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References


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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
- The Lancet
- Nursing and Residential Care
- Nursing Children and Young People
- Nursing in Practice
- Nursing Older People
- Nursing Standard
- Nursing Times
- Nutrition
- Nutrition in Clinical Practice
- 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.
British Dietetic Association evidence-based guidelines for the protein requirements of adults undergoing maintenance haemodialysis or peritoneal dialysis

H L Naylor, H Jackson, G H Walker, S Macafee, K Magee, L Hooper, L Stewart, H L MacLaughlin, Renal Nutrition Group of the British Dietetic Association


Abstract

BACKGROUND: Existing nutritional guidelines suggest that protein requirements of adults with stage five chronic kidney disease undergoing haemodialysis (HD) or peritoneal dialysis (PD) are increased as a result of protein losses during dialysis. The present review aimed to update previous guidance and develop evidence-based practice guidelines on the protein requirements of adults undergoing maintenance dialysis. METHODS: Following a PICO approach (Participants or Population, Intervention or Exposure, Comparison and Outcome), four research questions were formulated to investigate the total protein requirement and protein quality required by adults undergoing HD and PD. A comprehensive, systematic review was undertaken using the databases Medline, EMBASE and the Cochrane Library from 2005 to September 2009 for HD studies and from 1997 to September 2009 for PD studies. RESULTS: The literature search yielded 2931 studies, which were assessed for inclusion. Following appraisal, 19 studies in HD and 18 studies in PD met the inclusion criteria and were systematically reviewed. Limited good quality evidence supports the recommendations that: (i) adults undergoing maintenance HD require a minimum protein intake of 1.1 g kg\textsuperscript{−1} ideal body weight (IBW) per day; and (ii) adults undergoing maintenance PD require a minimum protein intake of 1.0–1.2 kg\textsuperscript{−1} IBW per day, in conjunction with an adequate energy intake. There were no studies that addressed the quality of protein for either HD or PD. CONCLUSIONS: Evidence suggests that nutritional status may be maintained with lower protein intakes than previously recommended. However, the evidence base is limited and further randomised controlled trials are required to establish the optimal protein intake for dialysis patients.

The effectiveness of a specialised oral nutrition supplement on outcomes in patients with chronic wounds: a pragmatic randomised study

J D Bauer, E Isenring and M Waterhouse


Abstract

BACKGROUND: Nutrition supplements enriched with immune function enhancing nutrients have been developed to aid wound-healing, although evidence regarding their effectiveness is limited and systematic reviews have lead to inconsistent recommendations. The present pragmatic, randomised, prospective open trial evaluated a wound-specific oral nutrition supplement enriched with arginine, vitamin C and zinc compared to a standard supplement with respect to outcomes in patients with chronic wounds in an acute care setting. METHODS: Twenty-four patients [11 males and 13 females; mean (SD) age: 67.8 (22.3) years] with chronic wounds (14 diabetic or venous ulcers; 10 pressure ulcers or chronic surgical wounds) were randomised to receive either a wound-specific supplement (n = 12) or standard supplement (n = 12) for 4 weeks, with ongoing best wound and nutrition care for an additional 4 weeks. At baseline, and at 4 and 8 weeks, the rate of wound-healing, nutritional status, protein and energy intake, quality of life and product satisfaction were measured. Linear mixed effects modelling with random intercepts and slopes were fitted to determine whether the wound-specific nutritional supplement had any effect. RESULTS: There was a significant improvement in wound-healing in patients receiving the standard nutrition supplement compared to a wound-specific supplement (P = 0.044), although there was no effect on nutritional status, dietary intake, quality of life and patient satisfaction. CONCLUSIONS: The results of the present study indicate that a standard oral nutrition supplement may be more effective at wound-healing than a specialised wound supplement in this clinical setting.
Blind bedside placement of postpyloric feeding tubes by registered dietitians: success rates, outcomes, and cost effectiveness

C M Rollins

Abstract

BACKGROUND: The purpose of this study was to evaluate the success rate, outcomes, and cost-effectiveness of blind bedside placement of postpyloric feeding tubes by registered dietitians. Feeding tubes placed by a physician using fluoroscopy were used to benchmark certain study parameters. MATERIALS AND METHODS: Patients who underwent postpyloric feeding tube insertion between June 1, 2007, and May 31, 2011, were included in the study. Medical charts were reviewed for the time span between physician order and procedure documentation, bedside feeding tube tip location, number of radiographic images to confirm placement of tubes placed at the bedside, physician clearance to use the feeding tube when applicable, and reported complications. Patient charges for each procedure were also compared. RESULTS: Data were collected on 729 patient encounters, with 285 encounters per study group and 159 encounters excluded for incomplete documentation. The average time span to bedside procedure completion was 3.7 hours compared with an average of 4.2 hours for insertion using fluoroscopy. Dietitians achieved postpyloric access 73% of the time, and an additional 16.8% of bedside tubes were deemed appropriate for use for gastric feeding. The majority of bedside insertion encounters required 1 abdominal radiograph to confirm placement, and no reported complications were associated with either technique. A 66% reduction in patient charges was associated with bedside tube insertion. CONCLUSION: Based on this sample, blind bedside postpyloric feeding tube insertion by registered dietitians may be a safe, cost-effective method for achieving short-term feeding tube access in the hospitalized patient.

