NUTRITIONAL STATUS OF HOME CARE PATIENTS AND AFFECTING FACTORS THROUGHOUT A SIX MONTHS FOLLOW-UP PERIOD

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Abstract

Objectives: Home care patients are highly susceptible to malnutrition. This study, it was aimed to determine the changes in nutritional status and the factors affecting this change in the patients who receive home care services.

Materials and Methods: This study was conducted as a prospective descriptive field study. Patients were visited twice with an interval of 6 months, and the MNA test was applied in both visits. The test scores and the factors affecting them were examined with Student's t-test, Pearson Chi-square and correlation tests considering the compatibility of the data with the normal distribution. Data were analyzed with IBM SPSS ver.22 statistical program.

Results: On the first visit, 38.13% of patients were malnourished, and 37.81 % were at risk of malnutrition, and at the second visit, 41.88% were malnourished, and 35.31% were at risk of malnutrition. A statistically significant relationship was found between the MNA classification and loss of appetite, economic problems, caregiver not providing nutritional support, lack of social security, polypharmacy, and inability to eat alone.

Conclusion: Screening the nutritional status of patients given home health care with appropriate scales and at short intervals, identifying those at risk of malnutrition and improving their nutritional status with appropriate interventions will positively affect the general health status and quality of life of these patients.

Keywords: Nutritional status, home care services, malnutrition, risk factors.

Introduction

Today, many factors, such as the extension of the average life expectancy, an increase in the elderly population in need of medical support, and developments in medicine and technology that allow many health services to be implemented at home, increase the importance of home health services.[1]

The home care patient group is more likely to have malnutrition due to advanced age and accompanying diseases such as dementia, depression, decreased oral intake, swallowing, and chewing problems, inability to eat alone, immobility, loss of appetite, nausea and vomiting. The problem of malnutrition has important effects on morbidity, mortality, disease complications, length of hospital stay, tolerance to treatment, prognosis, and quality of life, which affect the function and healing of all body systems.[2] In epidemiological studies, globally, about 13–78% of older adults are suffering from malnutrition; this rate increases up to 90% in those hospitalized for acute illness, and this rate is 30-60% in nursing homes or long-term care recipients.[3,4,5] Among the factors that negatively affect nutritional status, the following factors take an important place: environmental factors such as physiological changes that occur with aging, acute and chronic diseases, dental and oral health problems, polypharmacy, economic problems, not being able to shop alone, not being able to prepare and eat food.

Studies have shown that approximately 75% of the elderly with malnutrition or at risk for malnutrition do not receive any treatment.[6] It is thought that the most important reason for this is that malnutrition that starts in the elderly goes mostly unnoticed. In elderliness, even if no other factors play a role, the mortality rate increases by 9-38% within 1-2,5 years from the beginning of weight loss alone.[7]

These data show the importance of regular screening of home care patients for malnutrition. To reduce mortality and morbidity and to increase the quality of life, early evaluation of home care patients, who are most likely to experience malnutrition, in terms of factors that negatively affect their nutritional status, and determination of their nutritional levels at periodic intervals are important and necessary.[8]

One of the most commonly used methods for screening for malnutrition is the MNA test. It has been reported that the use of the MNA test in the monitoring of malnutrition will be beneficial in measuring the effect of nutritional support.[9]

In light of this information, the aim of our study was to determine the changes in the MNA test and the factors affecting this change during the care period that the patients were receiving home care.

Materials and Methods

This research, which was planned as a prospective descriptive field study, was carried out after obtaining ethical approval. The universe of the study consisted of 1479 patients who applied to the Home Care Services of a tertiary hospital for the first time. Since a 5% margin of error and 95% confidence level were targeted in the study, it was calculated that at least 306 patients should be reached. Considering possible data losses, 10% was added to this number, and it was decided to reach a total of 340 patients. Patients who were visited at least two times with an interval of 6 months between November 2017 and September 2018 were included in the study. Since the study was carried out together with the service delivery, the sample was not selected, and all patients who agreed to participate were included in the study on a voluntary basis throughout the study period. In this way, a total of 342 patients were reached, nine patients were discharged as exitus during the study process, 11 patients did not want to continue working and two patients were excluded from follow-up due to a change of address. In this way, the study was completed with 320 patients.

In addition to the MNA test, the research data were collected using a sociodemographic data form prepared by the researchers in accordance with the current literature and a questionnaire questioning the factors affecting nutrition. Questionnaire forms were filled according to the answers received from the patient in cases where communication could be established and from the caregivers in cases where communication could not be established with the patient. All data were collected by the researcher by face-to-face interview method.

In the first section of the questionnaire prepared by the researchers, the patient's sociodemographic data, the patient's age, gender, primary diagnosis that caused him/her to be dependent on the home, the drugs he/she used, the closeness of the caregiver and the degree of dependence of the patient was questioned. In the second section of the questionnaire, 14 questions were asked to evaluate the factors affecting nutrition and they were asked to indicate their answers in a 5-point Likert format (1 least important / 5 most important). The questions in the survey included the following topics; low dietary intake, inability to prepare food, loss of appetite, economic problems, failure of caregivers to provide nutritional support, low functional status, not having social security, polypharmacy, acute or chronic diseases, dental and oral health problems, physiological changes with aging, inability to shop alone, inability to eat alone, change in the sense of taste and smell.

