

Home-based nutritional therapy

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CONFLICT OF INTEREST

None declared.

DESCRIPTION OF THE EVIDENCE COLLECTION METHOD

A search was performed in Medline (PubMed) and other databases, manually, with no time limit, using the following keywords: “nutritional support”, “home care”, “home assistance”.

DEGREE OF RECOMMENDATION AND STRENGTH OF EVIDENCE:

- A:** Experimental or observational studies of higher consistency.
- B:** Experimental or observational studies of lesser consistency.
- C:** Case reports (non-controlled studies).
- D:** Opinions without critical evaluation, based on consensus, physiological studies or animal models.

OBJECTIVES

This guideline aims to provide an overview of patients who require nutritional support for home care, based on available scientific evidence. Patient treatment must be individualized according to the reality and experience of each professional and to the clinical condition of each patient.

INTRODUCTION

Home nutrition therapy (HNT) can be defined as clinical and nutritional assistance to patients at home. It aims to restore or maintain the highest level of patient health, functionality and convenience, and is associated with reduced healthcare costs. HNT may be instituted as oral, enteral, or parenteral modalities, and should be part of the clinical care of medium- and high-complexity patients.

It is considered safe and has satisfactory cost-benefit, when well-indicated, with proper planning and adequate monitoring by a specialized team¹(**D**).

In most cases, patients are identified as potential candidates for HNT during hospitalization. However, this identification can also be performed in doctors' offices, clinics, and by medical care providers, through medical report. Regardless of the scenario, all patients should be evaluated to determine HNT indication.

The doctors or the hospital nutrition team should determine the indication for home enteral nutrition therapy (HENT) or home parenteral nutrition therapy (HPNT) before transferring the patient to home. The creation of a “protocol” of clinical and nutritional assessment at home, which allows doctors to collect all relevant information and to simplify the transfer of necessary records, should be considered.

1. DOES HNT WITH ORAL NUTRITIONAL THERAPY IMPROVE THE CLINICAL AND NUTRITIONAL STATUS OF THE ELDERLY PATIENT UNDER HOME CARE?

The patient under home care may already have malnutrition or may become malnourished during home care²(**B**).

Malnutrition is a common finding among elderly residents of nursing homes, and there are reports that as many as 40% of the residents have moderate to severe malnutrition³(**A**).

Malnutrition has consequences for the patient and society in general, being associated with an increase in new hospitalizations, as well as high morbidity and mortality⁴(**B**)⁵(**D**).

There are many factors that contribute to malnutrition in these patients, such as lack of appetite and dependence for feeding²(**B**). Improvement in chewing and swallowing, as well as in physical and cognitive deficits, can reduce the nutritional risk in patients under home care²(**B**).

The risks for malnutrition can be identified through a complete nutritional assessment in combination with other parameters, such as laboratory tests, use of several medications, functional impairment, and symptoms of depression⁶(**B**).

Oral nutritional therapy (NT) carried out for four weeks, with normal or high-calorie diet, improved the nutritional profile of these patients, with increased percentages of patients with normal and reduced percentages of patients with moderate or severe malnutrition according to subjective global assessment³(**A**).

In elderly patients who are malnourished or at risk of malnutrition, the use of oral nutritional supplements increases energy, protein, and micronutrients intake, maintaining or optimizing nutritional status and improving survival⁷(D). Elderly with body mass index (BMI) > 28 kg/m² have a lower risk of death in three years⁸(B).

RECOMMENDATION

The supply of calories and proteins via oral NT in malnourished elderly is effective in improving wound healing and cognitive function, as well as in improving the nutritional status of patients⁷(D).

2. WHEN IS HNT INDICATED?

HENT and HPNT indications are similar to the hospital indications, as the home-based therapies are a continuation of the support started in the hospital.

HENT is indicated for patients with reduced oral intake below the requirements to maintain their nutritional status and hydration. HPNT is indicated for patients in whom oral or enteral nutrition is temporarily or permanently impossible, or in cases of absorption disorders⁹(D).

Among the main indications for HENT are: inflammatory bowel disease, neurological disorders, burns, malnutrition, dysphagia, critically-ill patient with multiple diseases, chemotherapy, and radiotherapy¹⁰(D).

For HPNT, the indications are: short bowel syndrome, cancer, mesenteric ischemia, severe necrotizing pancreatitis, digestive fistula, inoperable mechanical obstruction of the small intestine, actinic enteritis, malabsorption syndrome, hyperemesis gravidarum, cystic fibrosis, patients in the preoperative with moderate or severe malnutrition, severe Crohn's disease, among others¹¹(D).

RECOMMENDATION

HNT can be administered by enteral, parenteral, and/or oral route; in the latter, the use of oral nutritional supplements or dietary supplements voluntarily by mouth is considered. The indication for any of these modalities is similar to the indication in the hospital or outpatient clinic⁹(D).

3. WHAT ARE THE SELECTION CRITERIA FOR HNT APPROVAL?

The basic conditions for a patient to be sent home is the presence of hemodynamic and metabolic stability, and the presence of a caregiver¹²(B)¹(D).

To select candidates for HNT, some factors must be evaluated, such as whether the household provides conditions of hygiene and diet manipulation, if there is an appropriate place for storage of the indicated NT, and if there is telephone, water, light, and proper air-conditioning¹(D).

The presence of a responsible and trained caregiver is important to assure adherence to appropriate HNT guidelines¹²(B).

