

Malnutrition in Long-Term Hospitalized Patients

Uzun Süre Hastanede Yatan Hastalarda Malnütrisyon

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ABSTRACT

Malnutrition is a very serious problem in long term hospitalized patients. Malnutrition is associated with negative outcomes for patients, including higher infection and complication rates, increased muscle loss, impaired wound healing, longer hospital stays, and increased morbidity and mortality. Despite the seriousness of malnutrition, there is not enough emphasis on its diagnosis, prevention and treatment. In this context, increasing the awareness of malnutrition would have positive clinical results.

Key words: malnutrition; nutrition; nursing care

ÖZET

Uzun süre hastanede yatan bireylerde malnütrisyon önemli bir sorundur. Enfeksiyon, kas kaybı, yara iyileşmesinde gecikme, hastane kalış süresinde uzama, morbidite ve mortalite oranlarında artışa neden olmaktadır. Malnütrisyon bu kadar ciddi bir sorun olmakla birlikte uygulamaya bakıldığında tanınması, önlenmesi ve tedavisine yeterince önem verilmediği görülmektedir. Bu bağlamda sağlık ekibi içerisinde malnütrisyonla ilişkin farkındalığın artırılması klinik önem göstermektedir.

Anahtar kelimeler: malnütrisyon; beslenme; hemşirelik bakımı

Introduction

Malnutrition is a comprehensive term that is used to define an individual's status of being inadequately nourished. Malnutrition may occur during illness when the need for nourishment increases but the intake of nutrients is inadequate or when there is a failure to absorb nutrients or in the case of an extreme loss of nutrients due to underlying diseases. When these factors are combined, malnutrition presents as a serious complication that affects multiple organs and systems in the body. Infection, muscle loss, delays in wound healing and extensions of hospital stays may increase morbidity and mortality rates^{1,2}.

The European Society of Parenteral and Enteral Nutrition (ESPEN) makes important distinctions in the definition of malnutrition, to differentiate the terms "cachexia", "sarcopenia" and "malnutrition". Cachexia which is a multi-factor syndrome characterized by severe loss of body weight, fat and muscle is mostly displayed as increased protein catabolism. The malnutrition in hospitalized patients may be accompanied by cachexia (illness-associated) but also be unaccompanied³.

The risk of developing malnutrition increases as the stay in the hospital is extended. For this reason, patients hospitalized for long periods of time pose a serious issue that must be addressed. Although malnutrition is a serious problem, a closer look at practices reveals that not enough importance is placed on diagnosing, preventing and treating this condition. In this context, it is of clinical significance that awareness about malnutrition should be raised among healthcare professionals.

The literature shows that the high risk of malnutrition as a result of receiving inadequate nourishment is known and attention is called to the many factors involved. These factors can be considered in two groups: factors stemming from the patient and those stemming from the healthcare team. Patient-related factors include age, apathy and depression, illness (cancer, diabetes, cardiac, gastrointestinal conditions), drug treatment, problems with chewing and swallowing, motor restrictions, impaired smell and taste, and treatment methods (ventilation, surgery, drains). Factors related to the healthcare team are described as the failure of health professionals to recognize malnutrition, deficiencies in the systems of screening and evaluation, uncertainties in nutrition education and responsibilities related to nutrition, missing height and weight records, gaps in medical records related to the patient's oral intake, and a general inability to grasp the importance of nutrition^{2,4,5}.

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Malnutrition Screening and Evaluation

Diagnosing malnutrition or assessing the risk of malnutrition forms the foundation of treatment. The use of tools can aid the health team in identifying nutritional risks, evaluating nutrition, correctly identifying patients at risk of malnutrition and in increasing the effectiveness of the treatment a patient is receiving. Nutritional support is generally provided to patients by their doctors, nurses and dieticians but the time allotted for this purpose is inadequate². Because of this, many hospitals are unable to identify the development of malnutrition and consequently, the process of evaluation and treatment of malnutrition is ultimately neglected.

