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Factors associated with home nutritional therapy in patients under palliative care

Fatores associados à terapia nutricional domiciliar em pacientes sob cuidados paliativos

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Abstract

Introduction: Malnutrition is one of the most common conditions seen in palliative care patients, which can affect the feeding route and decrease food intake. Nutritional counseling allows the detection of dietary changes, and referral to appropriate nutritional therapy. ***Aim***: The purpose of this study was to analyze home nutritional therapy, and identify nutrient-related diagnoses in home palliative care patients. Materials and methods: It's a prospective, observational study involving patients assisted by the "Better at Home Program", in Guarapuava - PR. Anamnesis was carried out to assess the patients, which included clinical diagnosis, physical examination, diet characterization and complications, SARC-F, and anthropometric assessment. ***Results***: The study included 24 patients, with an average age of 70,2+15,0. The most frequent clinical diagnoses were cancer (45.83 percent) and neurological disease (45.83 percent). Low weight and a classification indicative of sarcopenia predominated among the patients, accounting for 54.17% and 87.55%, respectively. The most common feeding route was oral (45.8%), followed by nasoenteral feeding l (41.7%). The most commonly used formula was the hyperproteic. The majority of patients had sunken temples (70.8%), loss of Bichat's fat pad (66.7%), and loss of muscle mass in the upper and lower limbs. The most frequent standardized nutrition diagnosis was NC-3.2 (unintentional weight loss), followed by 41.7% NI-1.2 (suboptimal energy intake). ***Conclusion***: Most patients were elderly, bedridden, and had neurologic disease or cancer. Regarding the nutritional status, the majority were underweight and exhibited signs of malnutrition. Palliative care patients require nutritional therapy since they are at risk of malnutrition

Keywords: Home Care Agencies. Palliative Care. Nutrition Therapy.

Resumo

Introdução: A desnutrição é uma das condições frequentemente observadas em pacientes sob cuidados paliativos, afetando a via de alimentação e impactando na diminuição da ingestão alimentar. O atendimento nutricional permite a identificação das alterações nutricionais, direcionando para terapia nutricional adequada. ***Objetivo***: Analisar a terapia nutricional domiciliar e identificar o estado nutricional em pacientes sob cuidados paliativos no domicílio. Método: Estudo prospectivo, observacional com pacientes do Programa Melhor em Casa, em Guarapuava-PR. Foram avaliados por meio de anamnese, que compreendia diagnóstico clínico, exame físico, caracterização e intercorrências da dieta, SARC-F e avaliação antropométrica. ***Resultados***: Participaram do estudo 24 pacientes, com média de idade 70,2±15,0 anos. Os principais diagnóstico clínicos foram: 45,83% câncer e 45,83% doença neurológica. O baixo peso e a classificação sugestiva de sarcopenia predominaram nos avaliados, sendo 54,17% e 87,5%, respectivamente. A via de acesso para alimentação prevalente foi a oral (45,8%), seguida de 41,7% para sonda

nasoenteral; a fórmula mais utiliza foi a hiperproteica. A maioria apresentou sinal da asa quebrada (70,8%), perda da bola de Bichat (66,7%) e perda de massa nos membros superiores e inferiores. O diagnóstico nutricional padronizado mais frequente foi NC-3.2 (perda de peso não intencional), seguido de 41,7% com NI-1.2 (ingestão de energia subótima). ***Conclusão***: Observou-se que a maioria dos pacientes eram idosos, acamados, com doença neurológica e câncer. Em relação ao estado nutricional, a maioria apresentou baixo peso e sinais de desnutrição. O atendimento nutricional com pacientes em cuidados paliativos se faz necessário, pois são pacientes com risco nutricional.

Palavras-chave: Antropometria. Assistência Domiciliar. Nutrição. Terapia Nutricional.