As these patients require constant care and monitoring, it is crucial to maintain adequate transportation conditions, when necessary.

It is worth noting that for the whole process to be conducted, the approval of a payment source, whether private or public, is necessary¹(D).

For HNT to be provided, a nutritional therapy multidisciplinary team is required, consisting of a physician, a nurse, a dietitian, and a pharmacist¹³(D).

RECOMMENDATION

For the approval of HNT, it is necessary that the following requirements are met: 1) the patient is in clinical conditions that allow the continuation of treatment at home¹(D); 2) tolerance to HNT¹(D); 3) adequate home environment for HNT¹(D); 4) the patient, family member or caregiver must have sufficient intellectual capacity to understand the guidelines¹²(B).

4. DOES HNT HAVE A LOWER COST WHEN COMPARED TO INTRA-HOSPITAL NUTRITION?

Maintaining patients that are occupying hospital beds for longer than absolutely necessary implies proportionately greater direct and indirect costs¹⁴(D). Higher direct costs are understood as the cost of the physical space, the hospital workforce, and the improper use of equipment and basic- and high-technology utilities. Additionally, there are other causes associated with prolonged hospital stay, for instance, greater risk of acquiring nosocomial infections, generating costs with drugs and laboratory tests, as well as the extended length of hospitalization. The increased period of hospitalization implies in delaying treatment to new patients, which may result in irreparable damage to the health of patients waiting for treatment, considering the progression of certain consumptive diseases.

The costs involved with the rehabilitation of multiple sclerosis show that the use of HENT in relation to hospital-based NT can be 6.15 times more economical than hospitalization, and 3.5 times lower than that in nursing homes, considering variables such as costs of personnel, payment of patient benefits, caregivers' time, and average daily cost of hospitalization at the institution¹⁵(D).

Comparing the economic assessment of home care and conventional hospitalization, there is a cost decrease of 25,565 pesetas in home care *versus* conventional care, 4.17 less than hospitalization. The costs of hospitalization; cost per episode of hospitalization; and cost of the multidisciplinary team, medicines, materials, diagnostic testing, therapy, and transportation, were evaluated¹⁶(D).

An economic survey conducted in Brazil compared the intra-hospital and home care costs for patients with esophagus diseases in the pre- and postoperative phases, demonstrating reduced cost and shorter hospital stay (2.7 times shorter for the home group), and three times higher surgical bed turnover¹⁷(D).

In a cost-benefit analysis involving patients on enteral nutrition due to cerebrovascular accident (CVA) admitted to nursing homes, compared to home enteral nutrition, the costs at home were lower: on average, £12,817 (£10,351 to £16,826). In the nursing home, the costs ranged from £10,304 to £68,064¹⁸ (D).

Early hospital discharge and home rehabilitation were less costly than conventional hospital care in patients with CVA¹⁹(A).

RECOMMENDATION

HNT has a significantly lower cost when compared to in-hospital NT¹⁷(D).

5. CAN HPNT INTERFERE WITH REHOSPITALIZATION FREQUENCY?

Home health care processes should be standardized, with dynamic reviews, and modified according to quality indicators, which should include not only hospital readmission, treatment, and mortality, but also satisfaction and quality of life of patients and their families^{20,21}(D).

One of the main objectives of HPNT is, by definition, to prevent recurrent or prolonged hospitalization. A study demonstrated that patients receiving HPNT for more than two years – the authors considered a period of 12 months before the assessment – had an average hospital stay of 23 days (range 0-270 days), which corresponds to 8% in one year, an acceptable time period for patients being treated for intestinal failure. Hospitalization in 50% of the cases was the result of underlying diseases, whereas the incidence of HPNT complications and other medical problems was 25%.

Among the most frequent complications of HPNT, catheter infection is the major contributor to hospitalization²²(B).

RECOMMENDATION

The frequency of home rehospitalization is part of quality indicators for home care. HPNT for patients with intestinal failure appears to have a home rehospitalization frequency within an acceptable index²²(B).

6. IS IT POSSIBLE FOR TRAINED FAMILY MEMBERS TO ADMINISTER HENT?

Family members play a vital role in patient care in HENT and especially in the administration of nutrition. When properly trained and prepared for the task, they feel

competent, and provide effective care. Family members remain full time with the patient and perform tasks related to feeding and other patient care activities on a daily basis¹²(B).

Homecoming is a reason for joy, but it is also a source of stress and anxiety. The family has to adapt to a new situation, the impact of a chronic disease combined with the fear of hospital readmissions²³(D). Therefore, training should begin at the hospital or at the health service and continue at home. The guidelines need to be clear, objective, and appropriate to the education level of the family members. Interventions must be multidisciplinary, involving members of the specialized team to better prepare the family, both in the care during formula administration and in problem-solving, such as displacement and obstruction of the catheter. Moreover, guidance regarding the purchase of food and equipment is important, reducing the sources of stress experienced by the family^{12,24}(B).

Great stresses are related to the management of the patient, lack of free time for the caregiver, and feelings of helplessness, hopelessness, and guilt.

Visits from health service staff contribute to help reduce complications and, especially, family and patient stress²⁵(D).

Although patients and their families appear to cope well with the feeding tube, greater support is needed to ensure adequate nutrition and to monitor the nutritional status of these patients²⁶(C).

Family caregivers, when well trained and monitored, become responsible for the routine monitoring of patients receiving HENT²⁷(B).

RECOMMENDATION

Properly trained family members can provide effective care when administering HENT²⁷(B).

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