Identifying nutritional status not only reveals the existence, risk and degree of malnutrition, but it also sheds light on the effectiveness of nourishment. The diagnosis is based on the patient's medical history, physical examination (muscle mass, muscle loss, fat storage, edema, acids), anthropometric measurements (body weight, height, body mass index, triceps' size), laboratory tests (creatinine, serum transferrin, serum albumin, prealbumin), and functional tests (hand dynamometer, direct muscle stimulation, respiratory and immune function tests). Furthermore, doctors and nurses may also use identifying tools for which validity and reliability tests have been carried out to identify a patient's nutritional status. As known, the various screening and evaluation instruments available, with respect to nutrition, facilitate the identification of risk and the process of diagnosis (Table 1)⁶⁻⁸.

Table 1. Methods of assessing the nutritional status with various parameters

Nutritional Status Evaluation Tools
Prognostic Nutritional Risk Index (PNI)
Nutritional Risk Index (NRI)
Geriatric Nutritional Risk Index (GNRI)
Maastricht Index (MI)
Instant Nutritional Assessment (INA)
Determining a Nutritional Health Check List (DETERMINE)
Simplified Nutrition and Appetite Questionnaire (US - SNAQ)
Short Nutritional Assessment Questionnaire (Dutch - SNAQ)
Nutritional Risk Screening 2002 (NRS - 2002)
Subjective Global Assessment (SGA)
Malnutrition Universal Screening Test (MUST)
Protein Energy Malnutrition Scale (PEMS)
Malnutrition Risk Scale (SCALES)
Mini Nutritional Assessment (MNA)
Mini Nutritional Assessment-Short Form (MNA - SF)

Hospital and Illness-Related Prevalence of Malnutrition

The main cause of malnutrition in developed countries is generally illness. Many studies conducted over the last 30 years have emphasized the seriousness of illness-related malnutrition in hospitalized patients. Whether it is acute or chronic, malnutrition is triggered by more than one factor. Malnutrition is commonly observed in patients with chronic liver disease, chronic cardiac disease, kidney failure, acquired immune deficiency syndrome (AIDS), chronic obstructive pulmonary disease (COPD), inflammatory intestinal conditions, neurodegenerative diseases and other chronic conditions, as well as in patients hospitalized for malignant diseases⁹. The assessment of malnutrition prevalence in studies varies between 20%-60%^{10,11}. In a screening of 9336 persons at a hospital in the UK, it was found that 28% of the patients were at risk of malnutrition, 43% of those who had developed malnutrition were suffering from digestive system ailments, 33% had neurological conditions, 21% cardiovascular disease and 18% had musculoskeletal disorders¹¹. In Turkey, Korfalı et al. (2009) reported in a study they conducted in 62 hospitals that 15% of the 29,139 persons they assessed had developed malnutrition. It was found that 52% of intensive care unit patients, 43.4% of medical oncology patients, 23.9% of neurology patients, 24% of hematology patients, 19.1% of gastroenterology patients, 18.3% of gastrointestinal surgery patients, 18.2% of thoracic surgery patients, 16.4% of internal medicine patients, 10.3% of cardiology patients, and 10.9% of cardiac surgery patients had developed malnutrition¹². In a study conducted by Sungurtekin et al. (2004) using two different nutritional screening tools, it was observed that 36% of patients at a hospital were suffering from malnutrition¹³. In Bayır's study (2012) on malnutrition rates in cases undergoing open-heart surgery and determining related risk factors, it was revealed that 20% of patients suffered from malnutrition and that hospital stay durations for these patients was longer than for other patients. The study also reported that patients with longer hospital stays were more likely to develop malnutrition than patients who were present for shorter stays¹⁴.

Treatment and Care in Malnutrition

Patients who are screened, evaluated and found to be at risk of malnutrition are started on nutritional support. This treatment involves oral intake of nutrients, the type of which varies according to the preferences of

the individual, and in patients with no capacity for oral intake, the patient is fed parenterally¹⁵. Enteral nutrition (EN) is indicated in patients with adequate digestive and absorptive capacity of the gastrointestinal tract but who cannot eat enough. Enteral nutrition offers many advantages when compared to parenteral nutrition. These are the normalization of enteral nutrition intestinal functions in a shorter time, having lower risk of infection, being more suitable for human physiology, its easier application, being cheaper than parenteral nutrition, less occurrence of metabolic and septic complications, lower mortality and morbidity rates, applicable with fewer personnel and being ready to use¹⁶⁻¹⁸. However, nutrition tolerance of the patient (e.g. nausea, vomiting), nursing practices (e.g. the change of body position and nutrition arrest), other medical procedures and nutrition programs that are not prepared according to the individual are among the major factors adversely affecting enteral nutrition¹⁹.