Parent-reported effects of gastrostomy tube placement

T L Åvitsland, K Birketvedt, K Bjørnland, R Emblem and J Boullata

Abstract

BACKGROUND: For children with major feeding problems and their parents, meals may be unpleasant. We aimed to evaluate how insertion of a gastrostomy tube influenced parent-child communication and satisfaction during meals, as well as duration of meals, oral intake, vomiting, and growth. MATERIALS AND METHODS: Children admitted for a gastrostomy tube placement were included. Age, sex, diagnosis, and preoperative nasogastric tube were registered. Weight, height, oral feeding, duration of meals, and vomiting were assessed preoperatively and 6 and 18 months postoperatively. We used a numeric rating scale to assess parent-reported parental stress, child satisfaction, parent satisfaction, and parent-child communication during meals at all 3 time points. RESULTS: Fifty-eight children were included: 33 boys and 25 girls. Median age was 1.7 years (range, 0.5-14.7 years). Thirty-nine were neurologically impaired, and 44 had a nasogastric tube for a median of 7.5 months (range, 0.5-28 months) preoperatively. Child satisfaction (P = .001), parent satisfaction (P = .006), and parent-child communication (P = .026) during meals were significantly improved 18 months after receiving a gastrostomy tube. Vomiting was reduced in 42%, oral intake increased in 49%, and weight-for-height percentile increased in 55% of the children. CONCLUSIONS: In children with major feeding problems, a gastrostomy tube improved parent-child communication and satisfaction during meals. Furthermore, oral intake was increased, and vomiting was reduced. Growth improved in around half of the children.
Enteral feeding in head and neck cancer patients at a UK cancer centre

C H Sheth, S Sharp and E R Walters


Abstract

**BACKGROUND:** Patients undergoing radiotherapy or chemoradiotherapy treatment for head and neck cancer have an increased risk of malnutrition, and may require enteral feeding via nasogastric or gastrostomy tube. The aim of this audit was to examine current enteral feeding practice, mortality, morbidity and 6-month outcome data of head and neck cancer patients receiving radical (chemo)radiotherapy at a regional cancer centre and to compare the results with a regional head and neck cancer gastrostomy audit. **METHODS:** A 2-year audit was conducted (2006–2008). Inclusion criteria were all adult patients diagnosed with squamous cell carcinoma of the head and neck, receiving radical radiotherapy or chemoradiotherapy treatment. The first-year data were collected retrospectively, and the second-year data were collected prospectively. Data were collected on all patients requiring enteral feeding with 6-month outcome data relating to route of nutrition. **RESULTS:** Approximately 14% (n = 32/223) of patients were admitted for nasogastric feeding as a result of inadequate oral alimentation. On admission, 94% were at risk of refeeding syndrome, taking a mean (SD) of 11 (4.9) days to reach full nutritional requirements. Mean (SD) length of hospital stay was 13 (5.1) days. No major complications from nasogastric tube insertion were found. The mean (SD) length of nasogastric feeding was 72 (20.1) days with 89.6% managing full nutritional requirements orally at 6 months. **CONCLUSIONS:** Patients requiring enteral feeding during treatment were fed via a nasogastric tube, rather than via a prophylactic gastrostomy tube. Compared with the regional gastrostomy audit results, our patients had a lower clinical risk/complication rate, with a greater proportion tolerating full oral intake at 6 months. Therefore, nasogastric feeding, rather than prophylactic gastrostomy tube feeding, could be a more appropriate method of enteral feeding in this patient group.

Early nasogastric tube feeding versus nil per os in mild to moderate acute pancreatitis: A randomized controlled trial

M S Petrov, K McIlroy, L Grayson, A R J Phillips and J A Windsor


Abstract

**BACKGROUND & AIMS:** Nasojejunal tube feeding is a standard of care in patients with predicted severe acute pancreatitis (AP) and several recent trials suggested that nasojejunal tube feeding (NGT) is as safe and efficient as nasojejunal tube feeding in these patients. The aim was to investigate whether NGT presents any benefit to patients with mild to moderate AP. **METHODS:** The study design was a randomized controlled trial. The patients in the intervention group received NGT within 24 h of hospital admission. The patients in the control group were on nil per os (NPO). The severity of acute pancreatitis was determined according to the new international multidisciplinary classification. **RESULTS:** There were 17 patients randomly allocated to the NGT group and 18 to the NPO group. The visual analogue pain score decreased to a significantly greater extent in the NGT group (from median 9 (range 7-9) at baseline to 1 (0-3) at 72 h after randomization) compared with the NPO group (from 7 (5-9) to 3 (1-4) (p = 0.036). The number of patients not requiring opiates at 48 h after randomization was significantly different (p = 0.024) between NGT (9/17) and NPO (3/18). Oral food intolerance was observed in 1/17 patient in the NGT group and 9/18 patients in the NPO group (p = 0.004). The overall hospital stay in the NGT group was 9 (5-12) days as compared with 8.5 (6-13) days in the NPO group (p = 0.91). **CONCLUSIONS:** NGT commenced within 24 h of hospital admission is well tolerated in patients with mild to moderate acute pancreatitis. Further, when compared with NPO, it significantly reduces the intensity and duration of abdominal pain, need for opiates, and risk of oral food intolerance, but not overall hospital stay.
Experience over 12 years with home enteral nutrition in a healthcare area of Spain

D A De Luis, O Izaola, L A Cuellar, M C Terroba, G Cabezas and B De La Fuente

Abstract

BACKGROUND: The widespread use of long-term enteral nutrition and the substantive costs dictate a need to study the outcome, as well as the clinical and epidemiological characteristics, of these patients. The present study aimed to analyze the incidence and characteristics of a cohort of patients on home enteral nutrition (HEN) over 12 years. MATERIALS AND METHODS: A prospective observational study was performed between January 1999 and December 2010. All adult patients living in Valladolid West area who were discharged from the hospital on HEN were prospectively studied and followed up. RESULTS: The incidence of HEN ranged between 9.52 per 100,000 inhabitants in 2001 to 30.0 per 100,000 inhabitants in 2009. HEN was administered orally in 472 patients (68.28%) (group 1), and through a nasogastric tube in 168 patients (24.30%), a percutaneous enteral gastrostomy tube in 47 patients (6.80%) and a jejunostomy in four patients (0.60%) (group 2; 219 patients). During the course of HEN, 31 patients had diarrhea (4.5%), 17 patients had constipation and 12 patients had nausea. The mean (SD) duration of HEN was 159.9 (97) days. In multivariable analysis, an independent factor associated with death was age (hazard ratio = 1.03; 95% confidence interval -1.01–1.05), adjusted by sex, route and diagnosis. CONCLUSIONS: HEN has a high incidence in our area and it is a valid and safe technique for nutrition support.

