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ESPEN guidelines on nutritional support for polymorbid internal medicine patients

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SUMMARY

Background & aims: Polymorbidity (also known as multimorbidity) – defined as the co-occurrence of at least two chronic health conditions – is highly prevalent, particularly in the hospitalized population. Nonetheless, clinical guidelines largely address individual diseases and rarely account for polymorbidity. The aim of this project was to develop guidelines on nutritional support for polymorbid patients hospitalized in medical wards.

Methods: The methodology used for the development of the current project follows the standard operating procedures for ESPEN guidelines. It started with an initial meeting of the Working Group in January 2015, where twelve key clinical questions were developed that encompassed different aspects of nutritional support: indication, route of feeding, energy and protein requirements, micronutrient requirements, disease-specific nutrients, timing, monitoring and procedure of intervention. Systematic literature searches were conducted in three different databases (Medline, Embase and the Cochrane Library), as well as in secondary sources (e.g. published guidelines), until April 2016. Retrieved abstracts were screened to identify relevant studies that were used to develop recommendations, which were followed by submission to Delphi voting rounds.

Results: From a total of 4532 retrieved abstracts, 38 relevant studies were analyzed and used to generate a guideline draft that proposed 22 recommendations and four statements. The results of the first online voting showed a strong consensus (agreement of >90%) in 68% of recommendations and 75% of statements, and consensus (agreement of >75–90%) in 32% of recommendations and 25% of statements. At the final consensus conference, a consensus greater than 89% was reached for all of the recommendations.

Abbreviations: BI, Barthel Index; βHMB, β-hydroxy β-methylbutyrate; CG, Control Group; DRM, disease-related malnutrition; EN, enteral nutrition; GEB, Guidelines Editorial Board; IC, indirect calorimetry; IG, Intervention Group; LOS, length of hospital stay; MNA(-sf), Mini Nutritional Assessment (short form); NRS 2002, Nutritional Risk Score 2002; ONS, oral nutritional supplement(s); PICO, population of interest, interventions, comparisons, outcomes; PN, parenteral nutrition; QoL, quality of life; REE, resting energy expenditure; RCT, randomized controlled trial; SGA, Subjective Global Assessment; SIGN, Scottish Intercollegiate Guidelines Network; TEE, total energy expenditure; WG, Working Group.

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Conclusions: Despite the methodological difficulties in creating non-disease specific guidelines, the evidence behind several important aspects of nutritional support for polymorbid medical inpatients was reviewed and summarized into practical clinical recommendations. Use of these guidelines offer an evidence-based nutritional approach to the polymorbid medical inpatients and may improve their outcomes.

1. Introduction

1.1. What is the definition of polymorbidity?

Although there is no universally accepted definition of polymorbidity (also known as multimorbidity), some authors define it as being the co-occurrence of at least two chronic health conditions in the same person. That is also the definition used for the purposes of this guideline, based on literature recommendations [1–3] and discussions within the guideline Working Group (WG).

The health and nutrition implications of suffering from more than one disease at the same time differ from the corresponding interactions between disease and aging. Polymorbidity is often, but not necessarily, observed in older persons, in contrast to the geriatric context when multimorbidity is always combined with functional limitations and other age-related degenerative expressions. As life expectancy increases and individuals acquire a variety of chronic illnesses, polymorbidity becomes one of the main challenges that many healthcare and social services face worldwide.

1.2. Why do we need to develop nutritional support guidelines for polymorbid medical inpatients?

As stated by Lefevre et al., "we know, for example, how to educate a diabetic patient, a chronic bronchitis patient, and a hypertensive patient, but we do not know, in practical terms, how to educate a patient with all three diseases" [1]. In fact, we do not know if the screening, assessment and treatment of disease-related malnutrition (DRM) in polymorbid medical inpatients should differ from the approach used in patients with a single disease.

Polymorbidity is highly prevalent, affecting more than 70% of the hospitalized adult population, and is associated with higher mortality and healthcare burden [4]. Other consequences of polymorbidity include disability, functional decline, poor quality of life (QoL) and higher healthcare costs [3]. Whilst the prevalence increases with age, more than half of all people affected with this problem are younger than 65 years [5]. In this context, the current single-disease healthcare approach has been challenged, as clinical guidelines are largely created for individual diseases and rarely account for polymorbidity [5]. Fried et al. showed that clinicians struggle with the uncertainties of applying disease-specific guidelines to their patients with multiple conditions, and would therefore benefit from a number of tools to assist them in decision making for this population [6]. Limited, if any, accounting for polymorbidity applies to current nutritional guidelines that focus on single diseases (e.g. nutritional support in renal failure) or on patient groups (e.g. older adults). To date, it is unknown whether there is a synergistic negative effect of several diseases on nutritional status, or on clinical outcome. Therefore, there is a need for a consensus on how to provide nutritional support for the polymorbid medical inpatient population.

2. Materials and methods

2.1. Pragmatic definition of polymorbidity for the current project

Guideline development is based on clinical trials that investigate the effects of screening and nutritional support on different outcomes. Because these population-based trials usually report an average number of comorbidities or number of drugs/medications, a pragmatic definition of the polymorbid inpatient population was established as:

- at least 2 co-occurring chronic diseases present in at least 50% of the study population (in a few of the studies it is stated that x% of the study population suffers from disease A, y% of the study population suffers from disease B, and so on) or, alternatively,
- a Charlson comorbidity index in the study population as being more than 1.5
- a mean number of diseases or drugs (medications) over 1.5

In many studies, only this information is provided instead of the list of comorbidities and the proportion of the study population affected by each disease.

Polypharmacy is considered to be an important and acceptable marker of polymorbidity, with polypharmacy and polymorbidity having been described as being "two sides of the same coin" [7]. Additionally, it has been shown that the greater the number of medications, the higher the risk of weight loss [8], which suggests that polypharmacy has a potentially negative effect on nutritional status. The Charlson comorbidity index is the most extensively studied comorbidity index and is considered a valid and reliable method to measure comorbidity that can be used in clinical research [9].

In cases of uncertainty about the way that comorbidities were reported, the study authors were contacted in order to obtain additional information. In the event that they could not be reached a consensus decision within the guideline WG was taken about whether or not to include the study. Some of the included studies were conducted in older populations, since many polymorbid patients are also of an older age. For each included study, the criteria used to consider the study population as being polymorbid was recorded (and reported in the evidence table, in appendix 2).

2.2. Guideline development

The guideline WG was composed of a multidisciplinary team of 15 European specialists in nutritional support, who are the authors of the current paper. Following the standard operating procedures for the development of ESPEN guidelines [10], the guideline WG had an initial meeting in Zurich, in January 2015, to discuss the several stages of this project, and to define all of the clinical questions as well as the inclusion and exclusion criteria (Table 1). Other relevant clinical questions which could not be developed in the "PICO" format (i.e. containing the 4 elements of population of

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