INTRODUCTION

The World Health Organization defines palliative care as a strategy to improve the quality of life for patients facing life-threatening diseases, with the aim of relieving suffering, pain, and other ailments such as physical, psychosocial, or spiritual changes. Palliative care is needed in several diseases, such as cardiovascular diseases (38.5%), cancer (34%), chronic respiratory diseases (10.3%), AIDS (5.7%), and diabetes (4.6%).[1]

In Brazil, in order to monitor patients in palliative care to whom home care was indicated, in 2011, the Ministry of Health created the "Better at Home Program".[2] The initiative consists of a multidisciplinary team that seeks to promote the patient's recovery at home, close to their family members, through individualized home care. Such home palliative care also results in vacancy of hospital beds and in a more humanized care of patients, which can improve their quality of life.[3, 4]

Patients are admitted to the Program after an evaluation which is realized by a multiprofessional team. This latter evaluates the individual referred from different services of the health care networks, characterized by greater complexity, which can be performed at home. Within the program, the eligibility criteria to classify patients who need home palliative care are factors such as: diseases that are progressive, advanced, and incurable; advanced frailty; conditions with fluctuating clinical course; and poor response to curative treatment.

Malnutrition is one of the conditions often observed in these individuals, as it can affect the feeding route, resulting in decreased food intake and jeopardizing treatment. In this sense, malnutrition is a risk factor for increased mortality rate, and nutritional deficiencies may occur due to altered dietary intake.[5]

In this context, the assessment of nutritional status is an important approach in the home palliative care process of the patient, because it allows the identification of nutritional alterations, which leads to the adequate nutritional therapy. Techniques such as anthropometry, clinical history, and physical examination can be applied. [6,7]

Properly assessing the feeding route and nutrient intake in palliative care patients is necessary during nutritional assistance. If food/nutrient intake is inadequate or insufficient, the individualized nutritional assessment may indicate oral nutritional supplements or enteral nutrition.[8-10]

Considering the need for standardized nutritional assessment of nutritional monitoring, the Academy of Nutrition and Dietetics implemented the Nutrition Care Model and Process (NCP). This model aims to standardize nutrition diagnoses by assessing the patient with a more comprehensive diagnosis, as it considers factors such as nutrient intake, as well as clinical, environmental, and cultural factors. Therefore, nutritional assistance is thorough, and avoids possible errors.[11]

Although nutritional assistance is an increasingly important issue, it is possible to observe that there is the need for studies that characterize the nutritional profile of bedridden patients in home care, considering their vulnerability as well as the need for nutritional monitoring. It is also noteworthy that the characterization of home nutritional therapy through scientific studies contributes to the humanized treatment of patients in palliative care. This later promotes comfort and relief to the patient, reducing the side effects of treatment, delaying sarcopenia and cachexia. Besides, the humanized treatment of patients in palliative care can also help improve the nutritional status by providing the nutrients that the patient needs.

Overall, this study aimed to evaluate the nutritional status of palliative care patients in home nutrition therapy, and to analyze their physical and clinical changes. It also aimed to nutritionally characterize the

nutrition therapy administered to the patients, and determine the most prevalent standardized nutrition diagnoses.

METHODS

It was a prospective, observational study, approved by the Research Ethics Committee (CONEP), under opinion 5.061.819/2021 (CAAE: 51602121.7.0000.0106), carried out from December 2021 to February 2022. Initially, the Program Coordinator provided a list of all the patients - including the diagnoses. Such a list was later evaluated in order to verify the patients who fit the objective of the study. The first list had 30 patients enrolled in the Program. However, given the high turnover of patients, there were weekly updates of the lists. Thus, patients enrolled in the program who were over 18 years of age were selected. Then, their caregivers were contacted by telephone. The home visits were scheduled once they agreed to participate in the study by signing the Free and Informed Consent Form. Those who could not be nutritionally assessed, patients/caregivers who could not respond to the assessments, and those patients who were not in palliative care were excluded from the study.