Osmolality, pH, and compatibility of selected oral liquid medications with an enteral nutrition product

M Klang, V McLymont and N Ng

Abstract

When selecting medication for feeding tube administration, the liquid formulation is selected, so as to avoid obstructions that may occur from incompletely crushing a solid dosage form. Liquid medications can present issues of intolerance and compatibility when administered via a feeding tube. A predictor of intolerance is the liquid’s osmolarity, and a predictor of compatibility is the liquid’s pH value. This study examines 62 liquid formulations for their osmolality, pH, and physical compatibility with enteral nutrition (EN) formulas. These medications were selected as being the most commonly dispensed liquid medications from our outpatient pharmacy department. This study measures osmolality using freezing point depression. Depending on the dose, the osmotic load of a liquid medication may cause cramping and diarrhea. The pH value is predictive of potential interactions with the EN formula. Many drugs are weak bases and require acidic vehicles for optimal stability. The acidic liquids are especially reactive with enteral formulas that contain intact proteins. The result of this interaction can result in an occlusion of the feeding tube as the proteins form a gel-like clog. This study combined the liquid medication directly with the EN formula to determine the potential for feeding tube occlusion. Some drugs formed a solid mass in the test tube immediately, whereas others only presented granules, which may later contribute to obstructing the feeding tube. The prescriber should be aware of the potential impact of their choice in formulation, both in terms of the gastrointestinal tolerance and potential for interaction with coadministered nutrition.
Tolerability and safety of enteral nutrition in critically ill patients receiving intravenous vasopressor therapy

E E Mancl and K M Muzevich

Abstract

BACKGROUND: Enteral nutrition (EN) is recommended within the first 24–48 hours following admission to an intensive care unit (ICU) once resuscitation and hemodynamic stability have been achieved; however, hemodynamic stability is not well defined. Objective: To evaluate the tolerability and safety of EN in critically ill patients receiving intravenous (IV) vasopressor therapy. METHODS: A retrospective medical record review was conducted in an urban academic medical center and included adult ICU patients from 2011 who received concomitant EN and IV vasopressor therapy for ≥1 hour. EN tolerance was defined as an absence of gastric residuals ≥300 mL, emesis, positive finding on abdominal imaging, and evidence of bowel ischemia/perforation. RESULTS: Two hundred fifty-nine patients received 346 episodes of concomitant EN and IV vasopressor therapy. Overall EN tolerability was 74.9%. Adverse events included rising serum lactate (30.6%), elevated gastric residuals (14.5%), emesis (9.0%), positive finding on kidney/ureter/bladder radiograph (4.3%), and bowel ischemia/perforation (0.9%). An inverse relationship was found between maximum norepinephrine equivalent dose and EN tolerability (12.5 mcg/min for patients who tolerated EN vs 19.4 mcg/min, P = .0009). This relationship remained statistically significant after controlling for other variables (P = .019). Patients who tolerated EN were less likely to have received dopamine (63.8% vs 77.6%, P = .018) or vasopressin (58.9% vs 77.9%, P = .0027). These patients received concomitant therapy for less time and received more nutrition. CONCLUSIONS: Most patients receiving IV vasopressor therapy tolerate EN. Tolerability was related to the maximum cumulative vasopressor dose and may be related to the specific vasopressor administered.

Commonly used “nutrition” indicators do not predict outcome in the critically ill: a systematic review

S Ferrie and M Allman-Farinelli

Abstract

BACKGROUND: In everyday practice, clinicians use a variety of anthropometric, biochemical, and clinical indicators to monitor nutrition therapy, but these have limitations in the critically ill. This systematic review of randomized controlled trials aimed to assess whether commonly used anthropometric, biochemical, and clinical nutrition indicators are predictive of patient outcomes in the critically ill. MATERIALS AND METHODS: A computerized bibliographic search was performed using MEDLINE, EMBASE, and CINAHL from 1950 to December 2012, as well as a citation review of relevant articles. Randomized clinical trials of any nutrition interventions in critically ill patients were included if they reported any nutrition indicator after baseline and any clinically meaningful outcome variables. Information about study quality, setting, and findings was extracted using standardized protocols. Because of the heterogeneity of study characteristics, only a narrative synthesis was undertaken. RESULTS: Of 223 studies obtained with the search strategy, 2 independent reviewers identified selected 51 studies meeting the eligibility criteria. These reported indicators such as serum albumin, serum prealbumin (transthyretin), retinol-binding protein, transferrin, and lymphocytes. Thirty studies did not report a significant difference in clinical outcomes. Of the remainder, the number of studies supporting a statistical relationship between outcome and particular nutrition indicators was equal to, or outnumbered by, the studies not supporting such a relationship. CONCLUSION: None of the commonly used nutrition monitoring parameters demonstrated consistent associations with outcome in randomized controlled trials. Development of nutrition indicators other than laboratory tests that are more closely linked to the patient's clinical progress should be a priority.
Utilizing multiple methods to classify malnutrition among elderly patients admitted to the medical and surgical intensive care units (ICU)

