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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
- Clinical Nutrition
- Complete Nutrition
- Critical Care Medicine
- Current Opinion in Clinical Nutrition and Metabolic Care
- European Journal of Clinical Nutrition
- Gastrointestinal Nursing
- GUT
- 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 Woundcare
- Lancet
- Nutrition
- Nutrition in Clinical Practice
- Nursing and Residential Care
- Nursing Older People
- Nurse Prescribing
- Nursing Standard
- Nursing Times
- Paediatric Nursing

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

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ESPEN Guidelines on Enteral Nutrition


Abstract

Summary: The European Society for Clinical Nutrition and Metabolism (Espen) has decided to publish evidence-based guidelines on enteral nutrition to evaluate the benefits and risks of enteral nutrition in a predefined reproducible way. There are 10 chapters where the role of enteral nutrition has been evaluated. Ethical and methodological aspects of enteral nutrition are dealt with in separate chapters. These guidelines form a consensus among a group of experts in clinical nutrition but also in their individual specialties to which nutritional support is applied. In establishing the guidelines the consensus group followed the internationally accepted recommendations of the Scottish Intercollegiate Guidelines Network (SIGN). The guidelines provide evidence-based information about specific problems like timing, dosing, composition and route of application. They also show where additional studies are needed and under which conditions limitation or withdrawal of nutritional support like other therapies might be adequate.

The topics covered:

- Evidence supports nutritional support
- Methodology for the development of the ESPEN Guidelines on Enteral Nutrition
- Introductory to the ESPEN Guidelines on Enteral Nutrition: Terminology, Definitions and General Topics
- Managing the Patient Journey through Enteral Nutritional Care
- Ethical and Legal Aspects of Enteral Nutrition
- Cardiology and Pulmonology
- Gastroenterology
- Geriatrics
- Liver disease
- Wasting in HIV and other chronic infectious diseases
- Intensive care
- Non-surgical oncology
- Pancreas
- Adult Renal Failure
- Surgery including Organ Transplantation

Full versions of the guidelines are available at www.espen.org

Enteral feeding in inflammatory bowel disease

A M Griffiths


Abstract

Purpose of review: Treatment algorithms for inflammatory bowel disease are changing rapidly. Increased and earlier use of immunomodulatory drugs and availability of biologic agents have reduced dependence on corticosteroids and made mucosal healing a realistic goal. It is timely to debate the role of enteral nutrition in this evolving therapeutic armamentarium for Crohn's disease, and to examine the mechanisms of its anti-inflammatory effects in light of current understanding of disease pathogenesis. Recent findings: Clinical studies have suggested that response to enteral nutrition is associated with decreased mucosal inflammation in Crohn's disease, that isolated Crohn's colitis is less responsive and that exclusive enteral nutrition is required. Basic research has demonstrated that lipids in the intestinal lumen can alter signaling of the mucosal immune system by intestinal epithelial cells. Exclusive enteral nutrition is associated with alteration of enteric microflora. Summary: Enteral nutrition is an efficacious treatment of active inflammation involving the ileum; recent-onset disease may be particularly responsive. The significance of effects on enteric flora deserves further exploration in view of the importance of microbes to disease pathogenesis.
Post-oesophagectomy early enteral nutrition via a needle catheter jejunostomy: 8-year experience at a specialist unit

A M Ryan, S P Rowley, L A Healy, P M Flood, N Ravi and J V Reynolds

Abstract

Background & Aims: The purpose of this study was to prospectively evaluate post-operative jejunostomy feeding in terms of nutritional, biochemical, gastrointestinal and mechanical complications in patients undergoing upper gastrointestinal surgery for oesophageal malignancy. Methods: The study included 205 consecutive patients who underwent oesophagectomy for malignancy. All patients had a needle catheter jejunostomy (NCJ) inserted at the conclusion of laparotomy. Patients were followed prospectively to record nutritional intake, type of feed administered, rate progression, tolerance, weight changes and complications either mechanical, biochemical or gastrointestinal. Results: Ninety-two per cent of patients were successfully fed exclusively by NCJ post-oesophagectomy, and 94% of patients were tolerating a maintenance regimen of 2000ml feed over 20h by day 2 post-operatively. Patients spent a median of 15 days on jejunostomy feeding post-surgery (range 2-112 days); however, 26% required prolonged jejunostomy feeding (>20 days). Minor gastrointestinal complications were effectively managed by slowing the rate of infusion, or administering medication. Three (1.4%) serious complications of jejunostomy feeding occurred, all requiring re-laparotomy, one resulting in death. NCJ feeding was extremely effective in preventing severe post-operative weight loss in the majority of oesophagectomy patients post-op. However, oral intake was generally poor at discharge with only 65% of requirements being met orally. Sixteen patients (8%) patients required home jejunostomy feeding. By the first post-operative month, a further 6% (12) patients were recommenced on jejunostomy feeding. Conclusion: NCJ feeding is an effective method of providing nutritional support post-oesophagectomy, and allows home support for the subset that fail to thrive. Serious complications, most usually intestinal ischaemia or intractable diarrhoea, are rare.