The data were collected by a single evaluator at the patients' homes. A nutritional anamnesis prepared for the study was applied, containing the following: socio-demographic questions, the clinical diagnosis established by the physician, the amount of time the patient has been assisted by the Program, the patient's associated diseases, anthropometric data, physical examination, administered nutritional therapy, feeding route, type of diet, and bowel habits. For the evaluation, an inelastic measuring tape, a Multilaser HC021 DIGIHEALTH PRO portable digital scale, with a maximum capacity of 180kg, and a Cescorf scientific adipometer were used.

Weight (kg), height (m), calf circumference (CC), arm circumference (AC), and adductor pollicis muscle (APM) were measured, following the SISVAN protocols for measuring anthropometric measurements.[12] When it was not possible to measure weight and/or height, estimates were made according to Chumlea et al.[13]

Considering the data, body mass index (BMI)[14] classifications were performed. For the elderly, the Lipschitz classification was used.[15] In this BMI classification, the author considers changes in the body composition of the elderly person due to the aging process. The percentage of adequacy of the AC was calculated considering the 50th percentile.[16] APMT was classified according to Lameu et al.[17]. Regarding calf circumference, the Bonnefoy et al.[18] classification was adopted, which considers values < 31 cm indicative of loss of muscle mass.

Indicators of sarcopenia were assessed using the Sarcopenia Form (SARC-F), a questionnaire that contains five questions concerning: strength; assistance in walking; getting up and sitting in a chair; climbing stairs; and history of falls. At the end, a score is provided, and if this score is ≥ 11 points, it is indicative of sarcopenia.[19]

After the nutritional evaluation, three priority standardized nutrition diagnoses (Academy of Nutrition and Dietetics) were determined, with the objective of tracing the nutritional and clinical profile of this population.[11]

To assess the caloric need of patients with feeding tubes, a calculation was used, according to which 25 to 30 kcal/weight/day is recommended for palliative care patients.[20] To do that, the label of the formula used by the patient was evaluated. After calculating the caloric need of the patients, the percentage of calories ingested was verified to check if it corresponded to the individual's needs.

The data were analyzed using descriptive statistics, with means, standard deviation, relative and absolute frequencies, using the Jamovi software version 1.6.12, with a significance level of 5% ($p<0.05$).

RESULTS

Twenty-four individuals, 50% (n=12) of each sex, assisted by the "Better at Home Program" in the city of Guarapuava-PR participated in the study. Out of these patients, 79.16% (n=19) were bedridden and 20.82% (n=5) could ambulate with assistance. The average age of the patients was 70.2+15.0 years. The main clinical diagnoses were: 45.83% cancer (gastrointestinal tumor, oropharynx, ovary, prostate, lung adenocarcinoma, and pancreas); 45.83% were diagnosed with neurological diseases (stroke and Parkinson's disease). Most patients (75%) stayed in the Program up to one month (Table 1).

Table 1. Characteristics of patients in home nutrition therapy assisted by the "Better at Home Program". Guarapuava-PR, 2022.

Variables		N(%)
Sex	Female	12 (50)
	Male	12 (50)
Disease	Cancer	11 (45,83)
	Neurologic	11 (45,83)
	Others	2 (8,33)
Time enrolled in the program	Up to 1 month	18 (75)
	Up to 2 months	5 (20,83)
	More than 3 months	1 (4,17)

Source: created by the authors.

Three patients were weighed, and the weight of 21 patients was estimated. According to the BMI, 54.17% (n=13) of the patients were underweight. The CC of 62.5% (n=15) demonstrated loss of muscle mass. According to the SARC-F screening, 87.5% of the patients (n=21) had indicators of sarcopenia (Table 2).

Table 2. Anthropometric data of patients in home nutrition therapy, assisted by the "Better at Home Program". Guarapuava-PR, 2022.