P M Sheean, S J Peterson, Y Chen, D Liu, O Lateef and C A Braunschweig

Abstract

BACKGROUND & AIMS: The nutritional status of elderly patients requiring ICU admission is largely unknown. This study evaluated the prevalence of malnutrition in elderly patients (>65 years) admitted to the surgical and medical ICUs, agreement between assessment techniques and associations between malnutrition and adverse outcomes. METHODS: For this prospective cohort, nutritional status was classified concurrently using the Mini Nutrition Assessment (MNA), Subjective Global Assessment (SGA), Nutrition Risk Score 2002 (NRS 2002) and MNA-short form (MNA-SF). Demographic and relevant medical information were collected from the medical record prior to the nutrition interview and/or following hospital discharge. Descriptive statistics, inter-rater agreement and regression analyses were conducted. RESULTS: The average patient was 74.2 ± 6.8 years of age with a mean APACHE II score of 11.9 ± 3.6. Malnutrition was prevalent in 23-34% of patients (n = 260) with excellent agreement between raters. Compared to MNA, NRS 2002 had the highest sensitivity, while SGA and MNA-SF had higher specificity. Malnutrition at ICU admission was associated with longer hospital LOS, a lower propensity for being discharged home and a greater need for hospice care or death at discharge (all p values <0.05). These relationships were diminished when controlling for severity of illness. CONCLUSIONS: Future work in this elderly population needs to explore the role of disease acuity, inflammation and body composition in the nutrition assessment process and in the examination of outcomes.

Arginine appearance and nitric oxide synthesis in critically ill infants can be increased with a protein-energy–enriched enteral formula

C T de Betue, K F M Joosten, N E P Deutz, A C E Vreugdenhil and D A van Waardenburg

Abstract

BACKGROUND: Arginine is considered an essential amino acid during critical illness in children, and supplementation of arginine has been proposed to improve arginine availability to facilitate nitric oxide (NO) synthesis. Protein-energy–enriched enteral formulas (PE-formulas) can improve nutrient intake and promote anabolism in critically ill infants. However, the effect of increased protein and energy intake on arginine metabolism is not known. OBJECTIVE: We investigated the effect of a PE-formula compared with that of a standard infant formula (S-formula) on arginine kinetics in critically ill infants. DESIGN: A 2-h stable-isotope tracer protocol was conducted in 2 groups of critically ill infants with respiratory failure because of viral bronchiolitis, who received either a PE-formula (n = 8) or S-formula (n = 10) in a randomized, blinded, controlled setting. Data were reported as means ± SDs. RESULTS: The intake of a PE-formula in critically ill infants (aged 0.23 ± 0.14 y) resulted in an increased arginine appearance (PE-formula: 248 ± 114 µmol · kg⁻¹ · h⁻¹; S-formula: 130 ± 53 µmol · kg⁻¹ · h⁻¹; P = 0.012) and NO synthesis (PE-formula: 1.92 ± 0.99 µmol · kg⁻¹ · h⁻¹; S-formula: 0.84 ± 0.36 µmol · kg⁻¹ · h⁻¹; P = 0.003), whereas citrulline production and plasma arginine concentrations were unaffected. CONCLUSION: In critically ill infants with respiratory failure because of viral bronchiolitis, the intake of a PE-formula increases arginine availability by increasing arginine appearance, which leads to increased NO synthesis, independent of plasma arginine concentrations.
Malnutrition and obesity: influence in mortality and readmissions in chronic obstructive pulmonary disease patients

A Zapatero, R Barba, J Ruiz, J E Losa, S Plaza, J Canora and J Marco
Journal of Human Nutrition and Dietetics (2013) 26 (s1): 16-22

Abstract

BACKGROUND: The present study aimed to assess the association of obesity and malnutrition with the mortality of hospitalised patients with acute exacerbation of chronic obstructive pulmonary disease (COPD) and the risk of readmission in <30 days. METHODS: A retrospective chart review of consecutive patients admitted with COPD as the primary reason for discharge in Spain between 1 January 2006 and 31 December 2007 was performed. Patients with a diagnosis of obesity or malnutrition in the hospital discharge clinical report were identified. The in-hospital mortality and re-admittance 30 days after discharge indices of obese and malnourished patients were compared against the subpopulation without these diagnoses. RESULTS: Of the 313 233 COPD admittances analysed, there were 22 582 (7.2%) diagnoses of obesity and 6354 (2.0%) diagnoses of malnutrition. In-hospital global mortality and the re-admittance risk were 12.0% and 16.7%, respectively. Obese patients showed a lower in-hospital mortality risk (odds ratio (OR) = 0.52; 95% confidence interval (CI) = 0.49–0.55) and early re-admittance risk (OR = 0.87; 95% CI = 0.85–0.92) compared to non-obese patients. Malnourished patients had a much higher risk of death when in hospital (OR = 1.73; 95% CI = 1.62–1.85) or of being re-admitted within 30 days after discharge (OR = 1.29; 95% CI = 1.22–1.38), even after adjusting for possible confounding factors. CONCLUSIONS: Obesity in patients hospitalised for COPD substantially reduces in-hospital mortality risk and the possibility of early re-admittance. Malnutrition is associated with an important increase in in-hospital mortality and risk of re-admittance in the 30 days following discharge.

Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: results from the Nutrition Care Day Survey 2010

E Agarwal, M Ferguson, M Banks, M Batterham, J Bauer, S Capra and E Isenring

Abstract

BACKGROUND & AIMS: The Australasian Nutrition Care Day Survey (ANCDS) ascertained if malnutrition and poor food intake are independent risk factors for health-related outcomes in Australian and New Zealand hospital patients. METHODS: Phase 1 recorded nutritional status (Subjective Global Assessment) and 24-h food intake (0, 25, 50, 75, 100% intake). Outcomes data (Phase 2) were collected 90-days post-Phase 1 and included length of hospital stay (LOS), readmissions and in-hospital mortality. RESULTS: Of 3122 participants (47% females, 65 ± 18 years) from 56 hospitals, 32% were malnourished and 23% consumed ≤ 25% of the offered food. Malnourished patients had greater median LOS (15 days vs. 10 days, p < 0.0001) and readmissions rates (36% vs. 30%, p = 0.001). Median LOS for patients consuming ≤ 25% of the food was higher than those consuming ≤ 50% (13 vs. 11 days, p < 0.0001). The odds of 90-day in-hospital mortality were twice greater for malnourished patients (CI: 1.09-3.34, p = 0.023) and those consuming ≤ 25% of the offered food (CI: 1.13-3.51, p = 0.017), respectively. CONCLUSION: The ANCDS establishes that malnutrition and poor food intake are independently associated with in-hospital mortality in the Australian and New Zealand acute care setting.
Effect of nutritional interventions on nutritional status, quality of life and mortality in patients with head and neck cancer receiving (chemo)radiotherapy: a systematic review

J A E Langius, M C Zandbergen, S E J Eerenstein, M W van Tulder, C R Leemans, M H H Kramer and P J M Weijs

Abstract

BACKGROUND & AIMS: We performed a systematic review to examine the effect of nutritional interventions on nutritional status, quality of life (QoL) and mortality in patients with head and neck squamous cell cancer (HNSCC) receiving radiotherapy or chemoradiotherapy. METHODS: We searched Pubmed, EMBASE, CENTRAL and Cinahl from inception through January 3rd, 2012 to identify randomized controlled trials (RCTs) from a broad range of nutritional interventions in patients with HNSCC during (chemo)radiotherapy. Two reviewers independently assessed study eligibility and risk of bias, and extracted data. RESULTS: Of 1141 titles identified, 12 study reports were finally included, describing 10 different studies with 11 interventions. Four out of 10 studies examined the effects of individualized dietary counseling, and showed significant benefits on nutritional status and QOL compared to no counseling or general nutritional advice by a nurse (p < 0.05). Three studies on oral nutritional supplements (ONS) were inconsistent about the effect on nutritional status compared with no supplementation. One study showed that nasogastric tube feeding had beneficial effects on nutritional status compared to ONS, but not in all patient groups (p < 0.04). One study showed benefits of percutaneous endoscopic gastronomy (PEG) feeding on nutritional status shortly after RT compared with nasogastric feeding (p = 0.001). Two studies showed that prophylactic PEG feeding was not superior over tube feeding if required. CONCLUSIONS: This review shows beneficial effects of individualized dietary counseling on nutritional status and QoL, compared to no counseling or standard nutritional advice. Effects of ONS and tube feeding were inconsistent.

Nutritional status and dietary intake of children with acute leukaemia during induction or consolidation chemotherapy

S Y Tan, B K Poh, M H Nadrah, N A Jannah, J Rahman and M N Ismail
Journal of Human Nutrition and Dietetics (2013) 26 (s1): 23–33

Abstract

BACKGROUND: The assessment of nutritional status among paediatric patients is important for the planning and execution of nutritional strategies that strive to optimise the quality of life and growth among sick children. The present study aimed to evaluate the nutritional status and dietary intake among children with acute leukaemia. METHODS: This cross-sectional study included 53 paediatric patients aged 3-12 years old, who were diagnosed with either acute lymphoblastic leukaemia or acute myelogenous leukaemia and were undergoing chemotherapy treatments (induction or consolidation phase). Patients were matched for sex, age (± 6 months) and ethnicity with healthy children as controls. Weight, height, body mass index, waist circumference, mid-upper arm circumference, triceps skinfold thickness, mid-upper arm muscle area and fat area were determined. Dietary intake was assessed using 3-day food records. RESULTS: Anthropometric variables were generally higher among patients compared to controls, although the differences were not statistically significant (P > 0.05). The prevalence of overnutrition among patients according to body mass index-for-age, waist circumference-for-age, mid-upper arm circumference-for-age and triceps skinfold-for-age were 24.5%, 29.1%, 17.0% and 30.2%, respectively. Mean energy [5732 ± 1958 kJ (1370 ± 468 kcal)] versus 6945 ± 1970 kJ (1660 ± 471 kcal), P < 0.01], protein (50.0 ± 19.7 g versus 62.3 ± 22.3 g, P < 0.01) and fat (43.6 ± 18.9 g versus 58.3 ± 16.7, P < 0.001) intakes of patients were significantly lower than controls. Conclusions: The prevalence of being overweight and obesity in children with acute leukaemia was higher despite lower energy intake compared to controls. Studies assessing physical activity, the complex interaction and the effects of treatment drugs are warranted to better manage malnutrition among paediatric patients.
Pre-cachexia and cachexia at diagnosis of stage III non-small-cell lung carcinoma: an exploratory study comparing two consensus-based frameworks

B S van der Meij, C P Schoonbeek, E F Smit, M Muscaritoli, P A M van Leeuwen and J A E Langius