The MNA test consists of 18 questions consisting of 6 screening and 12 evaluation questions. 15 of these 18 questions are verbal inquiries and the other 3 are anthropometric measurements. All nutritional scoring is done out of 30 points, and the nutritional status of the person is considered normal when a score of 12 or more out of 14 is obtained in the pre-interrogation section consisting of six questions. In this section, if the patient gets 11 points or less, the remaining 12 questions of the test are continued. A total of 24-30 points is considered as a normal nutritional status, 17-23.5 is considered as at risk of malnutrition, and 17 and below is considered

malnutrition. The 15 verbal questions included in the MNA test are for the patient's general nutritional assessment and dietary habits. Anthropometric measurements made during MNA are as follows; BMI, upper arm circumference and calf circumference.[10-12] The Turkish validity and reliability study of the MNA test was conducted by Sarıkaya in 2013.[9]

At the first visit, the researchers in the research team informed the patient and/or caregiver about the study. At the first interview, the MNA test, which is routinely applied to all patients receiving home care service, whether they agreed to participate in the study or not, was filled in by obtaining information from the patient and/or caregiver. The test was implemented by using the face-to-face interview method. The upper arm circumference and calf circumference of the patient in the test were measured by the investigator with a tape measure. At this stage, procedures such as the prescribing formula for those who were found to have malnutrition or risk of malnutrition were performed.

At the second visit, which was made at least six months later, the patients who agreed to participate in the study were administered the MNA test, as well as a questionnaire created by the researchers regarding the sociodemographic data of the patient and the factors affecting nutrition.

Data were analyzed by IBM SPSS (Statistical Package for Social Sciences) ver. 22 package program. Continuous variables were represented as mean ± standard deviation, median (minimum and maximum values), and categorical variables were represented as numbers and percentages. The suitability of the data to the normal distribution was examined by the Kolmogorov-Smirnov test. Student's t-test was used to compare the mean MNA scores while examining the distribution of nutrition levels according to the MNA results of the first and second visits; and the Pearson Chi-square test was used to compare other changes between groups. In all analyses, $p<0.05$ was considered statistically significant.

Results

The ages of 320 patients included in the study ranged from 14 to 98 years, with a median age of 81.00 (IQR=13) years. Of the study population, 12.19% (n=39) were under 65 years of age, 32.81% (n=105) were between 65-79 years of age, and 55,00% (n=176) were aged 80 and over. While 84.06% (n=269) of the caregivers were first- and second-degree relatives such as spouses, children, siblings, grandchildren, and daughters-in-law, 15.94% (n=51) consisted of caregivers and other relatives who provide care in return for a salary. When the distribution of diseases that are the reason for receiving home care services is examined, the highest rate is 50.32% of neurological diseases (n=161). Some descriptive features of the patients included in the study are given in Table 1.

Table 1. Some Descriptive Features of the Patients Included in the Study

FEATURES		n	%
Gender	Male	106	33.13
	Female	214	66.87
Relationship degree of caregiver	Closely related	269	84.06
	Salaried employee	51	15.94
Primary diagnosis causing home dependency	Alzheimer-Parkinson-Dementia	82	25.63
	Cerebrovascular accident	79	24.69
	Orthopedic pathologies	44	13.75
	Cardiovascular pathologies	30	9.38
	Elderliness	38	11.88
	Endocrine and metabolic disorders	9	2.81
	Other diseases	38	11.88
The patient's method of nutrition	Normal oral feeding	238	74.38
	With formula	80	25.00
	Percutaneous Endoscopic Gastrostomy	2	0.63
Dependency level in the first interview	Totally confined to bed	99	30.94
	Mobile with wheelchair in the home	49	15.31
	Mobile with help at home	172	53.75

The mean total MNA score of the patients included in the study decreased statistically significantly between the two visits (p<0.001). Likewise, a statistically significant increase was determined in the number of patients evaluated as malnourished at the second visit compared to the other groups (p<0.001). The distribution of the nutritional level of patients according to first and second-visit MNA results is given in Table 2.

When examining the category of the patients in the classification made according to the descriptive characteristics asked in the study and the MNA values obtained at the first and second visits, a statistically significant difference was found in terms of deterioration of nutritional status in all characteristics, except for an endocrine and metabolic disorder (p=0.165) that caused the primary diagnosis to be home dependent (p<0.001 for all characteristics), nutritional status at first and second visits according to descriptive characteristics of patients receiving home health care are given in Table 3.

