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Educational paper

Clinical nutrition university: Introduction to clinical nutrition support

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SUMMARY

Eating is not simply a significant element of comfort in life or a tradition, but also a vital necessity. Delayed and/or insufficient feeding is not an optimal medical care. Assessment of nutritional risk allows for a timely and optimal nutrition support.

Recommended indications and contraindications to nutritional support must be followed. Both under- and overnutrition are detrimental to the patients. Follow-up and re-evaluation of the nutritional support of patients is mandatory. Credibility and visibility of nutrition services are improved by written internal protocols and consultations reports, as well as by audits and surveys. Continuous education in clinical nutrition for all categories of health care givers is highly recommended.

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Learning objectives

- What is the rationale for feeding patients?
- Why is the evaluation of nutrition risk and status so critical for optimal care?
- How and when should you prescribe, monitor and discontinue nutrition support?
- Why should you assess the cost-benefit and risk-efficiency ratio?
- How can you promote the visibility and the recognition of nutrition cares in your institution?

1. Rationale for feeding patients

Eating is not simply a significant element of comfort in life or a tradition for patients during their hospital stay but also a vital necessity. Therefore, it should be treated as such. Consequently, nutritional support of patients partially or totally unable to cover their nutritional needs (e.g. lack of appetite, dysphagia, coma, major digestive dysfunction) is a vital care among others.

Inadequate provision of energy and nutrients pave the way of undernutrition, which in turn is associated with an increased rate of infections, complications and hospitalizations, increased length of hospital stay and recovery, increased mortality, decrease in quality of life, and ultimately increased the global health care costs. This statement is supported by a large body of evidences that continues to grow.

Undernutrition can be seen as an additional disease, grafted on the primary disease(s), which jeopardizes the patient's chances to recover in due time. Undernutrition is also related with a reduced efficiency, or tolerance, to a number of treatments such as anti-biotherapy, chemotherapy, radiotherapy or surgery.

During the next 10 years, the prevalence and the clinical impact of undernutrition are expected to increase. Indeed, the improvements in medical technology and therapy prolong the patient survival, even in patients with severe chronic diseases. As a consequence, an increased proportion of patients developing malnutrition is expected.¹

1.1. Particularities of hospital setting

Our survey of 1707 hospitalized patients showed that four out five patients do not cover their energy and protein needs during their hospital stay.² Many reasons can be considered. We found that three out of four patients do not eat enough to cover their needs for other reasons than their disease(s) and/or their treatment(s).

It is also true that disease can induce metabolic and/or psychological disorders, which increase the nutritional needs (e.g.

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fever, anxiety) and/or decrease food intake (e.g. anorexia, gastrointestinal symptoms) of the patients.³ The prescription of modified (e.g. salt-free diet) or “nothing by mouth” (NPO) diets before clinical examinations (e.g. gastrointestinal investigations) may lead to inadequate food intake. Hospital malnutrition can also be attributed to other causes, such as inappropriate meal service in hospital and inadequate quality and flexibility of the hospital catering. Finally, insufficient aid provided by the care staff may also contribute to poor food intake.

But probably, more prominent than anything else, there is a dramatic lack of awareness among caregivers and patients themselves about the negative impact of malnutrition on the clinical outcome.^{4,5}

1.2. Situation before/after hospital stay

Undernutrition does preexist to the hospitalization. Undernutrition aggravates during the hospital stay.³ An estimated 93% of all those who are malnourished or at risk of malnutrition in the United Kingdom are living in the community.⁶ Those considered at the highest risk of malnutrition are older people, particularly those who are hospitalised or living in care homes, people on low incomes or who are socially isolated, and people with chronic disorders and those recovering from a serious illness or condition, particularly a condition that affects their ability to eat, such as a stroke. Experts agree on the fact that prevention is key in addressing malnutrition in the community. General action plans are needed in each country or at the level of the European Union. Pilot initiatives are currently on-going, such as the programme proposed by ESPEN, National PEN Societies or the European Nutrition Health Alliance (www.european-nutrition.org).

The hospital stay often leaves many patients with a condition of physical and psychological weakness. The shortening of the hospital stay and the decrease availability of rehabilitation structures in reaction to budget restrictions, as well as the frequent difficulty of the family to host/help the patient after hospital discharge, have made the post-hospitalization period a critical time. The patients are therefore frequently facing important eating difficulties, which further increase the risk of malnutrition.