Abstract
Despite the development of consensus-based frameworks to define cancer cachexia, the validity and usefulness of these frameworks are relatively unknown. The aim of the present study was to study the presence of pre-cachexia and cachexia in patients with stage III non-small-cell lung carcinoma (NSCLC) by using a cancer-specific framework and a general framework for cachexia, and to explore the prognostic value of pre-cachexia and cachexia. In forty patients at diagnosis of stage III NSCLC, weight loss, fat-free mass, handgrip strength, anorexia and serum biochemistry, assessed before the first chemotherapy, were used to define ‘cancer cachexia’ or ‘cachexia’. The cancer-specific framework also classified for pre-cachexia and refractory cachexia. Additionally, quality of life was assessed by the European Organisation for Research and Treatment of Cancer – Quality of Life Questionnaire C30. Groups were compared using independent t tests, ANOVA, Kaplan–Meier and Cox survival analyses. Based on the cancer-specific framework, pre-cachexia was present in nine patients (23%) and cancer cachexia was present in seven patients (18%). Cancer cachexia was associated with a reduced quality of life (P= 0·03) and shorter survival (hazard ratio (HR) = 2·9; P= 0·04). When using the general framework, cachexia was present in eleven patients (28%), and was associated with a reduced quality of life (P= 0·08) and shorter survival (HR = 4·4; P= 0·001). In conclusion, pre-cachexia and cachexia are prevalent in this small population of patients at diagnosis of stage III NSCLC. For both frameworks, cachexia appears to be associated with a reduced quality of life and shorter survival. Further studies are warranted to more extensively explore the validity and prognostic value of these new frameworks in cancer patients.

Influence of additional criteria from a definition of cachexia on its prevalence - good or bad thing?

T Letilovic and R Vrhovac

Abstract
BACKGROUND/OBJECTIVES: Cachexia is a state of involuntary weight loss. The latest generic definition states that aside from weight loss, patient needs to fulfill additional criteria to be diagnosed with cachexia. New, condition-specific definitions also take the weight loss as a principal criterion, and additional criteria are not mandatory but are a part of further assessment. The aim of this study was to reveal the influence of additional criteria on the prevalence of cachexia in patients with various diseases linked to cachexia. Owing to this, we used the last generic definition. Possible differences in clinical presentations of patients with documented weight loss, with the respect of fulfillment of additional criteria were sought. SUBJECTS/ METHODS: Clinical and anthropometric data on 137 consecutive patients with malignant diseases and chronic heart failure from a single institution were collected. RESULTS: Forty-two (30.6%) patients had >5% weight loss in the last 12 months. Only 30 (21.8%) of them were found to meet additional three out of five criteria proposed by the new definition. This observed difference in the prevalence of cachexia diagnosed with or without using additional criteria was found to be significant (P=0.0006). Comparison of clinical/laboratory data showed significantly higher levels of C-reactive protein and lower levels of albumin, as well as lower measurements of mid-arm circumference, triceps and suprailliac skinfolds in patients that fulfilled additional criteria. Survival analysis did not show reduced survival of patients fulfilling additional criteria. CONCLUSIONS: Additional criteria ‘reduce’ the prevalence of cachexia. They are indicative of differences in laboratory and clinical features of cachectic patients but do not influence their survival.
Central tenet of cancer cachexia therapy: do patients with advanced cancer have exploitable anabolic potential?

C M Prado, M B Sawyer, S Ghosh, J R Lieffers, N Esfandiari, S Antoun, and V E Baracos

Abstract

BACKGROUND: Skeletal muscle wasting is considered the central feature of cachexia, but the potential for skeletal muscle anabolism in patients with advanced cancer is unproven. OBJECTIVE: We investigated the clinical course of skeletal muscle wasting in advanced cancer and the window of possible muscle anabolism. Design: We conducted a quantitative analysis of computed tomography (CT) images for the loss and gain of muscle in population-based cohorts of advanced cancer patients (lung, colorectal, and pancreas cancer and cholangiocarcinoma) in a longitudinal observational study. RESULTS: Advanced-cancer patients (n = 368; median survival: 196 d) had a total of 1279 CT images over the course of their disease. With consideration of all time points, muscle loss occurred in 39% of intervals between any 2 scans. However, the overall frequency of muscle gain was 15.4%, and muscle was stable in 45.6% of intervals between any 2 scans, which made the maintenance or gain of muscle the predominant behavior. Multinomial logistic regression revealed that being within 90 d (compared with >90 d) from death was the principal risk factor for muscle loss (OR: 2.67; 95% CI: 1.45, 4.94; P = 0.002), and muscle gain was correspondingly less likely (OR: 0.37; 95% CI: 0.20, 0.69; P = 0.002) at this time. Sex, age, BMI, and tumor group were not significant predictors of muscle loss or gain. CONCLUSIONS: A window of anabolic potential exists at defined early phases of the disease trajectory (>90 d survival), creating an opportunity for nutritional intervention to stop or reverse cachexia. Cancer patients within 90 d of death have a low likelihood of anabolic potential.

Sarcopenia: prevalence and prognostic significance in hospitalized patients

S Gariballa and A Alessa

Abstract

BACKGROUND: Sarcopenia is prevalent in older populations with many causes and varying outcomes however information for use in clinical practice is still lacking. AIMS: The aim of this report is to identify the clinical determinants and prognostic significance of sarcopenia in a cohort of hospitalized acutely ill older patients. METHODS: Four hundred and thirty two randomly selected patients had their baseline clinical characteristic data assessed within 72 h of admission, at 6 weeks and at 6 months. Nutritional status was assessed from anthropometric and biochemical data. Sarcopenia was diagnosed from low muscle mass and low muscle strength-hand grip using anthropometric measures based on the European Working Group criteria. RESULTS: Compared with patients without sarcopenia, those diagnosed with sarcopenia 44 (10%) were more likely to be older, have more depression symptoms and lower serum albumin concentration. The length of hospital stay (LOS) was significantly longer in patients diagnosed with sarcopenia compared with patients without sarcopenia [mean (SD) LOS 13.4 (8.8) versus 9.4 (7) days respectively, p = 0.003]. The risk of non-elective readmission in the 6 months follow up period was significantly lower in patients without sarcopenia compared with those diagnosed with sarcopenia (adjusted hazard ratio .53 (95% CI: .32 to .87, p = 0.013). The death rate was also lower in patients without sarcopenia 38/388 (10%), compared with those with sarcopenia 12/44 (27%), p-value = .001. CONCLUSION: Older people with sarcopenia have poor clinical outcome following acute illness compared with those without sarcopenia.
Improving the dietary intake of under nourished older people in residential care homes using an energy-enriching food approach: a cluster randomised controlled study

