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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.

Please note that due to copyright law our ability to copy and distribute clinical papers is restricted.

This publication and previous editions are also available online at www.fresenius-kabi.co.uk under the nutrition service section.
Sustained benefits of a community dietetics intervention designed to improve oral nutritional supplement prescribing practices

S Kennelly, N P Kennedy, C A Corish, G Flanagan-Rughoobur, C Glennon-Slattery and S Sugrue

Abstract

BACKGROUND: Healthcare professionals working in the community do not always prescribe oral nutritional supplements (ONS) according to best practice guidelines for the management of malnutrition. The present study aimed to determine the impact of a community dietetics intervention on ONS prescribing practices and expenditure 1 year later. METHODS: The intervention involved general practitioners (GPs), practice nurses, nurses in local nursing homes and community nurses. It comprised an education programme together with the provision of a new community dietetics service. Changes in health care professionals’ nutrition care practices were determined by examining community dietetics records. ONS prescribing volume and expenditure on ONS were assessed using data from the Primary Care Reimbursement Service of the Irish Health Service Executive. RESULTS: Seven out of 10 principal GPs participated in the nutrition education programme. One year later, screening for malnutrition risk was better, dietary advice was provided more often, referral to the community dietetics service improved and ONS were prescribed for a greater proportion of patients at ‘high risk’ of malnutrition than before (88% versus 37%; P < 0.001). There was a trend towards fewer patients being prescribed ONS (18% reduction; P = 0.074) and there was no significant change in expenditure on ONS by participating GPs (3% reduction; P = 0.499), despite a 28% increase nationally by GPs on ONS. CONCLUSIONS: The community dietetics intervention improved ONS prescribing practices by GPs and nurses, in accordance with best practice guidelines, without increasing expenditure on ONS during the year after intervention.

Dietetic practice in refeeding syndrome

G Wagstaff

Abstract

BACKGROUND: The physiology and consequences of refeeding syndrome have long been recognised, although its management continues to be debated, despite the recommendations made by The National Institute for Health and Clinical Excellence (NICE) in their guideline ‘Nutrition Support in Adults’ (2006). The present study aims to assess current dietetic opinion and practice in this area, as well as whether the NICE recommendations have been adopted. METHODS: An anonymous, self-completed Internet survey was designed investigating current practice and opinions on the NICE (2006) guidance on this subject. A link to the questionnaire was distributed with a covering letter via e-mail to the heads of department of National Health Service Trusts in the London region, UK, requesting that it be disseminated to all dietitians working with adults. After the closing date, all responses were collated and analysed. RESULTS: The survey elicited a 30.8% response rate. Some 89.8% of respondents have read the NICE guidance on Nutrition Support in Adults (2006) and 66.9% have changed their practice regarding refeeding syndrome management as a result. Sixty-two percent do not wait for biochemistry to normalise before commencing nutrition. Ninety-two percent of respondents completed the mini case studies indicating that current practice is inconsistent among dietitians. Neither NICE criteria for recognising patients at risk of refeeding, nor the recommended starting rates are universally followed. Seventy-five percent continue to supplement electrolytes reactively. CONCLUSIONS: Although limited by a small sample size, the findings of the present study suggest that dietetic practice regarding refeeding syndrome management remains inconsistent with the recommendations made by NICE, although some aspects have been adopted.
The effect of low body mass index on outcome in critically ill surgical patients

R Gupta, D Knobel, V Gunabushanam, E Agaba, G Ritter, C Marini and R Barrera

Abstract

BACKGROUND: Body mass index (BMI) has been correlated with complications and outcome in surgical patients at the two extremes of the nutrition spectrum.

OBJECTIVE: To study the relationship between BMI, outcome, hospital length of stay, and complications in patients admitted to the surgical intensive care unit (SICU).

DESIGN: Review of prospectively acquired data in SICU patients. Data acquired included weight, height, age, gender, Acute Physiology and Chronic Health Evaluation (APACHE) II–III scores, Simplified Acute Physiology II (SAPS II) scores, and morbidity and mortality. Patients who stayed in the unit <24 hours were excluded.

RESULTS: Of 793 patients, 706 had a normal BMI (NBMI; mean 22.12 kg/m²) and 87 were underweight (UBMI; mean 16.81 kg/m²). There was no statistically significant difference in APACHE II–III and SAPS scores. The NBMI group had more infections, and the UBMI group had more pulmonary complications ($\chi^2$, $P < .0087$). There was no significant difference in acute respiratory distress syndrome, atrial fibrillation, myocardial infarction, sepsis, or ventilator-associated pneumonia (Fisher exact test, $P = 0.38$; $\chi^2$, $P = .41$). The ICU length of stay between the 2 groups was not significantly different (6.7 vs 5.8 days; $P = .64$). Overall, there was 11.1% (88/793) SICU mortality; 74 of 706 (10.5%) patients expired in the NBMI group, and 14 of 87 (16.1%) patients expired in the UBMI group.

