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REVIEW ARTICLE

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Benefits of implementing a Multi-Professional Nutritional Therapy Team (MNTT) in hospital services: a literature review

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Abstract

Introduction: The management of nutritional diseases in the nosocomial context, especially malnutrition, has raised considerable concern. **Objective:** In this context, the multi-professional nutritional therapy team (MNTT) emerged, aiming to provide a prompt diagnosis and effective treatment for these conditions. **Methods:** To assess the benefits of implementing MNTT in hospital services, a review was conducted, gathering articles and legislation related to the proposed topic. The search terms used included "nutritional therapy," "nutritional therapy costs," "MNTT," "multidisciplinary nutritional therapy team," "enteral nutrition," and "parenteral nutrition." **Discussion:** The presence of MNTT leads to reduced mortality, shorter hospital stays, fewer complications, lower hospital expenses, and improved nutritional support for patients compared to services without MNTT. **Conclusion:** The multitude of benefits from investing in MNTT implementation is evident, as they play a fundamental role in diagnosing, treating, and primarily preventing nutritional diseases, ultimately resulting in better patient care.

Keywords: Nutritional treatment. Multi-professional. Nutritional therapy. Team.

Introduction

One of the major concerns regarding public health is malnutrition. This disease affects up to 46% of patients at the time of hospitalization and can be present in up to 83% of those already hospitalized [1]. Protein-energy malnutrition can be defined as a multifactorial disease, capable of generating several physiological changes for the body's adaptation to insufficient nutrient availability. Delayed diagnosis can lead to high mortality rates, in addition to several sequelae [2].

According to Correia et al. (2003) [3], malnourished individuals have longer hospital stays,

increased risk of mortality, and substantial increases in hospital costs. Some countries, such as Brazil, seek to manage nutritional diseases early, reduce hospital costs, and provide an optimized health service by imposing rules regarding nutritional management. The Ministry of Health, through Ordinance 272/98 (Technical Regulation for Parenteral Nutrition Therapy), has made MNTT mandatory in all hospitals nationwide that offer enteral and/or parenteral nutrition **[4]**.

The MNTT's functions include: defining technical and administrative goals; performing nutritional screening and monitoring; assessing nutritional status; ensuring the correct use of artificial nutrition, whether oral, enteral, or parenteral; ensuring good conditions for the preparation, storage, transportation, administration and control of this therapy; educating and teaching, in addition to training professionals in skills related to clinical nutrition; implementing routines and protocols in clinical practice to ensure screening, action and management of patients with nutritional diseases; analyzing cost and benefit **[5,6]**.

The team is composed of several professionals, such as physicians, nutritionists, nurses, and pharmacists **[4]**. The joint action of specialists with different backgrounds allows the team members to enhance, expand, and encompass their knowledge and experiences to achieve the desired objective, which is to identify, intervene, and monitor the treatment of nutritional disorders **[5]**.

In this context, this work consisted of a review of the literature and current legislation on the benefits of implementing MNTT in hospital services.

Methods

The legislation of the Ministry of Health and the National Health Surveillance Agency (ANVISA) was used. The electronic research sources were accessed, using the following criteria: national and international journals, in Portuguese, English, or Spanish, through databases, using the following terms: "nutritional therapy", "nutritional therapy costs", "MNTT", "multidisciplinary nutritional therapy team", "enteral nutrition" and "parenteral nutrition".

Development

Regarding the presence of teams, there is a great discrepancy to the different geographic locations. In a study carried out by Sekal et al. (2002) **[7]**, where 833 German hospitals with more than 250 beds were surveyed, MNTT was found in only 47 health centers. According to Campos et al. (2020) **[8]**, when analyzing 115 large Brazilian hospitals, mostly private, they concluded that 80% had MNTT, which was present in all regions of the country.

A meta-analysis study published by Correia et al. (2017) **[9]**, with 66 studies, totaling 29,474 adult patients from Latin America, estimated that between 40 and 60% of patients were malnourished at the time of admission. Brazil represents 57.7% of the patients studied, evidencing, in isolation, malnutrition in 40% of those admitted. A second study with 5,355 patients hospitalized in Ecuador revealed a prevalence of malnutrition in 31.2% of patients at admission, evolving to 64.7% between the sixteenth and thirtieth day **[10]**.