W S Leslie, M Woodward, M E J Lean, H Theobald, L Watson and C R Hankey

Abstract

BACKGROUND: To examine whether the nutritional status of aged undernourished residents in care could be improved through dietary modification to increase energy intake but not portion size. METHODS: A 12-week cluster randomised controlled trial was carried out in 21 residential care homes. Participants comprised undernourished residents with a body mass index (BMI) <18.5 kg m$^{-2}$. All menus were analysed to evaluate nutrient provision. Energy and macronutrient intakes of undernourished residents were estimated using 3-day weighed food intake diaries. Those resident in homes randomised to intervention had their usual meals enriched with energy-dense foods to a maximum of +1673 kJ day$^{-1}$. RESULTS: Of 445 residents screened, 41 (9%) had a BMI <18.5 kg m$^{-2}$ and entered the study. Despite adequate food provision, energy and macronutrient intakes were below UK dietary reference values. Mean (SEM) energy intake increased [+556 (372) kJ, P = 0.154] in residents allocated to intervention but fell in those residents in ‘control homes’ receiving usual care [−151 (351) kJ, P = 0.676]. Weight change [+1.3 (0.53) kg, P = 0.03] was seen in intervention residents but not in controls [−0.2 (1.5) kg, P = 0.536]. Between-group differences for changes in weight and energy intake were not significant (P = 0.08 and 0.20, respectively). Six residents allocated to the intervention increased their BMI >18.5 kg m$^{-2}$ (P = 0.018). CONCLUSIONS: Achieving weight gain in frail older people is difficult. These results suggest that enriching food could help address undernutrition and slow chronic weight loss. Interventions of a longer duration are needed to confirm or exclude the value of food enrichment.

The efficacy of protected mealtimes in reducing mealtime interruptions and improving mealtime assistance in adult inpatients in an Australian hospital

S Huxtable and M Palmer

Abstract

BACKGROUND/OBJECTIVES: A Protected Mealtimes Programme (PMP) encourages staff, volunteers and visitors to assist patients and cease non-urgent clinical activity during mealtimes. Given the limited evidence available establishing the efficacy of PMP, we compared mealtime interruptions, mealtime assistance received and nutrient intakes before and after PMP implementation in adult inpatients on acute wards. SUBJECTS/METHODS: Data collected on patients at main meals before and after PMP implementation included the following: diet code, level of assistance required and received and by whom, time available to consume the meal, position of the patient and tray during eating, type of interruption and by whom and proportion of foods and drinks consumed. Outcomes pre- and post-PMP implementation were compared using D2, independent samples t-tests and logistic regression analyses. RESULTS: Over two years, 1632 inpatient mealtime observations were conducted (65 (18) years, 51% M). Similar proportions of patients received mealtime assistance when required (~84%, P=0.928). Feeding assistance nearly doubled post-PMP implementation (15–29%, P=0.002). Interruptions by nursing staff increased by 8% post-PMP implementation (P<0.001) and represented 61% of all interruptions. Interruptions were less likely to occur pre-PMP implementation (odds ratio, 0.403, 95% confidence interval, 0.301-0.539). Mealtime energy and protein intakes were not changed post-PMP (P=0.979, P=0.482, respectively). CONCLUSIONS: The PMP increased nursing staff availability at mealtimes and feeding assistance, but also increased mealtime interruptions. This may explain the lack of change in patient energy and protein consumption. Strategies promoting adherence with PMP implementation, such as nurse ward champions or nursing staff driving PMP implementation, may be required to maximise the benefits of protected mealtimes.
Development and validation of the disease-specific short bowel syndrome-quality of life (SBS-QoL™) scale

P Berghöfer, K C Fragkos, J P Baxter, A Forbes, F Joly, H Heinze, S Loth, M Pertkiewicz, B Messing and P B Jeppesen

Abstract
BACKGROUND & AIMS: Subjects with short bowel syndrome (SBS) have impaired quality of life (QoL). No disease-specific instrument has been available to measure treatment-induced changes in QoL over time. Therefore, the aim was to develop and validate an SBS-specific QoL scale. METHODS: Classical test theory and Food and Drug Administration (FDA) guidance were applied for development and validation of the SBS-QoL™. Procedures included item generation and raw scale construction. Factor analysis, construct validity and internal consistency were assessed in a non-interventional observation, test re-test reliability and responsiveness in a randomised clinical study. RESULTS: The SBS-QoL™ comprises 17 items including two subscales. Subjects assessed the scale as easy to handle and comprehensible. Good construct validity was shown by comparison with the Home Parenteral Nutrition-Quality Of Life questionnaire as an external scale, which yielded moderately high correlation ($r \geq 0.7$). High internal consistency was demonstrated (Cronbach’s alpha: 0.94). Also the test re-test reliability was high ($r \geq 0.95$), indicating reliable reproducibility of results. The Responsiveness Index (1.84) indicated the ability of the scale to detect changes in QoL over time. CONCLUSIONS: The SBS-QoL™ is an easy to handle and comprehensible SBS-specific subject-reported QoL scale. It is valid, reliable and sensitive with excellent psychometric characteristics to measure treatment-induced changes in QoL over time in subjects with SBS.