CONCLUSIONS: Low BMI is associated with increased mortality in SICU patients. A BMI $<$18.5 kg/m² is an independent factor affecting outcome in surgical critical care patients.

Nutrition therapy of the severely obese, critically ill patient summation of conclusions and recommendations


Abstract

This report compiles the conclusions and recommendations for nutrition therapy of the obese, critically ill patient derived by the group of experts participating in this workshop on obesity in critical care nutrition. The recommendations are based on consensus opinions of the group after review of the current literature. Obesity clearly adds to the complexity of nutrition therapy in the intensive care unit (ICU). Obesity alters the incidence and severity of comorbidities, tolerance of the prescribed regimen, and ultimately patient outcome through the course of hospitalization. Although the basic principles of critical care nutrition apply to the obese ICU patient, a high-protein, hypocaloric regimen should be provided to reduce the fat mass, improve insulin sensitivity, and preserve lean body mass. The ideal enteral formula should have a low nonprotein calorie to nitrogen ratio and have a variety of pharmaconutrient agents added to modulate immune responses and reduce inflammation.
Changes in nutritional status in ICU patients receiving enteral tube feeding: A prospective descriptive study

H Kim and S Choi-Kwon
Intensive and Critical Care Nursing (2011) 27 (4): 194-201

Abstract

OBJECTIVES: This study aimed to assess the changes in nutritional status in Korean ICU patients receiving enteral feeding, and to understand the contribution of baseline nutritional status and energy intake to nutritional changes during the ICU stay. METHODS: This was a prospective study of nutritional changes in 48 ICU patients receiving enteral feeding for 7 days. The Subjective Global Assessment scale was used upon admission. In addition, anthropometric measures (triceps skinfold thickness, mid-arm circumference, mid-arm muscle circumference, body mass index and percent ideal body weight) and biochemical measures (albumin, prealbumin, transferrin, haemoglobin and total lymphocyte count) were evaluated twice, upon admission and 7 days after admission. RESULTS: Seventy-five percent of ICU patients were severely malnourished at admission. Although the nutritional status worsened in both the patients with suspected malnourishment and the patients with severe malnutrition at admission, the nutritional status worsened significantly more in the patients with severe malnutrition than in the patients with suspected malnourishment. Moreover, a number of nutritional measures significantly decreased more in underfed patients than in adequately fed patients. The most significant predicting factor for underfeeding was under-prescription. CONCLUSION: The ICU patients in our study were severely malnourished at admission, and their nutritional status worsened during their ICU stay even though enteral nutritional support was provided. The changes in nutritional status during the ICU stay were related to the patients' baseline nutritional status and underfeeding during their ICU stay. This study highlights an urgent need to provide adequate nutritional support for ICU patients.

Pathogenesis, investigation and dietary and medical management of gastroparesis

R Keld, L Kinsey, V Athwal and S Lal

Abstract

Delayed gastric emptying (gastroparesis) is associated with significant morbidity and, occasionally, mortality; clinicians therefore need a high index of suspicion to avoid missing the diagnosis. This review discusses the aetiology, diagnostic criteria and investigations pertinent to gastroparesis, and also critically reviews the evidence for nutritional and medical management strategies. Dietary manipulation plays a key role in management, and simple adjustment to meal routines and diets can lead to an improvement in symptoms, whereas alternative feeding routes play an important role in more severe cases. The role of pharmaceutical intervention is less clear; prokinetics and antiemetics are often prescribed; however, evidence for their efficacy is lacking, whereas gastric electric stimulation has an evolving role in the management of patients with symptoms refractory to medical therapies. The optimal treatment of gastroparesis would be to resolve symptoms and normalise gastric emptying times, and this may be achieved with future treatments that target the underlying pathology. For most patients with mild to moderate disease, dietary intervention plays a central role in the management of gastroparesis.
Nutrition support in acute kidney injury

J M Gervasio, W P. Garmon and M Holowatyj

Abstract

Acute kidney injury is a frequent complication affecting many hospitalized patients and is associated with increased morbidity and mortality. Acute kidney injury often occurs in conjunction with critical illness, which is a hypermetabolic state presenting with hyperglycemia, insulin resistance, hypertriglyceridemia, and increased protein catabolism. In addition to addressing these changes, the clinician should evaluate the important nutrition implications of decreased kidney function. These include vitamins, electrolytes, minerals, trace elements, and the presence and type of renal replacement therapy. Optimal nutrition management in acute kidney injury includes providing adequate macronutrient support to correct underlying conditions and prevent ongoing loss, supplementing micronutrients and vitamins during renal replacement therapy, and adjusting electrolyte replacement based on the degree and extent of renal dysfunction.