Examining the Role of Tube Feeding After Liver Transplantation

J M Hasse

Abstract

The rates of morbidity and mortality after liver transplantation are related to the degree of malnutrition. Because malnutrition is prevalent among liver transplant recipients, nutrition care practitioners must be aggressive in providing nutrition support to these patients in the perioperative period. Postoperative tube feeding (TF) has been studied for its role in improving short-term post transplant outcomes. This paper evaluates published research that studied postoperative TF in liver transplant recipients; the methodology and outcomes are reviewed and drawbacks of these studies are considered. Case studies of liver transplant patients who received postoperative TF illustrate the variability of patient profiles and post transplant complications that influence the provision and duration of post transplant TF.
Is Tube Feeding an Option in Patients With Liver Disease?

J S Crippin


Abstract
Tube feeding in patients with liver disease is often approached with trepidation because of fears of bleeding with tube placement due to the presence of esophageal varices or coagulopathy. However, the amount of published data supporting these fears is limited. This manuscript examines the issues surrounding tube feedings in patients with liver disease.

Nutrition in Alcoholic Liver Disease

S R DiCecco and N Francisco-Ziller


Abstract
Liver disease secondary to alcohol ranges from alcoholic fatty liver disease to acute hepatitis to cirrhotic liver disease. It is imperative that alcohol be discontinued to allow for any potential improvement in liver function, with most benefit being seen in the early stages of the disease. Alcoholic liver disease has a profound effect on nutrient intake, nutrition status, and metabolism, contributing to a high prevalence of malnutrition in this population. Early intervention with nutrition therapy may improve response to treatment, alleviate symptoms, and improve quality and quantity of life. In this review, nutrition assessment parameters and medical nutrition therapy goals for alcoholic liver disease are discussed.
Structural and functional affection of the heart in protein energy malnutrition patients on admission and after nutritional recovery

H L El-Sayed, M F Nassar, N M Habib, O A Elmasry and S M Gomaa

Abstract

Background and objectives: The pathogenesis of different malnutrition diseases was suggested to affect the heart. This study was designed to detect cardiac affection in protein energy malnutrition (PEM) patients, whether clinically or by electrocardiogram (ECG) and echocardiogram, and to assess the value of the cardiac marker troponin I in patients at risk of myocardial injury with special emphasis on the effect of nutritional rehabilitation. Patients and methods: The present study was carried out on 30 PEM infants (16 nonedematous - 14 edematous) and 10 apparently healthy age and sex-matched infants acting as the control group. All studied infants were subjected to full history taking laying stress on dietetic history, thorough clinical and anthropometric measurements. Echocardiography and ECG were also performed. Laboratory investigations were performed including complete blood count, CRP, total proteins, albumin, liver and kidney functions as well as estimation of troponin-I in blood by immulite. Following initial evaluation, all malnourished infants were subjected to nutritional rehabilitation program for approximately 8 weeks, after which the patients were re-evaluated using the same preinterventional parameters. Results: The results of the present study demonstrated that electrical properties of myocardium assessed by ECG showed significant decrease of R wave and QTc interval in patients compared to controls with significant improvement after nutritional rehabilitation. Echocardiographic changes showed that cardiac mass index was significantly lower in both groups of malnourished cases compared to the controls with significant increase after nutritional rehabilitation. The study showed that the parameters of left ventricular (LV) systolic function which are the ejection fraction, fractional shortening and velocity of circumferential fiber shortening were not significantly reduced in patients compared to the controls. The diastolic function also showed no significant difference in the E wave/A wave (e/a) ratio between patients and controls. However, the systolic time interval showed significantly higher LV pre-ejection index in patients in comparison to controls. Edematous and nonedematous cases did not show any significant differences in ECG and echocardiographic data before or after nutritional rehabilitation. The hearts of two severely affected patients uniquely demonstrated marked decrease of LV end diastolic diameter (LVEDd) together with the detection of troponin-I in their sera.