2. Assessment of nutritional risk or status (short title: assessment of risk and status)

The assessment of nutritional risk or status requires a clarification about the terminology. Stratton et al. have proposed a comprehensive and practically relevant definition of malnutrition: “Malnutrition is a state of nutrition in which a deficiency or excess (or imbalance) of energy, protein and other nutrients causes adverse effects on tissue/body form (body shape, size and composition) and function, and clinical outcomes”.⁷ Kyle et al have made the following proposal: “Nutritional screening tools identify characteristics known to be associated with dietary or nutritional problems. Its purpose is to differentiate individuals who are at nutritional risk or have poor nutritional status. Those patients considered *at risk of nutritional depletion* should be referred to specialists for nutritional assessment and intervention.”⁸ The European Society for Clinical Nutrition (ESPEN) has endorsed two *nutritional screening tools*: the Malnutrition Universal Screening Tool (MUST) and the Nutritional Risk Screening Tool 2002 (NRS-2002).

The objective of *nutritional assessment*, on the other hand, is to accurately define the nutritional status of a given patient, define if the severity of malnutrition is clinically relevant and to monitor changes in nutritional status. Nutritional assessment usually includes anthropometric, dietary and biochemical measurements, clinical history, physical and other parameters”. The Subjective

Global Assessment questionnaire (SGA) is one of the best available tools to assess nutritional status, because it is patient centred, incorporates clinical history and physical examination, and has been demonstrated to be associated with the patient's outcome.

3. Nutrition support

Individualized nutrition support should be the rule. The best nutrition support is characterized by its efficiency to prevent malnutrition or to restore a better nutrition status, its level of invasiveness and related-potential hazards, and its costs. In the daily practice, the best nutrition support is often a combination between the locally available expertise, techniques and products, the patient's expectations and compliance, the results of previous trials. The clinical evolution is a dynamic process and the prescription of the nutrition support should be regularly re-evaluated according to the pattern of the clinical evolution.

3.1. Prescription of nutrition support

The choice of an appropriate route of feeding is a pre requisite to optimize any type of nutritional support. Freely available guidelines should be followed (www.espen.org). Exceptions have to be considered case-by-case, and supported by careful argumentations.

3.2. Monitoring of nutrition support

Different methods are available to monitor the nutrition support: history and clinical parameters, anthropometry and body composition analysis, biochemical tests, functional testings. Their combination is generally needed to obtain a clinically relevant picture of the patient's nutritional condition.

3.3. Discontinuation of nutrition support

Nutrition support is a medical treatment. The timing is highly contributive to the success and the limitations of any nutrition support. For example, preoperative nutritional support has been found to improve the clinical outcome, but only in malnourished patients. Similarly, immunonutrition has been shown to be beneficial in patients with upper GI cancer if administered for 5–7 days before surgery, but its administration during the postoperative period showed only some beneficial effects in malnourished cancer patients. Current guidelines specify when nutrition support should be initiated and ended.

4. Benefits and limits

Nutritional support is expected to provide the patients with significant objective benefits in terms of clinical outcome, physical autonomy, speed of recovery and global quality of life. There are clinical conditions where the benefits of nutritional support are difficult to weigh against the disadvantages related to the treatment itself (e.g. more frequent mictions during night time administration of nutrition support).

Nutritional support of terminally ill patients or of patients with severe mental impairment remains controversial and should be discussed case by case and according to local ethical guidelines and practice.

4.1. Cost-benefit

4.1.1. In the community

In a recent trial in the United Kingdom, thousand malnourished adults older than 18 years old were enrolled by their General

Practitioners if malnutrition was diagnosed using any criteria deemed appropriate, and/or a body mass index below 18.5 kg/m²⁶. The patients' clinical evolution and the overall use of resources (e.g. investigations, home and hospital cares, etc.) were analysed during a 6 months period after malnutrition was initially diagnosed. It was found that: a/13% of the malnourished patients were hospitalised versus 5% of the non-malnourished patients, b/the global costs per malnourished and non-malnourished patients were 2002 and 854 Euros, respectively, c/at the end of the study period, the death rate of malnourished versus non-malnourished patients was 13 and 2%, respectively.