Variable	Classification	N (%)	MEAN ± SD median (min-max
BMI	Low weight	13 (54.17)	21.3 ±4.03
	Eutrophic	9 (37.5)	21.4(14.7-28.0)
	Overweight	2 (8.33)	
Calf circumference	Loss	15 (62.5)	28.8 ± 4.04
	No Loss	9 (37.5)	29.0(20.0-35.0)
Arm circumference	p <5	9 (37.5)	25.5 ± 4.15
	p5 -15	2 (8.33)	26.5 (19-32)
	p >15	13 (54.17)	

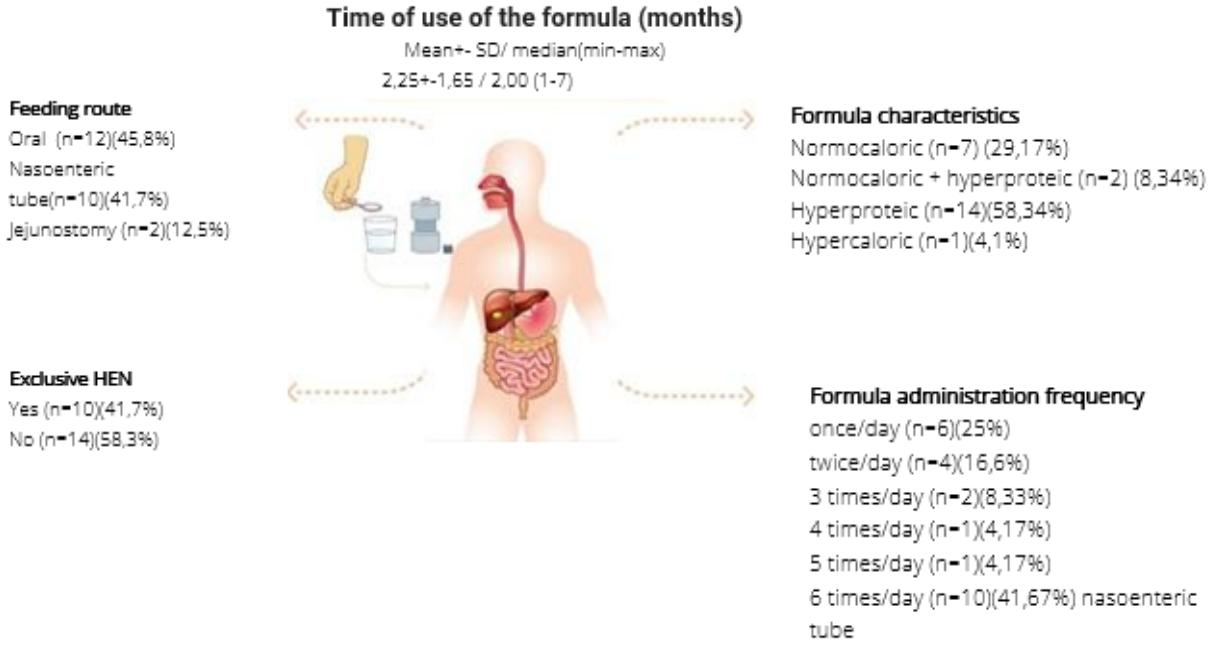
Table 2. Anthropometric data of patients in home nutrition therapy, assisted by the "Better at Home Program". Guarapuava-PR, 2022.(Continues)

Variable	Classification	N (%)	MEAN ± SD median (min-max
APMT	Moderate muscle depletion	6 (85.7)	7.67 ± 1.22
	Severe muscle depleti	1 (14.3)	8 (6-9)
SARC-F	Indicative of sarcopenia	21 (87.5)	1.88 ± 0.388
	No sarcopenia	3 (12.5)	2.00 (1-2)

Source: created by the authors.

The most frequent feeding route was oral, with 45.8% (n=12); 41.7% (n=10) used exclusively enteral nutrition therapy through the nasoenteral tube; and 12.5% (n=2), jejunostomy. The hyperproteic formula was the most commonly used, with 58.34% (n=14), followed by normocaloric, with 29.17% (n=7), both in powder form (Figure 1).