Jejunostomy after oesophagectomy: A review of evidence and current practice

G Couper

Abstract

Patients undergoing oesophagectomy often have nutritional needs at the time of diagnosis and in the post-operative period. The aim of this article is to review the current literature and report on the author’s experience of routine feeding jejunostomy insertion following oesophagectomy. The records of forty-eight consecutive patients undergoing oesophagectomy under the author’s care were reviewed. Although the evidence of benefit of peri-operative feeding in patients undergoing oesophagectomy is limited, there is a clear need to establish a feeding route at the time of surgery. Oesophagectomy is associated with a mortality rate of 5-10% and a morbidity rate of 30-40% even in high-volume specialist centres. Over 50% of patients developing complications will require an alternative to oral feeding beyond 30 d. The enteral route is preferred in terms of safety and cost. A surgical feeding jejunostomy is associated with a low complication rate and a mortality rate of less than 1%. In forty-eight patients undergoing oesophagectomy the average weight loss at 6 months was 8.4 kg with only 8% regaining their pre-operative weight. Large reductions in weight at 6 months post-operatively were recorded irrespective of the development of post-operative complications or early recurrent disease. Routine jejunostomy insertion is recommended to ensure adequate nutrition in patients who develop post-operative complications and for those patients with long-term reduced appetite and poor oral intake.
Gastrostomy tube feeding in adults: the risks, benefits and alternatives

S Cullen

Abstract
Enteral feeding (or ‘tube feeding’) is a very common inpatient intervention to maintain nutritional status where the oral route is inadequate, unsafe or inaccessible. A proportion of patients will need to continue tube feeding in the community after their admission and will require a gastrostomy tube. Although gastrostomy insertion is relatively straightforward, it is not without complications in an often frail and vulnerable group of patients and a multidisciplinary approach is necessary to ensure that the procedure is appropriate. Some patients are better managed with careful assisted hand feeding or nasogastric tubes. Particular care needs to be taken in deciding whether patients with dementia should have a gastrostomy in view of data suggesting that this group of patients have a particularly poor prognosis after the procedure. Decisions regarding the provision of enteral nutrition at the end of life or where patients are not competent to make an informed judgement are particularly challenging and need to be made on a case-by-case basis.

Safety of decanted enteral formula hung for 12 hours in a pediatric setting

B Lyman, S Gebhards, C Hensley, C Roberts and W San Pablo

Abstract
BACKGROUND: Enteral nutrition has been an accepted mode of pediatric care for more than 40 years. Early reports in the literature documented high levels of bacterial contamination in enteral formulas delivered to patients. Safety standards for formula administration have not been universally followed. Evidence demonstrates that increased manipulation of the delivery system contributes to bacterial contamination. METHODS: A prospective, descriptive study was conducted with 30 pediatric patients. They received continuous enteral feedings using decanted formula over a minimum hang time of 12 hours. Formula was delivered according to current practice recommendations. Cultures were obtained and sent to the laboratory initially and every 4 hours. RESULTS: Cultures from 30 patients (average age 6.4 years) were obtained at baseline, 4, 8, and 12 hours. Nasogastric, nasojejunal, gastrostomy, or gastrojejunostomy feeding tubes were used. Formulas administered were polymeric and peptide based. Of the 119 cultures obtained, 8 were either collected improperly or revealed a contaminant. Of the 111 useable cultures, 100 showed no growth, 6 had growth below the Food and Drug Administration threshold for contamination (95% acceptable), and 5 (5%) in 2 patients were considered positive, with all cultures growing coliforms. No patient had any clinical signs of bacterial gastroenteritis (increased stool output, fever, or clinical deterioration) over the 48 hours after data collection. CONCLUSION: Decanted enteral formula administered continuously over 12 hours in a pediatric hospital setting has a lower than expected rate of bacterial growth when recommended handling practices are followed.
Are diagnostic criteria for acute malnutrition affected by hydration status in hospitalized children? A repeated measures study

M K Mwangome, G Fegan, A M Prentice and J A Berkley

Abstract
Dehydration and malnutrition commonly occur together among ill children in developing countries. Dehydration (change in total body water) is known to alter weight. Although muscle tissue has high water content, it is not known whether mid-upper arm circumference (MUAC) may be altered by changes in tissue hydration. We aimed to determine whether rehydration alters MUAC, MUAC Z score (MUACz), weight-for-length Z-score (WFLz) and classification of nutritional status among hospitalised Kenyan children admitted with signs of dehydration.

STUDY PROCEDURE: We enrolled children aged from 3 months to 5 years admitted to a rural Kenyan district hospital with clinical signs compatible with dehydration, and without kwashiorkor. Anthropometric measurements were taken at admission and repeated after 48 hours of treatment, which included rehydration by WHO protocols. Changes in weight observed during this period were considered to be due to changes in hydration status.

RESULTS: Among 325 children (median age 11 months) the median weight gain (rehydration) after 48 hours was 0.21 kg, (an increase of 2.9% of admission body weight). Each 1% change in weight was associated with a 0.40 mm (95% CI: 0.30 to 0.44 mm, p < 0.001) change in MUAC, 0.035z (95% CI: 0.027 to 0.043z, P < 0.001) change in MUACz score and 0.115z (95% CI: 0.114 to 0.116 z, p < 0.001) change in WFLz. Among children aged 6 months or more with signs of dehydration at admission who were classified as having severe acute malnutrition (SAM) at admission by WFLz <3 or MUAC <115 mm, 21% and 19% of children respectively were above these cut offs after 48 hours.