Conclusion: We can conclude that malnutrition, regardless of its type, has a definite effect on cardiac volume, muscle mass, as well as the electrical properties of the myocardium. The systolic functions of the heart are affected more than the diastolic functions and this affection becomes manifest only in severe cases and may constitute a bad prognostic parameter thus necessitating more intense management and strict follow-up of such cases.
Experience of 6 years with home enteral nutrition in an area of Spain

D A de Luis, R Aller, O Izaola, M C Terroba, G Cabezas and L A Cuellar


Abstract

Objective: The wide spread use of long-term enteral nutrition and the substantive costs dictate a need to study outcome, clinical and epidemiological characteristics of these patients. The aim of our study was to analyze incidence and characteristics of a cohort of patients on HEN during 6 years, after our previous pilot study of 3 years. Design: Prospective observational study. Setting: Tertiary care. Subjects: Between January 1999 and December 2004, all adult patients living in Valladolid West area who were discharged from the hospital on HEN were prospectively studied and followed up. Interventions: Information for each patient was prospectively recorded by the dietitian of the team, and include age, sex, body mass index, tricipital skinfold, midarm circumference, underlying disease, exitus, dates of initiation and discontinuation of HEN, nutrient formula, mode of administration and complications of HEN. During HEN, physicians supervised the home patients and the patients themselves or their close relative, were asked to contact our nutrition team if any problem occurred. Finally the yearly incidence of HEN was calculated each year on the basis of the estimated population in our area of recruitment, assuming almost all HEN patients were reported. Results: In our previous study, incidence of HEN in 1999 was patients 15 per 100 000 inhabitants, 21.3 in 2000 and decreased to 9.52 in 2001. In the new 3 years, the incidence remained in the mean levels of 1999 and 2000, the data were 17.1 per 100 000 inhabitants 26.5 in 2003 and 25.6 in 2004. The mean age of all patients was 56.4±17 years. The distribution of patients by diseases was; (43.8%) had a head and neck cancer, (26.8%) had human immunodeficiency virus infection, (9.6%) had a neurological disorders affecting swallowing (cerebrovascular accident and/or dementia), (4.7%) had diseases in digestive tract (fistulae, pancreatic disease, inflammatory bowel disease), (2.5%) had tumors in different locations with anorexia, (5%) had head trauma, and (7.6%) had one of several miscellaneous diseases inducing dysphagia or anorexia. HEN was administered via oral in 258 patients (70.6%) (group I), via a NGT in 95 patients (26.1%), a PEG in 9 patients (2.5%), and a jejunostomy in 3 patients (0.8%) (group II=107 patients). During the course of HEN, 12 patients had diarrhea (3.3%) and 8 (2.2%) constipation, and 4 vomiting (1.1%) that did not require cessation of HEN. No lung aspiration was detected. Hypernatremia (sodium >145 meq/l) appeared only in six cases (1.64%) and 12 cases of hyperglycaemia (3.28%). Ten patients (2.8%) reported a least one problem with the tube. The mean duration of HEN was 148.2±104 days. After the follow-up, 19 of the 365 patients (5.2%) had died, 346 (94.8%) were alive. In multivariate analysis, an independent factor associated with death was age (hazard ratio: 1.22; 95% CI: 1.06-1.39), 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.
Percutaneous Endoscopic Gastrostomy Placement Without Skin Incision: Results of a Randomized Trial

R E Sedlack, N L Pochron and T H Baron


Abstract
Background: During percutaneous endoscopic gastrostomy (PEG) placement, skin incision is performed as standard practice. We suspected that this time-honored principle is unnecessary. Methods: In a prospective, randomized trial, 50 adults undergoing PEG placement were randomized to skin incision omission PEG (IOPEG) and standard PEG (SPEG). Two- and 7-day PEG site evaluations were performed to grade stomal infection, bleeding, pain, and overall satisfaction using a standardized scoring system. Median stomal evaluation scores were compared between groups using a Wilcoxon rank-sum test. Completion rates were compared using a t-test. Results: Placement success for the IOPEG and SPEG technique was 22/25 (88%) and 24/25 (96%), respectively (p = NS). Three failed IOPEG attempts required an incision to complete due to increased pull force encountered. One SPEG failed due to inability to transilluminate. Stomal evaluation scores of infection, bleeding, pain, leakage, and patient satisfaction were not significantly different at 2 or 7 days. No serious complications occurred as a result of skin incision omission. Conclusions: Omitting the skin incision does not significantly alter the placement success rate, patient satisfaction, or the rate of stomal complications, thus dispelling the dogma that a skin incision is mandatory for PEG placement and the myth that incisions reduce infectious complications.