Figure 1. Characteristics of home nutrition therapy of patients assisted by the "Better at Home Program".



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the authors

Regarding intercurrent dietary problems, 45.2% of the patients (n=13) had diarrhea, and 45.83% (n=11) of the patients had regular bowel habits. On the Bristol scale, 37.5% of the patients (n=9) had stool type 7 (liquid with no solid pieces), and all of them were on either oral or enteral food supplements (Table 3).

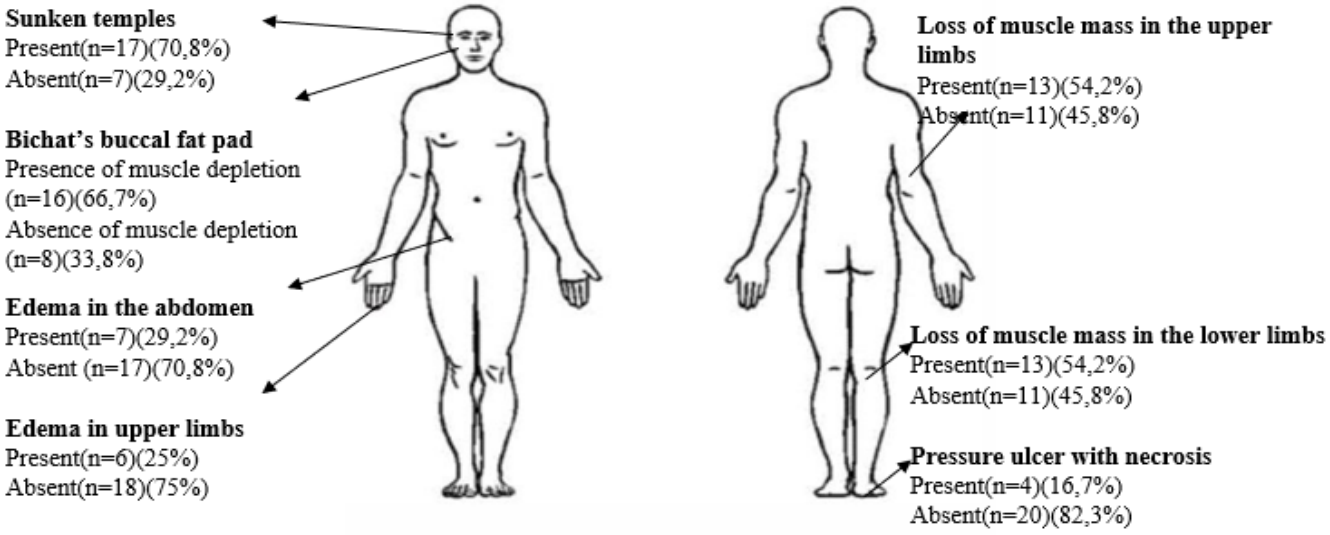
Table 3. Complications regarding diet administration, bowel habit, and Bristol scale in patients on home nutrition therapy. Guarapuava-PR, 2022.

Variable	Classification	N(%)
Complications regarding diet administration	None	11 (45,8%)
	Diarrhea	13 (45,2%)
Bowel habit	once to 4 times/day	11 (45,83%)
	once/week	5 (20,83%)
	twice/week	2 (8,33%)
	3 times/week	6 (25%)
Bristol scale	Type 1	3 (12,5%)
	Type 2	2 (8,33%)
	Type 3	3 (12,5%)
	Type 4	2 (8,33%)
	Type 5	3 (12,5%)
	Type 6	2 (8,33%)
	Type 7	9 (37,5%)

Source: created by the authors.