CONCLUSION: MUAC is less affected by dehydration than WFLz and is therefore more suitable for nutritional assessment of ill children. However, both WFLz and MUAC misclassify SAM among dehydrated children. Nutritional status should be re-evaluated following rehydration, and management adjusted accordingly.

Performance of the novel Paediatric Yorkhill Malnutrition Score (PYMS) in hospital practice

K Gerasimidis, I Macleod, A Maclean, E Buchanan, P McGrogan, I Swinbank, M McAuley, C M Wright and D M Flynn

Abstract
BACKGROUND & AIMS: Nutritional screening in paediatric inpatients is important. However, there is a lack of validated screening tools for this population. In this study the development of a nurse administered paediatric malnutrition screening tool is described and its performance evaluated.

METHODS: The Paediatric Yorkhill Malnutrition Score (PYMS) rate BMI, weight loss, dietary intake and predicted effect of the current condition on nutritional status, with a score of 0-2 for each element. Patients with total score of 2 or more are referred for dietetic review. A four month pilot phase was conducted in three medical and one surgical wards of a tertiary hospital and the general paediatric ward of a district general hospital. Performance of the tool was assessed by auditing completion rates, yield, impact on dietetic workload, and by evaluating dietitians’ feedback.

RESULTS: 1571 patients (72% of admissions) were screened of whom 158 (10%) scored at high risk. Non-screened children were younger and had a shorter length of hospital stay. Of the 125 patients who scored at high risk, between the 2nd and 4th month of the pilot, 66 (53%) were assessed by a dietitian of whom 86% were judged to be at true risk of malnutrition and 50% of these were new to the dietetic service. Dietetic workload did not increase significantly during the pilot phase although the proportion of referrals from the acute receiving wards increased. Dietitians’ feedback was positive, with recognition that PYMS identified patients at risk of malnutrition who may not have otherwise been referred. CONCLUSIONS: Nutrition screening by nurses using the new PYMS score is feasible for paediatric inpatients, identifies children at risk of malnutrition and uses available resources efficiently.
Measuring body composition and energy expenditure in children with severe neurologic impairment and intellectual disability

R Rieken, J B van Goudoever, H Schierbeek, S P Willemsen, E A C Calis, D Tibboel, H M Evenhuis and C Penning

Abstract

BACKGROUND: Accurate prediction equations for estimating body composition and total energy expenditure (TEE) in children with severe neurologic impairment and intellectual disability are currently lacking. OBJECTIVE: The objective was to develop group-specific equations to predict body composition by using skinfold-thickness measurements and bioelectrical impedance analysis (BIA) and to predict TEE by using data on mobility, epilepsy, and muscle tone. DESIGN: Measures of body composition with the use of skinfold-thickness measurements (percentage of body fat) and BIA (total body water) were compared with those from isotope dilution (reference method) by using intraclass correlation coefficients (ICCs) and Bland and Altman limits of agreement analyses. With the use of the same methods, the outcomes of cerebral palsy–specific TEE equations were compared with those of the doubly labeled water method (reference method). Group-specific regression equations were developed by using forward-stepwise-multiple-correlation-regression analyses. RESULTS: Sixty-one children with a mean (±SD) age of 10.1 ± 4.3 y (32 boys) were studied. A new equation based on the sum of 4 skinfold-thickness measurements did not improve agreement (n = 49; ICC = 0.61), whereas the newly developed BIA equation—which includes tibia length as an alternative for standing height—did improve agreement (n = 61; ICC = 0.96, SEE = 1.7 kg, R² = 0.92). The newly developed TEE equation, which uses body composition, performed better (n = 52; ICC = 0.87, SEE = 180 kcal, R² = 0.77) than did the equation of Schofield (n = 52; ICC = 0.82, SEE = 207 kcal, R² = 0.69). CONCLUSIONS: Current cerebral palsy-specific equations for measuring body composition and energy expenditure are inaccurate. BIA is more accurate at assessing nutritional status in this population than is the measurement of skinfold thickness. The newly developed TEE equation, which uses body composition, provides a reasonable estimate of energy expenditure in these children despite its variability.

The aetiology and impact of malnutrition in paediatric inflammatory bowel disease