Parenteral nutrition (PN) is another form of nutrition that enables nutrition for patients with gastrointestinal limited absorption capacity who cannot be nourished functionally or enterally. Although it positively affects the patient's course of recovery when properly applied to the correct patient, its use causes the increase of infectious complications, the formation of metabolic complications and cost increase when preferred wrongfully. Therefore, it is essential to apply PN in case of failure to meet the nutritional requirements enterally and in patients who are unable to take oral implementing at least 7 days. Parenteral nutrition is applied in two ways as peripheral parenteral nutrition and central parenteral nutrition. The decision to implement PN requires a multidisciplinary approach²⁰.

The beneficial effect of parenteral nutrition (PN) in improving the nutritional status of hospitalized patients who are malnourished is well established²¹. However, several retrospective and prospective studies have shown that the use of PN is an independent risk factor developing the other health problems²². PN is a costly technology and can also be associated with complications such as electrolyte disturbances, hyperglycaemia, hypertriglyceridaemia, as well as hepatobiliary, infectious and mechanical complications²³. Considering these complications caused by it, individual nutritional solution should be selected considering the condition of the patient while deciding on PN support.

After deciding upon the route to be taken in feeding the patient, the daily calorie need is then calculated.

Depending upon the clinical condition of the patient, the choice between enteral and parenteral nutrition is an important factor in achieving tolerance and preventing complications. Products that need to be used in tube feeding should not be administered orally and the patient should be monitored in terms of complications such as nausea, vomiting, diarrhea, pulmonary aspiration, fluid overload, electrolyte imbalance, dehydration, hyperglycemia or the development of an infection. Bodoky& Smith (2009) state that diarrhea is a complication that can be prevented with enteral nutrition and that nausea and vomiting must be prevented because of the risk of aspiration²⁴. The speed, amount and level of tolerance to products administered via the enteral route (gastric residue, distension) must be strictly controlled. Studies have shown that nurses are not adequately equipped to identify the nutritional needs of tube-fed patients, that they do not adequately consult the guides and display a general lack of knowledge, being therefore unable to provide suitable care^{25,26}. In another study conducted by Uysal et al. (2011), it was reported that nurses were precise about following up on the administration of the feeding, the nutrients, the speed the products were administered, their amounts and the gastric residue status at 4-6 hour intervals²⁷.

Patients who receive nutritional support need to be monitored in terms of their vital signs and weight as well as through a weekly evaluation of anthropometric measurements and laboratory tests (albumin, etc.). In a follow-up study on the nutritional status and development of malnutrition in in-patients at a hospital, Güngör (2009) found that 77% of hospitalized patients displayed an average weight loss of 3.9 kg despite their nutritional support. These patients' body mass index values fell as the duration of the hospital stay increased⁵. In situations where enteral feeding is not possible, the nutritional needs are met with parenteral feeding. Products to be administered via the parenteral route may be applied peripherally or centrally. In PN status, it is important to watch the patient for infection symptoms and findings and monitor for air embolisms, hyperglycemia, hypoglycemia and circulatory overload²⁷⁻²⁹. A study by Küçük et al. reports that 17% of patients developed infections and 52.1% experienced hyperglycemia³⁰.

Conclusion and Recommendations

To prevent malnutrition, it is important to evaluate the nutritional status of hospitalized patients and to closely

monitor their consumption of nutrients, anthropometric measurements and blood-test results. The first stage in treating malnutrition is the identification and assessment of the condition. For this reason, doctors and nurses need to complete a comprehensive evaluation of patients from the moment they are admitted to the hospital, working in cooperation with the rest of the professional healthcare team. The European Society of Parenteral and Enteral Nutrition (ESPEN) and other international associations have issued guidelines to follow when using screening tools but these are not enough by themselves. Acting upon the results of screening will play an important role in finding solutions to the problems presented by malnutrition.

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