Despite the high incidence, only 13.9% of malnourished patients were diagnosed with malnutrition in hospitals without MNTT **[11]**. A study carried out in Portuguese public hospitals revealed that, in 2020, only 28.2% of patients were triaged in the first 48 hours of hospitalization **[12]**. According to Sarmento et al. (2022) **[13]**, after nutritional intervention, an improvement in the frequency of screenings performed in the first 24 hours was observed, reaching 85.72%, and adequacy of caloric supply was observed in 78.5% of patients. Similar results were obtained in another study, where 97% of the patients studied were able to achieve their dietary goals after the intervention, compared to only 54% at a time before the team's intervention **[14]**.

Correct indication of the diet is an extremely important point, as a late indication can lead to a greater risk of malnutrition, while an erroneous prescription can bring harm in addition to unnecessary expenses. Trujillo et al. (1999) **[15]** concluded that, in patients with consecutive use of parenteral nutrition, 15% of nutritional interventions were unnecessary and 23% could have been avoided. According to Boitano et al. (2010) **[14]**, with the implementation of the team and continuing education actions, the number of incorrect indications of parenteral therapies was reduced. However, the correct and early indication increased from 60% to 97%. In a Swiss study, after the implementation of MNTT, the number of patients receiving parenteral nutrition fell by 35%, while there was an increase in enteral nutrition rates, in addition to an improvement in overall nutritional support **[16]**.

The reduction of complications after quality nutritional intervention is another great benefit. Clinical, mechanical, and metabolic complications can be avoided **[6,16-19]**. In a meta-analysis of 27 studies containing 8166 patients, Eriksen et al (2021) **[20]** found a 68% reduction in infections from central catheters after the creation of MNTT. This represents an absolute reduction of 8 cases of infection for every 1,000 days of catheter use. Another study

demonstrates a reduction, after intervention, in the incidence of hyperglycemia, one of the most common complications related to nutritional therapy, from 47% to 3% **[14]**.

Nutritional status also reflects on length of hospital stay and mortality. Malnourished patients tend to stay hospitalized longer, when compared to those who are normally nourished, reaching up to 10 extra days **[6-9, 17-21]**. According to Kruizenga et al. (2005) **[22]**, in a study with 588 patients, early nutritional intervention in malnourished patients reduced the length of hospital stay by 2.5 days when compared to the control group. Regarding the death rate, studies indicate that the role of MNTT in the treatment of malnutrition significantly improves the prognosis of patients, reducing mortality, especially by avoiding muscle failure and risks of catheter-related infection **[3,6,7,17,20,23]**. Deutz et al. (2016) **[24]** observed the effects of oral nutritional therapy after intervention and found a significant reduction in mortality within ninety days.

According to the literature, patients with nutritional deficiency are related to higher treatment costs **[25]**. Freijer et al. (2013) **[26]**, in the Netherlands, evaluated the direct costs related to health care for malnourished adults, such as prevention, diagnosis, treatment, drug therapies, procedures, hospitalization, and rehabilitation; without taking into account indirect costs, such as absenteeism or disability pensions. The total additional cost related to the treatment of patients in this group was estimated at 1.9 billion euros in 2011, which is equivalent to 2.1% of the Dutch national health budget and 4.9% of annual medical treatment costs.

Curtis et al. (2017) **[27]** estimated that hospitalized patients with malnutrition incur 30-50% higher costs than well-nourished patients. Another study, with 469 malnourished patients or those at high risk for malnutrition, showed 19.3% higher costs when compared to the control group, with a 95% confidence interval **[28]**. Implementation of MNTT in hospital care generates savings, by treating malnutrition early and preventing it. Several studies have proposed to quantify this economic impact **[3,6,7,29]**.

Russell et al. (2007) **[30]** after a systematic analysis of available studies on the efficiency of preoperative oral nutritional therapy concluded that dietary intervention can save, on average, 1,000 euros per patient. Other authors estimated annual savings in hospital expenses, depending on the size and type of care, between US$ 5.3 million **[14]** and US$ 183 thousand **[15]**. Regarding the investment cost, according to Awad and Lobo (2011) **[31]** each dollar invested in nutritional therapy can save up to 52 dollars in hospital costs. A European study also indicates that only 76 euros need to be invested per patient to reduce hospital stay by one day **[22]**.

Conclusion

It was concluded that to offer better nutritional support, reduce costs, shorten hospital stays, avoid complications, and improve patient survival, it is imperative to invest in the implementation of MNTT in health services, since they are, according to national and international guidelines, a fundamental part of the diagnosis, treatment and, mainly, prevention of nutritional diseases.

CRediT

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