K Gerasimidis, P McGrogan and C A Edwards

Abstract

Disease-associated undernutrition of all types is very common in paediatric inflammatory bowel disease (IBD). Recent weight loss remains one of the triad of clinical manifestations and a cornerstone for the diagnosis of Crohn's disease (CD), although significantly fewer patients now present as being underweight. Recent evidence suggests that the introduction of medical treatment will quickly restore body weight, although this does not reflect concomitant changes in body composition. CD children present with features of nutritional cachexia with normal fat stores but depleted lean mass. Poor bone health, delayed puberty and growth failure are additional features that further complicate clinical management. Suboptimal nutritional intake is a main determinant of undernutrition, although activation of the immune system and secretion of pro-inflammatory cytokines exert additional independent effects. Biochemically low concentrations of plasma micronutrients are commonly reported in IBD patients, although their interpretation is difficult in the presence of an acute phase response and other indices of body stores adequacy are needed. Anaemia is a common extraintestinal manifestation of the IBD child. Iron-deficient anaemia is the predominant type, with anaemia of chronic disease second. Decreased dietary intake, as a result of decreased appetite and food aversion, is the major cause of undernutrition in paediatric IBD. Altered energy and nutrient requirements, malabsorption and increased gastrointestinal losses are additional factors, although their contribution to undernutrition in paediatric CD needs to be studied further.
Nutrition in Inflammatory Bowel Disease

A Forbes, E Goldesgeyme and E Paulon

Abstract

The diet of industrialized nations may contribute to the pathogenesis of both ulcerative colitis (UC) and Crohn disease (CD). Malnutrition is relatively unusual in UC, but in CD, which often affects the small intestine, it is frequent and may be severe. Nutrition support is therefore frequently indicated. First principles of artificial nutrition can be applied effectively using the gut whenever possible. Parenteral nutrition is generally required only in those with short bowel syndrome. An increasing literature (especially in pediatrics) favors the use of defined exclusive enteral nutrition (EN) in the primary treatment of active CD. Controlled trials are, however, lacking, and recommendations are accordingly not of the highest rank. It appears that in this context, simple polymeric regimens are usually sufficient, and there is currently insufficient evidence to make a strong recommendation for disease-specific feeds. In the maintenance of remission in CD, controlled data demonstrate that defined EN reduces the risk of relapse requiring steroid treatment. There are no data in support of primary nutrition therapy in UC either in management of the acute flare or in maintenance. In conclusion, nutrition therapy in adults with inflammatory bowel disease is probably both undervalued and underused, but the evidence base needs to be strengthened to confirm its efficacy, determine better those patients most likely to benefit, and optimize the regimens to be employed.

Dietary and nutritional considerations for inflammatory bowel disease

M C E Lomer

Abstract

Nutritional assessment and dietary advice are fundamental to inflammatory bowel disease (IBD) patient management and all patients should have access to a dietitian. Newly diagnosed patients often think that their pre-illness diet has contributed to the development of their IBD. However, epidemiological evidence to support diet as a risk factor is lacking. How the diet contributes to the gastrointestinal microbiota is interesting, although the role is not yet clearly defined. Nutritional problems in IBD are common. Malnutrition occurs in up to 85% of patients and weight loss affects up to 80% of patients with Crohn’s disease and 18-62% of patients with ulcerative colitis. Nutritional deficiencies are prevalent, particularly in relation to anaemia and osteoporosis. Intestinal strictures can be problematic in Crohn’s disease and limiting fibrous foods that may cause a mechanical obstruction in the gastrointestinal tract is helpful. Patients often explore dietary exclusion to alleviate symptoms but such changes may be self-directed or inappropriately advised and can lead to further nutritional deficiencies. Some patients experience concurrent functional symptoms (e.g. abdominal bloating, abdominal pain, flatulence and diarrhoea) that can significantly affect quality of life. Recently, a group of poorly absorbed carbohydrates that occur naturally in the diet called fermentable oligo-, di-, mono-saccharides and polyols have been associated with functional symptoms by intestinal bacterial fermentation leading to rapid gas production, and an osmotic effect increasing fluid delivery to the colon. Emerging evidence indicates that a diet low in fermentable oligo-, di-, mono-saccharides and polyols can alleviate functional symptoms in IBD.
A qualitative analysis of the nutritional requirements of palliative care patients

C I Muir and G T Linklater

Abstract

BACKGROUND: The National Health Service (NHS) Quality Improvement Scotland developed nutritional Clinical Standards to address the problem of malnutrition in hospitals. NHS palliative care units are obliged to incorporate these standards into nutritional aspects of care. The nutritional needs of this patient population are under-researched. The present study aimed to explore patients’ views of nutrition, to begin to understand their concerns and to determine whether such standards meet the needs of patients in the palliative care setting. METHODS: A qualitative study was conducted in 2009 in an NHS Palliative Care Unit. Six inpatients were involved in one-to-one interviews, which were audiotaped and transcribed verbatim. The transcripts were subject to qualitative data analysis in accordance with a previous framework. RESULTS: A recurring theme that emerged was that of change and uncertainty. Four main areas subject to change were: disease state, symptoms, oral dietary intake and weight. Each change could exert control over, or be controlled by, the patient. When patients were eventually unable to exert control, they accepted the change, either willingly or enforced, thereby unintentionally setting their own targets. CONCLUSIONS: The present study enables a deeper understanding of the concerns that palliative care patients have regarding their oral dietary intake and weight. Their ‘malnutrition’ not only refers to physical malnutrition alone, but also incorporates psychological and social ‘malnutrition’. When applying standards or protocols regarding nutritional care, these wider issues must be taken into account to meet patients’ nutritional needs.