Successful Long-Term Jejunostomy Feedings in Relapsing Pancreatitis: A Case Report

P Sanchez-Fermin, A Ukleja and M Cruz-Correa


Abstract
Relapsing pancreatitis is characterized by repeated episodes of acute inflammation of the pancreas, with either a localized or a systemic organic response that may progress to chronic pancreatitis. Enteral jejunal feedings have been shown to be effective in the management of acute pancreatitis, but long-term use of jejunal feedings as treatment of relapsing pancreatitis has not been reported. We describe the case of a young patient treated with long-term jejunal feedings to induce remission and prevent recurrence of acute relapsing pancreatitis. An 18-year-old Hispanic man had well-documented recurrent episodes of acute pancreatitis. Multiple studies were performed as part of the diagnostic workup of the patient's relapsing pancreatitis, including endoscopic ultrasound, endoscopic retrograde cholangiopancreatography with biliary sphincterotomy, and laparoscopic cholecystectomy. Despite medical therapy, endoscopic and surgical procedures, the patient continued having episodes of pancreatitis on a monthly basis, with over 13 distinct documented episodes of pancreatitis during a 15-month period. A jejunostomy tube was inserted surgically, and long-term jejunal feedings were instituted, with excellent control of the patient's symptoms. There was only 1 episode of pancreatitis in the ensuing 24 months associated with the resumption of oral feedings and a weight gain of 20 pounds during this time period. Chronic jejunal feedings seem to be an effective alternative for treatment and prevention of acute relapsing pancreatitis. To our knowledge, this is the first report of long-term enteral feedings in acute relapsing pancreatitis.
Vulnerable patients with a fractured neck of femur: nutritional status and support in hospital

M Nematy, M Hickson, A E Brynes, C H S Ruxton, and G S Frost

Abstract
Background and aim: Malnutrition has serious consequences for recovery and increases the risk of complications in hospital patients. Fractured neck of femur (NOF) patients may be particularly at risk because of their old age and frail state of health. We conducted an observational study to evaluate the nutritional state and the nutritional support, which was provided to this group during their stay in hospital. Methods: Twenty-five consecutive people admitted to an orthopaedic ward with a fractured NOF at Charing Cross Hospital, London were recruited. Anthropometric measures, biochemical indices, 3 days dietary intake and dietetic referral rates were collected. Results: Patients had a significantly lower body mass index (BMI) compared with the mean BMI for sex and age in an elderly UK population (21.97±1.06 versus 26.73±0.03 kg m\(^{-2}\); P<0.005). They took just 58.6% of their energy requirements in hospital (4219±319 versus 7199±202 kJ mean\(^{-1}\) daily intake over 3 days in week 2). Using the hospitals own nutritional risk assessment tool 56% of patients were found to be at risk of malnutrition on admission, which increased to 68% after 2-3 weeks. Of these 64% were referred to a dietitian and were given nutritional supplements. Nutritional assessment revealed that their nutritional status worsened during stay. Conclusions: This group of patients with fractured NOF is likely to be malnourished on admission and to show a rapid deterioration in its nutrition status during admission. Energy needs were not met in up to 50% of patients. These results reinforce the need to screen, supplement and monitor fractured NOF patients.

Application Criteria of Enteral Nutrition in Patients With Anorexia Nervosa: Correlation Between Clinical and Psychological Data in a “Lifesaving” Treatment

A Paccagnella, A Mauri, C Baruffi, R Berto, R Zago, Maria L Marcon, D Pizzolato, F Fontana, L Rizzo, M Bisetto, S Agostini and G Foscolo