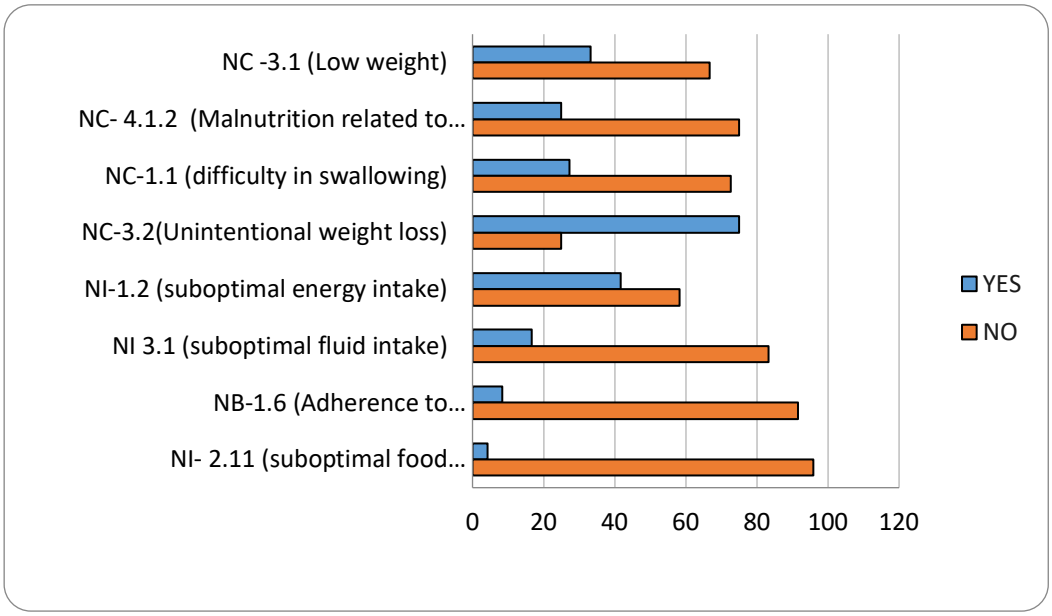
Regarding the physical examination, the following signs were predominant: sunken temples, 70.8% (n=17); and loss of Bichat's buccal fat pad, 66.7% (n=16) (Figure 2).

Figure 2. Characterization of the physical examination of patients in home nutrition therapy.



Regarding the most prevalent nutrition diagnoses, the majority of the patients (75%) had NC-3.2 (unintentional weight loss), followed by 41.7% with NI-1.2 (suboptimal energy intake) and 33.3% NC-3.1, low weight (Figure 3).

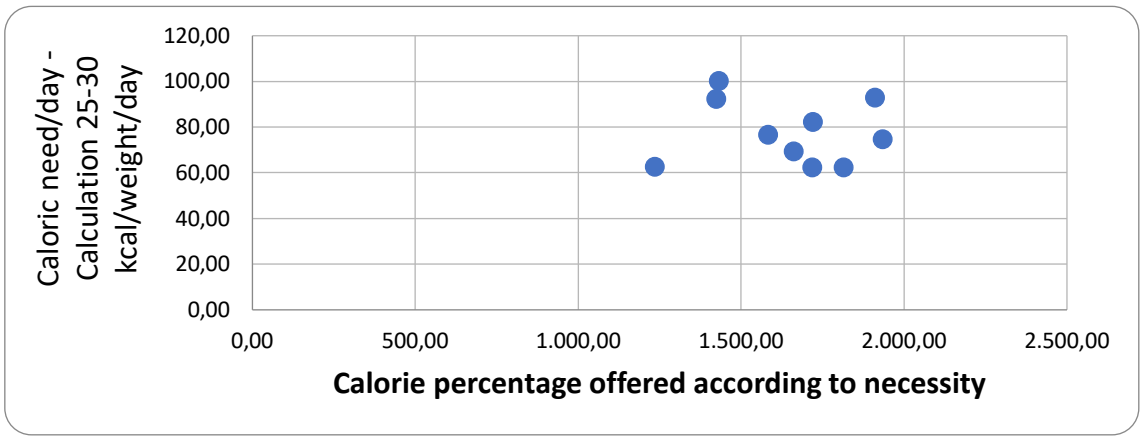
Figure 3. Percentages of the most prevalent standardized nutrition diagnoses in patients on home nutrition therapy.