Potential applications of fish oils rich in n-3 fatty acids in the palliative treatment of advanced pancreatic cancer

A Arshad, D Al-Leswas, J Stephenson, M Metcalfe and A Dennison

Abstract

The palliative treatment of patients with advanced pancreatic cancer (APC) has undergone little advancement in the last 15 years. Novel therapies that have been investigated to extend survival have shown little benefit over existing chemotherapy regimens. Patients with APC often experience significant weight loss, which is one of the primary factors involved in declining quality of life. Recently, the ability of n-3 fatty acid rich oral preparations to attenuate or reverse tumour-related weight loss has been investigated in this patient group with encouraging results. Laboratory investigation has also yielded promising results suggesting a potential direct tumouricidal effect of n-3 fatty acids as well as the putative potentiation of existing chemotherapy regimes. The present review aims to examine the potential applications of fish oils rich in n-3 fatty acids in patients with APC, present a selection of the studies carried out to date and outline avenues of possible further clinical investigation.
Different experiences and perspectives between head and neck cancer patients and their care-givers on their daily impact of a gastrostomy tube

K M Mayre-Chilton, B P Talwar and L M Goff

Abstract

BACKGROUND: Gastrostomy feeding in head and neck cancer patients is recognised standard practice in some cancer centres with beneficial effects on outcomes for appropriately selected patients. However, the impact on patients and care-givers needs consideration. The present study aimed to understand the daily impact of gastrostomy feeding on head and neck cancer patients and their care-givers to identify improvements to services. METHODS: Twenty-one adult patients were randomly selected from the Head and Neck centre at University College London Hospital. Six head and neck cancer patients and three care-givers participated in focus groups. The sessions were recorded, fully transcribed and qualitatively thematically analysed, and the resulting data were tabulated. RESULTS: Patients and care-givers expressed opposite experiences within knowledge and understanding of why the tube was necessary; their personal perceptions and objectives of nutritional support. Themes expressing similar experiences included: developing positive coping strategies; preventing nutritional decline; tube dependency; dentures; finance; active care; and psychological support. Furthermore, both groups expressed the benefits of retaining a support network for rehabilitation with the hospital-based specialist team. Also patients and carers recognised that the gastrostomy tube helped patient survival and, with timely dietetic management, helped them wean off the tube reliance with more confidence. CONCLUSIONS: It is essential that patients and care-givers attend pretreatment clinics to discuss nutritional support via the artificial route; their quality of life can be enhanced if guided through a specialist support pathway based at the clinical site where they initiated their care, with links to key agencies.

Estimating energy needs in nutrition support patients

D C Frankenfield and C M Ashcraft

Abstract

Determination of energy needs is a fundamental part of nutrition support. The amount of metabolically active tissue mass is the major determinant of metabolic rate. The other components of total energy requirement in an adult are physical activity, diet-induced thermogenesis, and illness hypermetabolism. Measurement with indirect calorimetry is possible but not common. Measurement can capture the effect of body size, diet-induced thermogenesis, and illness on metabolic rate but usually not the effect of physical activity. More often, the energy need is calculated based on its association with body weight and composition. Many equations have been proposed over the years, as have adjustments to body weight in an attempt to capture the distorting effect of body composition in obesity and emaciation. Some equations capture the effects of illness and diet-induced thermogenesis without the need for modification; some require multiplication with various factors. None predict the energy expenditure from physical activity. In determining the energy prescription, all of the component parts must be considered, regardless of whether energy expenditure is measured or calculated.
Dietary intake, nutritional status and rehabilitation outcomes of stroke patients in hospital

W F R Nip, L Perry, S McLaren and A Mackenzie


Abstract

**BACKGROUND:** Nutrition affects rehabilitation through its influence on physical and mental functioning, although little attention has been paid to effects on rehabilitation outcomes. The present study aimed to describe nutritional status and food consumption in stroke patients within 2 weeks of hospital admission and before discharge, as well as to investigate the effects of nutritional and dietary factors on rehabilitation outcomes. **METHODS:** One hundred patients from a consecutive cohort admitted to a metropolitan hospital with acute stroke were recruited and assessed by a single researcher, with 38 reassessed at discharge. Nutritional status was assessed using Mini-Nutritional Assessment and anthropometric indices and dietary intake was assessed by 1-day weighed dietary records. Rehabilitation outcomes were changes in Barthel index scores and the rehabilitation efficiency index.

**RESULTS:** Few (n = 9; 10%) consumed ≥100% of the estimated average requirement (EAR) for energy within 2 weeks of admission and 13 (33%) had energy intakes <50% of EAR before discharge. A small but increasing proportion (7% at admission, 13% at discharge) were identified as being malnourished across the inpatient stay. Younger age, lower Barthel index and a higher energy intake in the early stages of admission predicted the extent and rate of restoration of functional abilities by discharge (F = 7.503, P = 0.001; F = 14.558, P < 0.001).