Abstract
Background: Data and research increasingly point to multiple factors in the genesis of eating-behavior disorders, but the lack of a clear etiological definition prevents a unique therapeutic or prognostic approach from being defined. Therapeutic approaches, as well as scientific research, have separately analyzed the psychological aspects and the clinical-nutrition aspects without integrating the variables or correlating clinical and psychological data. This work has several goals because it aims at considering the problem from the 2 different perspectives. Psychological and clinical variables are analyzed both separately and together in order to assess (a) the minimal criteria to define a cure as “lifesaving” and submit a patient to artificial nutrition; (b) the kind of implementation artificial nutrition should follow; (c) which indicators of the efficacy of artificial nutrition must be taken into account; (d) the results in nutrition terms that may be obtained during the follow-up; (e) if artificial nutrition may be used as a therapeutic tool; (f) if there are any psychological effects after artificial nutrition; (g) if there are any effects due to the patients’ age; and (h) the correlation between the psychological profile of a patient and the acceptance of the nutrition treatment. Methods: Several psychological and pharmacologic variables, together with clinical and anthropometric data and blood chemical values, were all considered. Conclusions: Besides defining minimal criteria for a “lifesaving” cure and proposing 2 ad hoc scales for the assessment of patients’ subjective willingness toward feeding and for the objective measurement of feeding itself, clinical data and correlations with psychological data evidenced the importance of artificial nutrition and specifically of enteral nutrition as a therapeutic tool, allowing us to define the modalities of implementation of enteral nutrition. Results show that, because enteral nutrition did not deteriorate the psychological state of the patients, and was found to be accepted more positively than feeding orally in the most critical initial phase, it should be included in the therapy.
A comparison of early gastric and post-pyloric feeding in critically ill patients: a meta-analysis

K M Ho, G J Dobb and S A R Webb

Abstract

Objective: To investigate the potential beneficial and adverse effects of early post-pyloric feeding compared with gastric feeding in critically ill adult patients with no evidence of impaired gastric emptying. Design: Randomised controlled studies comparing gastric and post-pyloric feeding in critically ill adult patients from Cochrane Controlled Trial Register (2005 issue 3), EMBASE and MEDLINE databases (1966 to 1 October 2005) without any language restriction were included. Two reviewers reviewed the quality of the studies and performed data extraction independently. Measurements and results: Eleven randomised controlled studies with a total of 637 critically ill adult patients were considered. The mortality (relative risk [RR] 1.01, 95% CI 0.76-1.36, p = 0.93; I² = 0%) and risk of aspiration or pneumonia (RR 1.28, 95% CI 0.91-1.80, p = 0.15; I² = 0%) were not significantly different between patients treated with gastric or post-pyloric feeding. The effect of post-pyloric feeding on the risk of pneumonia or aspiration was similar when studies were stratified into those with and those without the use of concurrent gastric decompression (RR ratio 0.95, 95% CI 0.48-1.91, p = 0.89). The risk of diarrhoea and the length of intensive care unit stay (weighted mean difference in days -1.46, 95% CI -3.74 to 0.82, p = 0.21; I² = 24.6%) were not statistically different. The gastric feeding group had a much lower risk of experiencing feeding tube placement difficulties or blockage (0 vs 9.6%, RR 0.13, 95% CI 0.04-0.44, p = 0.001; I² = 0%). Conclusions: Early use of post-pyloric feeding instead of gastric feeding in critically ill adult patients with no evidence of impaired gastric emptying was not associated with significant clinical benefits.

Enteral nutrition in intensive care: Nurses’ perceptions and bedside observations

M W Persenius, B W Larsson and M-L Hall-Lord

Abstract

The aims of this descriptive study were to examine (1) nurses’ perceptions of responsibility, knowledge and documentation focusing on enteral nutrition and (2) nursing practice regarding enteral feeding in the intensive care unit. Forty-four nurses in three intensive care units responded to a questionnaire (response rate 70%) and 40 bedside observations were performed. The nurses’ primary source of knowledge was consultation with colleagues. Regarding responsibility, knowledge and documentation, the focus was more on planning, implementation and prevention than on the assessing phase of the nursing process. Gastric residual volumes were almost never checked, and none of the tubes were labelled. Seven out of 40 bedside observations revealed a backrest elevation of 30° or more. Mean backrest elevation was 20.7°. Comparisons between nurses in the three hospitals revealed significant differences. This study indicates that enteral nutritional nursing care within intensive care has its strength in planning, implementation and prevention of complications. Regarding nutritional assessment, the registered nurses (RNs) scored low. There are gaps between recommended nursing care and nursing practice regarding enteral nutrition. Knowledge and awareness of responsibilities in combination with a systematic documentation could increase the optimal nutritional care of the intensive care patient.
Enteral feeding in the critically ill: Are nursing practices contributing to hypocaloric feeding?

