progressive wasting syndrome of cancer cachexia, suggesting the importance of its consideration due to its prevalence and significant effect on morbidity, mortality and nutritional and psychological status.


- Rolland Y et al (2011) Cachexia versus sarcopenia. Current Opinion in Clinical Nutrition & Metabolic Care 14 (1): 15-21. This review summarizes and discusses the proposed new definitions for sarcopenia and cachexia. It also highlights the overlapping of both conditions and the fact that these conditions frequently occur in elderly patients.

- Berger M M and Que Y A (2011) Bioinformatics assistance of metabolic and nutrition management in the ICU. Current Opinion in Clinical Nutrition & Metabolic Care 14 (2): 202-208. The purpose of this review was to consider the domains in which computerized information systems have proven beneficial in facilitating metabolic and nutritional management.

Reference List

- Miller S (2011) Capnometry vs pH testing in nasogastric tube placement. Gastrointestinal Nursing 9(2): 30-33. This article comparatively analyses the current research related to the accuracy of verifying NGT placement with carbon dioxide detectors and pH testing.


- Cahill N E et al (2011) When early enteral feeding is not possible in critically ill patients: Results of a multicenter observational study. Journal of Parenteral and Enteral Nutrition 35 (2): 160-168. This multicenter study examined nutrition practices in intensive care units to investigate the controversy in relation to commencement of delayed enteral nutrition or early parenteral nutrition in patients where early enteral feeding is not possible.