**CONCLUSIONS:** Given a general finding of nutritional deterioration identified for these patients, as well as the identification of energy intake as a modifiable influence on the extent and rate of recovery, there is clearly scope for the multidisciplinary development of nutritional support for stroke patients to improve rehabilitation outcomes.

Predictors for achieving protein and energy requirements in undernourished hospital patients

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Abstract

**BACKGROUND & AIMS:** Providing sufficient protein an energy is considered crucial in the treatment of undernutrition. Still, the majority of undernourished hospital patients have a suboptimal protein and energy intake. The aim of this study was to investigate predictors for achieving protein and energy requirements on the fourth day of admission in undernourished hospitalized patients. **METHODS:** 830 adult undernourished patients (SNAQ ≥ 3) were retrospectively included. Intake requirements were defined as ≥1.2 g protein per kg bodyweight and ≥100% of the energy requirement based on calculated resting energy expenditure according to Harris & Benedict + 30%. Logistic regression analyses were performed to investigate predictors for achieving the requirements. **RESULTS:** Protein and energy intake had been recorded for 610 patients, of whom 25.6% had sufficient protein and energy intake. Protein requirements were less commonly met than energy requirements. Complete case analyses (n = 575) showed that negative predictors for achieving the protein and energy requirements were: nausea (OR = 0.18; 95%CI = 0.06–0.53), cancer (0.57; 0.35–0.93), acute infections (0.63; 0.37-1.01) and higher BMI (0.84; 0.79–0.89). Positive predictors were: a higher age (1.01; 1.00–1.03), chronic lung disease (3.76; 2.33–6.07) and receiving tube feeding (3.89; 1.56–9.73). **CONCLUSION:** Only one in four undernourished hospital patients meets the predefined protein and energy requirements on the fourth day of admission. Nausea, cancer, acute infections, BMI, age, chronic lung disease and tube feeding were identified as predictors for achieving protein and energy intake.
Impact of protected mealtimes on ward mealtime environment, patient experience and nutrient intake in hospitalised patients

M Hickson, A Connolly and K Whelan

Abstract

BACKGROUND: Malnutrition is a common problem in hospitalised inpatients, resulting in a range of negative clinical, patient-centred and economic sequelae. Protected mealtimes (PM) aim to enhance the quality of the mealtime experience and maximise nutrient intake in hospitalised patients. The present study aimed to measure mealtime environment, patient experience and nutrient intake before and after the implementation of PM. METHODS: PM were implemented in a large teaching hospital through a range of different approaches. Direct observations were used to assess ward-level mealtime environment (e.g. dining room use, removal of distractions) (40 versus 34 wards) and individual patient experience (e.g. assistance with eating, visitors present) (253 versus 237 patients), and nutrient intake was assessed with a weighed food intake at lunch (39 versus 60 patients) at baseline and after the implementation of PM, respectively. RESULTS: Mealtime experience showed improvements in three objectives: more patients were monitored using food/fluid charts (32% versus 43%, P = 0.02), more were offered the opportunity to wash hands (30% versus 40%, P = 0.03) and more were served meals at uncluttered tables (54% versus 64%, P = 0.04). There was no difference in the number of patients experiencing mealtime interruptions (32% versus 25%, P = 0.14). There was no difference in energy intake (1088 versus 837 kJ, P = 0.25) and a decrease in protein intake (14.0 versus 7.5 g, P = 0.04) after PM. CONCLUSIONS: Only minor improvements in mealtime experience were made after the implementation of PM and so it is not unexpected that macronutrient intake did not improve. The implementation of PM needs to be evaluated to ensure improvements in mealtime experience are made such that measurable improvements in nutritional and clinical outcomes ensue.

Effectiveness of multidisciplinary nutritional care on nutritional intake, nutritional status and quality of life in patients with hip fractures: A controlled prospective cohort study