A P Marshall and S H West


Abstract

Introduction: Enteral feeding is the preferred method of nutritional support for the critically ill; however, a significant number of these patients are under-fed. It is possible that common nursing practices associated with the delivery of enteral feeding may contribute to under-feeding although there is little data available describing nursing practice in this area. Method: A descriptive survey-based design was used to explore the enteral feeding practices of 376 critical care nurses (response rate 50.5%). Participants completed a 57-item survey that focused on general enteral feeding practice and the management of feeding intolerance and complications. Results: The enteral feeding practice of critical care nurses varied widely and included some practices that could contribute to under-feeding in the critically ill. Practices associated with the measurement of gastric residual volumes (GRV) were identified as the most significant potential contributor to under-feeding. GRV measurements were commonly used to assess feeding tolerance (n = 338; 89.9%) and identified as a reason to delay feeding (n = 246; 65.4%). Delayed gastric emptying was frequently managed by prokinetic agents (n = 237; 63%) and decreasing the rate of feeding (n = 247; 65.7%) while nursing measures, such as changing patient position (n = 81; 21.5%) or checking tube placement (n = 94; 25%) were less frequently reported. Conclusion: The findings of this survey support the contention that nursing practices associated with the delivery of enteral feeds may contribute to under-feeding in the critically ill patient population.

Causes and consequences of inadequate substrate supply to pediatric ICU patients

J M Hulst, K F Joosten, D Tibboel and J B van Goudoever


Abstract

Purpose of review: The prevalence of malnutrition among children admitted to a pediatric intensive care unit is still high. Assessment of nutrient supply is essential in the care of critically ill children because inadequate nutrition can increase morbidity and mortality. This review covers the causes and consequences of inadequate nutrient supply to critically ill children. Recent findings: A major factor contributing to the cause of inadequate nutrient supply is the difficulty in estimating nutritional needs of the individual child. Reasonable values for energy expenditure can be derived from prediction formulae but measuring energy expenditure by indirect calorimetry is useful in selected cases. Furthermore, under-prescription and inadequate delivery of nutrients caused by fluid volume restriction, procedural interruptions or cessation because of gastrointestinal intolerance or mechanical problems cause additional nutritional deficits. As routine nutritional assessment is lacking in many pediatric intensive care units, the ability to monitor the adequacy of nutritional support is poor. Summary: In the majority of children admitted to a pediatric intensive care unit, nutritional problems - both underfeeding and overfeeding - occur during admission due to poor estimation of nutritional needs, under-prescribing and problems in the delivery of the nutrients. Recommendations are made in order to prevent inadequate nutritional supply and its potentially harmful consequences in critically ill children.
Ethical Issues in Artificial Nutrition and Hydration

R L Fine


Abstract

From the time of Hippocrates, approximately 2500 years ago, medical ethics has been seen as an essential complement to medical science in pursuit of the healing art of medicine. This is no less true today, not only for physicians but also for other essential professionals involved in patient care, including clinical nutrition support practitioners. One aspect of medical ethics that the clinical nutritionist must face involves decisions to provide, withhold, or withdraw artificial nutrition and hydration. Such a decision is not only technical but often has a strong moral component as well. Although it is the physician who writes any such order, the clinical nutritionist as fellow professional should be a part not only of the scientific aspects of the order but of the moral discourse leading to such an order and may certainly be involved in counseling physicians, other healthcare providers, patients, and families alike. This paper is intended to give the clinical nutritionist a familiarity with the discipline of medical ethics and its proper relationship to medical science, politics, and law. This review will then offer a more specific analysis of the ethical aspects of decisions to initiate, withhold, or withdraw artificial nutrition and hydration (ANH) and offer particular commentary on the ethically significant pronouncements of Pope John Paul II in March of 2004 related to vegetative patients and artificial or 'assisted' nutrition and hydration.