Performance of the geriatric nutritional risk index in predicting 28-day hospital mortality in older adult patients with sepsis

J S Lee, H S Choi, Y G Ko and D H Yun

Abstract
BACKGROUND & AIMS: The Geriatric Nutritional Risk Index (GNRI) is a screening tool for nutrition-related risk that correlates with mortality rate in hospitalized older patients and is simple, objective, and readily available to clinicians. In this study, we aimed to validate the performance of the GNRI in predicting short-term hospital mortality in older patients with sepsis. METHODS: This observational study enrolled 401 older patients presenting with infection and systemic inflammatory response syndrome in an emergency department. Demographic, physiological, and laboratory data were collected. The GNRI score was categorized into five classes. The primary outcome was 28-day hospital mortality. Univariate and multivariate analyses were performed to identify clinical predictors of outcome. A logistic regression model was used. RESULTS: 51 patients (12.7%) died in the hospital within 28 days. Co-morbid metastatic cancer, heart rate, respiratory rate, temperature, serum creatinine, total lymphocyte count, and GNRI (<87) were independently related to the outcome in the multivariable logistic regression analysis. CONCLUSIONS: The GNRI is a prognostic factor for short-term hospital mortality in older patients with sepsis. A GNRI below 87 can be suggested as an indicator of nutritional support need in an acute-care setting.
Further references on nutrition support articles and studies published in the last quarter


- Bjornsdottir R et al (2013) Validation of a plate diagram sheet for estimation of energy and protein intakes in hospitalized patients. Clinical Nutrition 32 (5):746-751. The aim of this study was to validate a plate diagram sheet for estimation of energy and protein intakes of patients by comparison with weighed food records.


- Bond P (2013) Sharing nutrition needs from care home to ward. Nursing Times 109 (39): 20. This article describes the development of a nutrition communication tool and how to embed the tool into clinical practice.

- Bouras E P et al (2013) Gastroparesis: from concepts to management. Nutrition in Clinical Practice 28 (4): 437-44. This article provides an overview of gut sensorimotor function to provide better understanding of the clinical presentation and management of patients with dyspepsia and those who may have accompanying delayed gastric emptying that meets criteria for gastroparesis.

- Burton A (2013) Water, water, everywhere and not a drop to drink? Nursing in Residential Care 15 (8): 530-537. This article provides guidance that can support care home staff and multidisciplinary teams to prevent, identify and treat dehydration.

- Chang S J and Huang H H (2013) Diarrhea in enterally fed patients: blame the diet? Current Opinion in Clinical Nutrition and Metabolic Care 16 (5): 588-594. The purpose of this review was to identify the factors leading to diarrhea during enteral nutrition and to provide the published updates on diarrhea prevention through nutritional intervention.


- Leistra E et al (2013) Validity of nutritional screening with MUST and SNAQ in hospital outpatients. European Journal of Clinical Nutrition 67 (7):738-742. The aim of this study was to determine the diagnostic accuracy of the MUST (Malnutrition Universal Screening Tool) and SNAQ (Short Nutritional Assessment Questionnaire) tools for undernutrition screening in hospital outpatients.

- Lenicke Krleza J (2013) Refeeding syndrome in children with different clinical aetiology. European Journal of Clinical Nutrition 67 (8):883-886. This article describes two cases of refeeding syndrome in children which developed without clinical symptoms and was shown only through laboratory findings.


- O'Connor E M (2013) The role of gut microbiota in nutritional status. Current Opinion in Clinical Nutrition and Metabolic Care 16 (5):509-516. The objective of this review was to outline the contribution of the gut microbiota to nutritional status and to highlight the mechanisms by which this can occur.

• Petrov M S and Windsor J A (2013) Nutritional management of acute pancreatitis: the concept of ‘gut rousing’. Current Opinion in Clinical Nutrition and Metabolic Care 16 (5): 557-563. The purpose of this article was to review the recent clinical studies of enteral nutrition in acute pancreatitis to revise the rationale and develop a contemporary conceptual framework for nutritional management of this disease.


• Rofes L et al (2013) Natural capsaicinoids improve swallow response in older patients with oropharyngeal dysphagia. Gut 62 (9):1280-1287. This study compared the therapeutic effect of stimulation of oropharyngeal transient receptor potential vanilloid type 1 (TRPV1) with that of thickeners in older patients with OD.


Notes
NEW from Fresenius Kabi

Survimed® OPD HN Tube Feed

Fresenius Kabi is delighted to announce the launch of Survimed® OPD HN, a new high energy peptide-based tube feed. Survimed® OPD HN offers the following key features to support your patients with maldigestion and malabsorption.

- High energy (1.33kcal/ml), high protein (6.7g per 100ml)
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If you require any further information about Survimed® OPD HN please contact your local Fresenius Kabi Territory Manager or call our Nutrition Service helpline on 01928 533516.

(*Dietary reference values for food, energy and nutrients for the United Kingdom, males aged 19-50 years, DH 1991, excluding electrolytes).

ENPlus connection system to EasyBag

Fresenius Kabi is launching the ENPlus port to the EasyBag feed presentation.

The new ENPlus system has been developed with patient safety in mind and is designed to avoid any risk of accidental misconnections between enteral nutrition and intravenous (IV) luer delivery systems.

ENPlus is the new industry developed standard for enteral connections and will be implemented by the majority of enteral nutrition manufacturers in the UK and Europe in 2013.

The ENPlus port is being introduced to all EasyBag presentations from March 2013. The connection system includes a purple plus shaped (+) port on the EasyBag:

This change does not affect the way in which the EasyBag is currently used; the Fresenius Kabi Applix® giving sets will connect with the ENPlus port, if you use another manufacturers giving sets an ENplus or slim spike adapter is available from your current supplier if required.

For any further information about ENPlus connection system on EasyBag, please contact your local Fresenius Kabi Territory Manager or call our Nutrition Service helpline on 01928 533516.
Let’s talk the REAL numbers

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