Source: created by the authors.

Only one patient had infused volume according to his caloric needs (100%) (Figure 4).

Figure 4. Exclusive HEN energy requirement and infused volume in patients on home nutrition therapy.



Source: created by the authors.

DISCUSSION

Strengths of the study

The objectives of the study were to trace the nutritional profile of palliative care patients on home nutrition therapy, and to analyze physical and clinical changes in these patients. The aims were also to

nutritionally characterize the nutritional therapy administered, and to determine the most prevalent standardized nutritional diagnoses. There are few studies in the literature that explore the characterization of home nutrition therapy. Bedridden patients in home care are vulnerable to malnutrition, require safe and appropriate nutritional assessment, and home nutrition therapy for a better quality of life.

The home nutrition therapy also allows a humanized treatment of palliative care patients, and helps improve the nutritional status by providing the nutrients the patient needs. Thus, this study not only fostered the comprehension of the current nutritional status of the home palliative patient, but it also enlightened what type of care the patient needs regarding Food and Nutrition.

In this study, most of the patients were elderly. This may be because this age group are more likely to develop diseases due to the physiological process of aging. [21] The clinical diagnoses that prevailed in the studies were cancer and neurological diseases. These diseases directly influence the patient's nutritional status, due to the catabolic process of the disease. This process, in turn, often deprives the patient of the possibility of recovery who ends by requiring palliative care.[22, 23]

This was also observed in a study carried out with patients of the "Better at Home Program", in which 50% of them had neurological disease, and 30% had cancer.[24] When Menezes and Fontes evaluated patients receiving home enteral nutritional therapy, they found that the main diagnoses were stroke and cancer.[25] These findings show that, due to disease progression, patients diagnosed with cancer and neurological disease are those most in need of palliative home care, mainly due to swallowing disorders.

Patients who require home care access the Program through referrals from other health care services in the health care networks (hospitals, outpatient clinics, and basic health units). It was observed that most of the patients were assisted by the program for up to 30 days, mainly due to death or referrals to primary care. Death in this profile of patients is frequent since they are often in the last stage of the disease. Thus, it is not feasible for Program professionals to help these patients with their rehabilitation or stability. Silva et al.,[26] when assisting 20 patients at home care, verified that patients remained in the program for up to three months, either because of the patient's death, or because the patient was discharged. This is the same finding of this study.

By means of the BMI, most of the patients were underweight. Even though BMI has limitations, it is still a widely used parameter in clinical and population studies.[26] Dengo et al.[27] identified, in their research, that 87.5% of the patients evaluated were malnourished, and 12.5% were eutrophic. These patients in home care are underweight mainly due to several factors, such as disease progression, lack of appetite and dysphagia.[26]

Reduced calf circumference (CC) is a predominant condition in the study, and may indicate loss of muscle mass.[18] As Führ et al.[28] evaluated patients on home enteral therapy, they found that patients showed loss of muscle mass according to CC, with an average of 28.82 cm. Patients with the CC below 31 cm have a negative clinical outcome, and a higher risk of mortality.[29]

Due to their clinical conditions, it was not possible to measure the thickness of the adductor pollicis muscle (APMT) in all patients. However, among those evaluated, most had moderate muscle depletion. Pacheco et al.[30] found that the average measurement was 11.02 in 49 hospitalized elderly patients. Studies in the literature regarding APMT in patients on home nutrition therapy are scarce. Therefore, more studies are needed to evaluate this finding.