The Use of Advance Care Planning to Guide Decisions About Artificial Nutrition and Hydration

M R Gillick


Abstract

Advance care planning is important to ensure that patients, when competent, can influence the kind of medical care they receive if they lose decision-making capacity. Because decisions by surrogates to forgo nutrition support remain controversial, specific inclusion of artificial nutrition and hydration as a part of advance care planning has taken on growing importance. This article reviews the choices about artificial nutrition and hydration that are possible using conventional advance directives such as the living will, the instructional directive, values histories, and combination directives. It summarizes the legal basis for such documents. It also describes the ways that physicians' orders to limit treatment can help implement decisions about the use of artificial nutrition and hydration. Finally, it stresses the importance of clarifying with patients and families the risks and benefits of nutrition support in a variety of common situations such as advanced dementia and metastatic cancer as an essential prerequisite to meaningful advance care planning.
Bridging the Continuum: Nutrition Support in Palliative and Hospice Care

M P Fuhrman and V M Herrmann

Abstract
Clinicians and patients in today’s technically focused healthcare environment are often faced with decisions of what should be done vs what could be done. The decision to provide or not provide nutrition support during palliative care and hospice care requires an understanding of and respect for patient wishes, an appreciation for the expectations of the patient and family, and open and effective communication. There can be confusion and disagreement concerning what nutrition therapies should be continued and which ones stopped. These decisions can be facilitated by answering the question: When do the burdens of nutrition support outweigh the benefit to the patient? The patient, family members, and healthcare providers should openly discuss and agree upon the goals of nutrition support during palliative care and hospice care.

Tube Feeding Patients With Dementia

R Chernoff

Abstract
As the population ages, the incidence of dementia increases. All types of dementia, whether they are reversible or irreversible, lead to loss of intellectual function and judgment, memory impairment, and personality changes. The skills to feed oneself, use eating utensils, and consume items recognized as food, thereby maintaining nutrition status, may be lost as dementia progresses. Reports indicate that nutrition status may be maintained when patients are hand fed, but this is labor intensive and therefore expensive. Feeding via a percutaneous endoscopic gastrostomy tube is often chosen as an acceptable alternative. Research indicates that there is little benefit in this population when aggressive nutrition support is instituted. Providing tube feeding to patients with dementia does not necessarily extend life, increase weight, or reduce the incidence of pressure ulcers or aspiration. There are many legal and ethical issues involved in the decision to place a feeding tube in demented patients. The primary issue in patients with dementia may be autonomy and the right of an individual to decide whether or not a tube should be placed at all. Legally, there is clear precedent that the courts see the insertion of a feeding tube as extraordinary care that the patient has the right to refuse. However, much of case law is derived from cases of patients who were in a persistent vegetative state. Advance directives help to determine what the patient would want for himself. Considering all the options before the patient can no longer make decisions is the most desirable course.
Dysphagia in the elderly - a management challenge for nurses

H Morris

British Journal of Nursing, 15 (10): 558-562

Abstract

Dysphagia (swallowing difficulties) is relatively common in the general population, but the prevalence increases with age and poses particular problems in the older patient, potentially compromising nutritional status, complicating the administration of solid medications, increasing the risk of aspiration pneumonia and undermining the quality of life. The repercussions of dysphagia are not only physical but also emotional, affecting patient morale and leading to feelings of social isolation. There are various causes, including carcinoma, stroke and advanced Alzheimer’s disease. The diverse range of causes may manifest in a number of different ways, but should always act as a warning sign, which requires further investigation. Management is multidisciplinary, depending on the underlying cause, extent of dysphagia and likely prognosis. This article examines the incidence, causes and management of dysphagia, based on a review of recent literature. The focus is on the nurse’s role in the management of this challenging disorder with particular emphasis on the care of the elderly patient.

Indications and limitations of the use of subjective global assessment in clinical practice: an update

M C G Barbosa-Silva and A J D Barros


Abstract

Purpose of review: Subjective global assessment is a clinical tool for assessing nutritional status that merges alterations in body composition and physiological function. Although it was first described almost two decades ago, many studies using this method have been published during the past few years. This review describes recent findings from such studies. Recent findings: Subjective global assessment has proved to be a good nutritional assessment and prognostic indicator in several clinical situations. Agreement between subjective global assessment and newer screening methods is not always acceptable, and it has not been validated with respect to clinical outcome. Some modifications have been suggested that may increase the sensitivity of subjective global assessment as a screening tool. A scored version of subjective global assessment for cancer patients is now being validated for use in other patient groups. This could increase its utility in nutritional intervention studies if it can be demonstrated that subtle changes in nutritional status are reflected by numerical scores in patient-generated subjective global assessment. Summary: Subjective global assessment represents a good option for assessing nutritional status in various clinical situations. As a screening tool, it better identifies established malnutrition than nutritional risk but its sensitivity is suboptimal. The scored version of subjective global assessment may have advantages and extend the usefulness of this tool even further.
Clinically Relevant Differences in Accuracy of Enteral Nutrition Feeding Pump Systems