Malnutrition is largely represented in the general population of the European Union and it can be calculated that more than 30 million persons are suffering from malnutrition. From this estimation, the overall cost of malnutrition can be estimated to be about 170 billion Euros per year. Based on the results mentioned above, and if we postulate that at least one third of all cases of malnutrition can be prevented, the potential saving may be raised between 30 and 60 billions Euros per year.⁹

4.1.2. In the hospital

Malnutrition has been related with additional expenses already three decades ago by Twoney et al.¹⁰ This was confirmed in a number of subsequent studies. Nutritional support has been shown to reduce overall hospitalization costs by up to 30%, as well as in case of specific procedure such as digestive surgery for cancer,^{11,12} and as well as in intensive care medicine.

5. Strategic issues

Since the early seventies, the prevalence of malnutrition among patients at hospital admission in the US, Europe and Asia has been reported to vary between 30 and 50%. Higher level of prevalence has even been reported in subgroups of patients, such in geriatrics, or in patients with severe chronic obstructive pulmonary disease, renal insufficiency with hemodialysis, or neuromuscular disease. The persistence of this problem in spite of the existing guidelines reflects a lack of awareness among professional caregivers, patients and their relative. It is also partly explained by the absence of immediately visible consequences of acute malnutrition under-feeding. Local, national and international initiatives are currently on-going to fight malnutrition in response to this situation (www.european-nutrition.org). They aimed at promoting the understanding of the causes and the consequences of malnutrition and at stimulating global actions integrating during a continuum of care, i.e. from home to hospital and back to home.⁵

5.1. Credibility

Clinical nutrition is a relatively young speciality when compared to well establish domains such as surgery, pediatrics, etc. Therefore all activities related to clinical nutrition such as consultations and prescription of nutrition care must be based on sound and scientifically established information. Fortunately, numerous guidelines are available in journals and websites of academic societies, such as ESPEN or national societies for clinical nutrition. Local protocols of care (nutritional assessment, prescription of oral nutritive supplements, enteral nutrition, etc) are strongly recommended to harmonize the daily practice. They should be presented to the physicians and nurses, domain by domain, in order to promote their acceptance by the caregivers before they are proposed for specific patients. They also contribute significantly to the global quality of care. Last but not least, all examinations of clinical case should be summarized in written consultation reports, in a format similar to those provided by other specialities.

5.1.1. Guidelines

Guidelines by type of nutritional support and type of diseases are available freely on the ESPEN websites (www.espen.org). It is recommended to make them available in the local language to facilitate the adherence of the caregivers, once they are proposed as the reference method for specific patients or as a general rule in the institution.

5.1.2. Internal protocols

Internal protocols are documents describing the *practical* aspects of a given type of nutritional care for specific patients groups. It is recommended to make them broadly available in the local language, and then consider them as provisional during a reasonable period of time allowing all caregivers concerned by their application to express their suggestions and criticisms. This approach has been recognized to facilitate the caregivers' adherence to protocols.

Approved protocols, duly dated and signed by representatives of the different professional groups, should then be made available as printed documents and/or as electronic material.

5.1.3. Written consultation reports

Any clinical consultation of nutrition should systematically be followed by a written report, in a format similar to those provided by other specialities. First, this is mandatory from a legal point of view. Second, this is a convincing way of placing nutrition at a level equivalent to other medical specialties. Third, this is a method to document cases and educate other caregivers as these reports are visible. Fourth, this is a strategy to promote the quality of the consultation by nutritionists, because written reports are visible by other nutritionists.

5.1.4. Audit and survey

The promotion of good quality of care is a primary need in any health care structure. Audit and survey should be run on a regular basis. They offer a unique opportunity to interact with all the categories of caregivers and administrative personnel.

ESPEN has developed the "NutritionDay" organization. It proposes a free, structured ready-to-use system to annually assess survey and audit your own institution. Information and needed material can be found on www.espen.org and www.nutritionday.org.