In agreement with the nutritional changes observed by the anthropometric measurements, it was found that most of the patients evaluated presented a classification indicative of sarcopenia. Reis et al.[19] applied the SARC-F in elderly patients in home care, and found that 13.72% of the patients evaluated were

classified as indicative of sarcopenia, due to advanced age and absence of physical activity. The SARC-F is an important tool to test home palliative care patients because, in a simple way, it is possible to analyze whether the patient presents results indicative of sarcopenia. Thus an early and appropriate nutritional intervention can be started.[31]

As Silva et al.[32] evaluated home care patients, they found that 68.7% of the patients were fed orally, and 18.3% were fed via gastrostomy. In this study, oral feeding also prevailed, and 10 patients were fed by nasoenteral tube (41.7%). Some patients had mixed feeding, even with the contraindication of the team. This occurred because the caregivers reported that offering some sort of food that was eaten before became a form of comfort for that bedridden patient, and it helped in the humanization of care.

The most commonly used oral nutritional therapy was hyperproteic nutrition. The same fact was found in the study carried out by Souza et al.,[24] in which patients in home nutritional assistance use hyperproteic formulas more often. The prevalence of this type of formula may be due to the clinical status of these palliative patients, since it is indicated for cases of malnutrition, weight maintenance, and because it helps minimize the loss of muscle mass.[24]

As these patients started using the formula after joining the program, complications occurred, and diarrhea was the most commonly reported one. In the literature, diarrhea is a common finding as a complication of formula adaptation. This may occur due to the composition of the formula, improper handling, infusion, and adaptation.[33] In the study by Souza et al.,[24] 40% of patients on enteral diets had diarrhea. In this study, diarrhea was reported as a complication at the beginning of the administration of the formula. However, when analyzing the Bristol scale, 37.5% of the patients were still in type 7, which corresponds to liquid stool without solid pieces. This may have happened because most of the patients evaluated had only been in the program for 30 days, and they were still adapting to the formula.

Another evaluation method that aids in the nutritional monitoring of the palliative patient is the physical examination. In the study, most patients showed sunken temples, loss of Bichat's buccal fat pad, loss of muscle mass in the lower and upper limbs, revealing signs of malnutrition and loss of temporal muscle, indicative that the individual is in a protein-calorie loss.[34] This happens due to the progression of the disease, periods of starvation, and also the body's response to stress. Souza et al.[34] evaluated 40 individuals with nutritional risk, who differed from the population of this study regarding age and clinical diagnosis. However, in the physical examination, the patients presented loss of Bichat's buccal fat pad and sunken temples, due to malnutrition.

In the study carried out by Corrêa & Freire[35] with patients in palliative care, 83.3% of the patients had a reduction in the volume of their diet. This finding supports what was found in this study, in which only one patient reached the nutritional need. This happens because in palliative care patients, as the end stage of the disease approaches, the goal is not to meet the adequate nutritional needs, but rather to provide comfort and relief from suffering.[35]

The two most prevalent standardized nutrition diagnoses were unintentional weight loss, followed by suboptimal energy intake. These findings support the previous results. In the literature, there are few studies that explore standardized diagnosis for nutritional assessment.

LIMITATIONS OF THE STUDY

The study was conducted with a small sample size, and re-evaluation was not possible due to the clinical conditions of the patients. However, even with such limitations, this study allowed the characterization of the nutrition therapy, and the nutritional status of palliative care patients in home care assistance.

CONCLUSION

The majority of the patients were elderly, bedridden, and diagnosed with neurological diseases and cancer. Regarding nutritional status, most of them presented low weight and signs of malnutrition through anthropometric measurements, physical examination, and indicative of sarcopenia. The most frequent standardized nutrition diagnoses were unintentional weight loss and suboptimal energy intake. All of the patients evaluated started using oral dietary formulas, predominantly the hyperproteic formula and nasoenteral feeding tube, after joining the "Better at Home Program".

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Contributors

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