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Abstract

BACKGROUND & AIMS: The purpose of this study was to determine the effectiveness of a multidisciplinary intervention program on nutritional intake and of nutritional intake on nutritional status and quality of life in older patients treated for a hip fracture. METHODS: A controlled prospective cohort study included 66 patients in the control group and 61 patients in the intervention group, aged over 65 and sustaining a hip fracture with subsequent operative intervention. Postoperatively, the control group received standard nutritional care and the intervention group multidisciplinary nutritional care that focused on nutritional support during hospitalisation and a transfer of nutritional care after discharge. Nutrient intakes were monitored with food records. Nutritional status was determined by the Mini Nutritional Assessment (MNA), and bioelectrical impedance analysis was used to assess body cell mass (BCM). The EuroQol (EQ-5D) was used to assess quality of life. Patients were evaluated at admission and three months postoperatively. RESULTS: There was a significant difference in the daily energy intake of patients between both groups during the first seven days postoperatively: 1127 kcal (±309) in the control group and 1292 kcal (±280) (P = 0.002) in the intervention group. Mean protein intake in the intervention group (57 g (±12)) was significantly higher than in the control group (48 g (±14), P = 0.000). The intervention group demonstrated a significantly lower reduction of EQ-5D index scores compared with the control group (P = 0.004) after three months. At three months, significantly fewer patients in the intervention group were classified as malnourished or at risk of malnutrition. CONCLUSIONS: Among elderly patients with a hip fracture, a multidisciplinary postoperative approach of nutritional care was associated with an increase of energy and protein intake during hospitalisation. After three months follow-up there were fewer malnourished patients in the intervention group, and the decline in quality of life was lower than in the control group. There were no advantages of multidisciplinary nutritional care on body cell mass.
Undernutrition may be an important modifiable risk factor for poor clinical outcomes in older individuals. To achieve earlier detection or prevention of undernutrition, more information is needed about risk factors for the development of undernutrition in community-dwelling older individuals. The objective was to identify early determinants of incident undernutrition in a prospective population-based study. Baseline data (1992–3) on socio-economic, psychological, medical, functional, lifestyle and social factors of 1120 participants aged 65–85 years of the Longitudinal Aging Study Amsterdam were used. Undernutrition, defined as a BMI < 20 kg/m² or self-reported involuntary weight loss ≥ 5% in the last 6 months, was assessed every 3 years during a 9-year follow-up period. Cox proportional-hazards regression analysis was used to investigate the association between early determinants at baseline and incident undernutrition. In 9 years, 156 participants (13.9%) developed undernutrition. In univariate analyses, female sex, depressive symptoms, anxiety symptoms, multiple chronic diseases, high medication use (women), poor appetite, no alcohol use v. light alcohol use, loneliness, not having a partner, limitations in performing normal activities due to a health problem, low physical performance (participants aged < 75 years) and reporting difficulties walking stairs (participants aged < 75 years) were statistically significantly associated with incident undernutrition. In a multivariate model, poor appetite and reporting difficulties walking stairs (participants aged < 75 years) remained early determinants. The results of the present study can be used to identify subgroups of older individuals with increased risk of undernutrition and to identify modifiable determinants for the purpose of prevention of undernutrition.
Further references on nutrition support articles and studies published in the last quarter:

- Baic S (2011) How to provide nutritional snacks for your residents. Nursing & Residential Care 13(7): 324 - 328. This article details why snacking is increasingly important to dietary intake with age and gives practical advice about nutritionally optimizing snacking.

- Wilson N (2011). Is nasogastric feeding an option in nursing homes? Nursing & Residential Care 13(8): 374 - 377. This paper considers the high prevalence of malnutrition among residents in nursing homes and discusses when nasogastric feeding might be an option in nutritional care.

- Shepherd A (2011). Practical care: feeding and assisting residents to eat. Nursing & Residential Care 13(10): 487 - 489. This article explains practical methods to provide the best possible assistance with eating in elderly residents.


- Sherman A R and Barkley M (2011) Nutrition and wound healing. Journal of Wound Care 20(8): 357 - 367. This paper discusses the metabolic and cellular pathways crucial to wound healing and identify appropriate nutritional interventions and clinical applications.

- Maursetter L et al (2011) Review of the mechanism and nutrition recommendations for patients undergoing continuous renal replacement therapy. Nutrition in Clinical Practice 26(4): 382-390. This review aims to provide an overview of continuous renal replacement therapy as well as address some of the nutrition concerns surrounding the complex group of patients who receive it.

- Sultan M I et al (2011) Role of nutrition in pediatric chronic liver disease. nutrition in clinical practice 26(4): 401-408. This review addresses the causes of malnutrition, methods used to assess nutrition status, and appropriate treatment strategies in pediatric patients with chronic liver disease.

- Holmes S (2011) Nutrition in the care of patients with cancer cachexia. British Journal of Community Nursing 16(7): 314 - 323. This article provides an overview of cachexia and its pathophysiology and the factors contributing to its development before considering its impact on individuals. Emphasis is placed on the nutritional aspects of its management.

- Mitchell M (2011) Elderly still hungry to be heard: a nutrition update from Age UK. British Journal of Community Nursing 16(7): 347. This paper provides an update on Age UK’s work to tackle malnutrition in hospitals.


- Hamling H (2011) The management of nausea and vomiting in advanced cancer. International Journal of Palliative Nursing 17(7): 321-327. This article offers an overview of the physiology of the emetogenic pathways, the pathophysiology of common aetiologies, the clinical assessment required and tools available, and the pharmacological and non-pharmacological management of these symptoms.


- Kratzing C (2011) Pre-operative nutrition and carbohydrate loading. Proceedings of the Nutrition Society 70(3): 311-315. This paper considers the metabolic and immune response to surgery and discusses the role of pre-operative carbohydrate loading and post-operative immune-enhancing nutrition in providing successful operative outcomes.


- Dickerson R N and Drover J W (2011) Monitoring nutrition therapy in the critically ill patient with obesity. Journal of Parenteral and Enteral Nutrition 35(5): 445-515. This paper considers how obesity compounds the metabolic response to critical illness discussing the importance of effective monitoring and its importance in guiding the clinician toward the selection of appropriate therapeutic options to reduce complications.