5.2. Visibility

Visibility is a permanent issue in large structures, including in health care organizations. Improving visibility should be seen as a long-duration project for all nutrition units. Objectives and milestones are to be defined and made public. The benefits of improved visibility are unanimously recognized as the pre-requisite to obtain, maintain or expand human and financial resources. Actions to promote visibility should follow vigorous attempts to improve the quality of nutritional services proposed (cf. 5.1.1–4) in order not to make visible unrecognized weaknesses. It is also true that projects to improve the quality of nutritional services may be used to increased visibility.

6. Continuous education in nutrition

Continuous education is mandatory to improve the overall quality care, including nutrition. ESPEN offers a large educational system freely available on internet (the Life-long learning educational programme): www.llnnutrition.com. European certification in clinical nutrition is also available.

Ideally, local structured and planned educational programme should be made available to nutrition specialists, as well as to

non-specialists. This promotes visibility and credibility of nutrition care. Many countries have national societies for clinical nutrition and a number of them also offer educational programme.

7. Summary

Eating is not simply a significant element of comfort in life or a tradition, but eating is also a vital necessity. Consequently, delayed and/or insufficient feeding is not an optimal medical care and reflects the lack of awareness of a vital care by the healthcare givers.

The assessment of nutritional risk allows for a timely and optimal nutrition support, which should follow recommended indications and contraindications as both under- and overnutrition is detrimental to the patients. Nutritional support requires monitoring and re-evaluation as long as the evolution of the clinical situation is on.

Credibility and visibility of nutritional services are improved by written internal protocols and consultations reports, as well as by audits and surveys. Continuous education in clinical nutrition for all categories of health care personnel is highly recommended.

Conflict of interest

None

References

1. Thibault R, Cano N, Pichard C. Quantification of lean tissue losses during cancer or HIV infection/AIDS. *Curr Opin Clin Nutr Metab Care* 2011;**14**:261–7.
2. Dupertuis YM, Picard-Kossovsky M, Kyle UG, Raguso CA, Genton LG, Pichard C. Food intake in 1707 hospitalised patients: a prospective comprehensive hospital survey. *Clinical Nutrition* 2003;**22**(2):115–23.
3. Thibault R, Chikhi M, Clerc A, Darmon P, Chopard P, Genton L, et al. Assessment of food intake in hospitalised patients: a 10-year comparative study of a prospective hospital survey. *Clinical Nutrition* 2011;**30**:289–96.
4. Lochs H, Allison SP, Pichard C. Evidence supports nutritional support. *Clinical Nutrition* 2006;**25**:177–9.
5. Arvanitakis M, Beck A, Coppens P, De Man F, Elia M, Hebuerne X, et al. Nutrition in care homes and home care: how to implement adequate strategies. *Clin Nutr* 2008;**27**:421–88.
6. Guest JF, Panca M, Baeyens JP, de Man F, Ljungqvist O, Pichard C, et al. Health economic impact of managing patients following a community-based diagnosis of malnutrition in the UK. *Clinical Nutrition* 2011;**30**:422–9.
7. Stratton RJ, Green CJ, Elia M. Scientific criteria for defining malnutrition. In: Stratton RJ, Green CJ, Elia M, editors. *Disease-related malnutrition: an evidenced-based approach to treatment*. Oxon: Cabi Publishing; 2003. p. 1–34.
8. Kyle UG, Kossovski MP, Karsegard VL, Pichard C. Comparison of tools for nutritional assessment and screening at hospital admission: a population study. *Clinical Nutrition* 2006;**25**:409–17.
9. British Association of Parenteral and Enteral Nutrition. *Malnutrition costs the UK more than £7.3 billion of actual expenditure each year – double the projected £3.5 billion cost of obesity*. BAPEN, <http://www.bapen.org.uk>; 2005.
10. Twomey PL, Patching SC. Cost-effectiveness of nutritional support. *Journal of Parenteral and Enteral Nutrition* 1985;**9**(1):3–10.
11. Braga M, Gianotti L, Vignali A, Schmid A, Nespoli L, Di Carlo V. Hospital resources consumed for surgical morbidity: effects of preoperative arginine and omega-3 fatty acid supplementation on costs. *Nutrition* 2005;**21**(11–12):1078–86.
12. Braga M, Gianotti L, Nespoli L, Radaelli G, Di Carlo V. Nutritional approach in malnourished surgical patients: a prospective randomized study. *Arch Surg* 2002;**137**(2):174–80.