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Abstract

**Background:** There are clinically relevant discrepancies between prescribed volumes and delivered volumes of enteral nutrition (EN) in intensive care unit (ICU) patients. Next to EN-protocol violations due to insufficient care, we hypothesized technical factors to be responsible for this deficit. The aim of this study was to determine the accuracy of EN feeding pump systems frequently used in the ICU.**Methods:** Thirteen commercially available EN feeding pumps with their own delivery systems were tested in 12 sessions with different EN feeding tubes and EN formulas in a laboratory setting. The reproducibility of the measurements was determined for the 8 best performing EN feeding pump systems.**Results:** There were clinically important differences between prescribed volumes and delivered volumes of EN in the tested EN feeding pump systems. The deficit in volume ranged from +66 mL (surplus of 66 mL) to -271 mL (deficit of 271 mL) per 24 hours (14% of prescribed volume). Viscosity of test fluids (water/EN feeding formulas) and resistance of test tubes had no influence on the delivered volume by the tested EN feeding pump systems, because differences between prescribed volumes and delivered volumes were consistently found for each system while varying these test settings. **Conclusions:** Differences between prescribed and delivered EN volumes are caused by the function and construction of EN feeding pump systems. To improve nutrition therapy, the flow rate has to be adjusted or the best-performing EN feeding pump has to be purchased.
Reference List

Useful References on Nutritional Support

  This article discusses media attention that surrounds obesity in comparison to malnutrition and the magnitude of the health implications of malnutrition especially in the elderly. The article also discusses the cost and scale of malnutrition in the elderly.

  This article discusses malnutrition and cancer and need for nutritional support especially in the elderly. It also discusses co-morbidity and considerations for treatment, and the author ends the article supporting the need for nutrition assessment of all patients.

  This article evaluates the effect of repeated glutamate ingestion on whole-body glutamate turnover in patients with COPD and the healthy elderly.

  This article is a hot topic discussing the incidence of diarrhoea and the differing definition and quantification that defines its presence. It also discusses causes in enteral tube fed patients together with complications associated with the symptom and the role of fibre (particularly soluble) in its treatment.

  This article discusses the use of complementary and alternative medicine in treatment of malnutrition. The article focuses on seven selected agents (vitamin E, Zinc, Magnesium, S-adenosylmethionine, betain, silymarin and Glycyrrhizin) in in vitro, animal and human clinical trials.

  This article evaluates the effect of repeated glutamate ingestion on whole-body glutamate turnover in patients with COPD and the healthy elderly.

- Eckerwall G et al. (2006) Fluid resuscitation and nutritional support during severe acute pancreatitis in the past: What have we learned and how can we do better? Clinical Nutrition 25 (3): 497-504
  This article reports a study evaluating initial fluid resuscitation and nutritional support versus outcome in patients with severe acute pancreatitis.

- Evans S et al. (2006) Should high-energy infant formula be given at full strength from its first day of usage? Journal of Human Nutrition and Dietetics 19 (3): 191-197
  This study evaluates the feeding tolerance of a high-energy infant formula for infants with faltering growth, weighing 2.5-8kg, when administered at full strength from day 1 compared with stepwise introduction.

  This is a population study tests the sensitivity and specificity of nutritional risk index, malnutrition universal screening tool (MUST) and nutritional risk screening tool 2002 compared to subjective global assessment and to evaluate the association between nutritional risk determined by these screening tools and length of hospital stay.

  This study examined what methods people use to determine and interpret their body weight, and what factors are associated with either an underestimation of overweight or an overestimation of a healthy body weight.

  This review aims to identify the basic methods for accurately measuring a patient’s energy expenditure in clinical nutrition practice by indirect calorimetry, and the impact upon a disease state of applying the results obtained.

  This study compared the measured REE of patients with cancer undergoing anticancer therapy with healthy subjects and the REE estimated from commonly used prediction methods.

  This article discusses the effect of family style mealtimes on quality of life, physical performance and body weight of nursing home residents without dementia in the Netherlands.

  This article is a quick reference for nurses working with children and young people on screening and assessing for malnutrition. The article is available at www.rcn.org.uk/publications.

  This article discusses malnutrition its effect on wound healing and questions the benefits of supplementation in accelerating the healing response.