Table 2. Distribution of Nutritional Level of Patients According to First and Second Visit MNA Results

	First visit	Second visit	*p*
MNA score (mean±sd)	18.08±6.55	17.80±6.30	<0.001*
With malnutrition (%)	122 (38.13)	134 (41.88)	
Under The Risk of Malnutrition (%)	121 (37.81)	113 (35.31)	<0.001**
Normal (%)	77 (24.06)	73 (22.81)	

*Student's t-test **Pearson's Chi-square test

Table 3. Nutritional Status at First and Second Visits According to Descriptive Characteristics of Patients Receiving Home Health Care

FEATURES		MNA first visit data						MNA second visit data						P*
		Normal		Under the Risk of Malnutrition		With malnutrition		Normal		Under the Risk of Malnutrition		With malnutrition		
		n	%	n	%	n	%	n	%	n	%	n	%	
Gender	Male	22	20.75	38	35.85	46	43.40	23	21.70	36	33.96	47	44.34	<0.001
	Female	55	25.70	83	38.79	76	35.51	50	23.36	77	35.98	87	40.65	<0.001
Relationship degree of caregiver	Relative	63	23.42	103	38.29	103	38.29	63	23.42	97	36.06	109	40.52	<0.001
	Salaried	14	27.45	18	35.29	19	37.26	10	19.61	16	31.37	25	49.02	<0.001
Method of nutrition	Normal oral feeding	76	31.93	113	47.48	49	20.59	72	30.25	102	42.86	64	26.89	<0.001
	With formula	1	1.25	7	8.75	72	90.00	1	1.25	11	13.75	68	85.00	
	Percutaneous Endoscopic Gastrostomy	0	0.00	1	50.00	1	50.00	0	0.00	1	50.00	1	50.00	
Dependency level	Totally dependent	8	8.08	24	24.24	67	67.67	3	3.03	25	25.25	71	71.71	<0.001
	Mobile with wheelchair	8	16.33	23	46.94	18	36.73	11	22.45	22	44.90	16	32.65	<0.001
	Mobile with help	61	35.47	74	43.02	37	21.51	59	34.30	66	38.37	47	27.33	<0.001
Primary diagnosis causing home dependency	Alzheimer-Parkinson-Dementia	9	10.98	26	31.71	47	57.32	7	8.54	30	36.59	45	54.88	<0.001
	Cerebrovascular accident	20	25.32	36	45.57	23	29.11	16	20.25	34	43.04	29	36.71	<0.001
	Orthopedic pathologies	13	29.55	20	45.45	11	24.44	14	31.82	16	36.36	14	31.82	<0.001
	Cardiovascular pathologies	11	36.67	13	43.33	6	20.00	16	53.33	7	23.33	7	23.33	<0.001
	Elderliness	11	28.95	12	31.58	15	39.47	11	28.95	11	28.95	16	42.11	<0.001
	Endocrine and metabolic disorders	4	44.44	5	55.56	0	0.00	2	22.22	6	66.67	1	11.11	0.165
	Other diseases	9	23.68	9	23.68	20	52.63	7	18.42	9	23.68	22	57.90	0.001

*Pearson chi-square

When patients and caregivers were asked to rate the factors affecting the patient's nutrition between 1 and 5 according to their importance (1 = least important / 5 = most important), it was observed that the most important factor was the presence of existing disease with a score of 4.48± 0.71. Ranking of the importance given to the factors affecting nutrition by patients and caregivers and their scores are given in Table 4.

Table 4. Ranking of the Importance Given to the Factors Affecting the Nutrition by Patients and Caregivers and the Relationship of the Determined Factors with the Malnutrition Indicator Score

			Relationship of the Determined Factors with the Malnutrition Indicator Score			
	Given score		First examination		Second examination	
Factors Affecting Nutrition	Mean±sd	Median	Coefficient*	*p*	Coefficient*	*p*
Existence of patient	4.48 ± 0.71	5	-0.168	0.003	-0.117	0.036
Low functional status	4.14 ± 0.88	4	-0.134	0.017	-0.123	0.028
Effects of aging	3.71 ± 1.01	4	0.128	0.022	0.144	0.010
Inability to eat alone	2.86 ± 1.71	3	-0.594	<0.001	-0.543	<0.001
Inability to eat	2.70 ± 1.70	3	-0.648	<0.001	-0.665	<0.001
Polypharmacy	2.69 ± 1.57	3	0.248	<0.001	0.195	<0.001
Economic problems	2.58 ± 1.50	3	-0.070	0.214	-0.108	0.055
Low dietary intake	2.07 ± 1.55	1	-0.087	0.120	-0.088	0.115
Dental/oral health disorder	1.92 ± 1.40	1	0.153	0.006	0.130	0.020
Inability to cook	1.83 ± 1.29	1	-0.046	0.408	-0.072	0.197
Change in the sense of taste/smell	1.82 ± 1.26	1	0.052	0.358	0.026	0.640
Lack of support by the caregiver	1.64 ± 1.38	1	-0.117	0.036	-0.172	0.002
Inability to shop alone	1.54 ± 1.15	1	-0.040	0.480	-0.091	0.104
Not having social security	1.39 ± 1.12	1	-0.098	0.079	-0.158	0.005

*Pearson correlation Coefficient

Discussion

In this study, the nutritional status of individuals receiving health services at home was evaluated with the MNA test, and biopsychosocial factors affecting nutrition were dwelled on.

The mean MNA score of the individuals participating in the study was 18.08±6.55 on the first visit and 17.80±6.30 on the second visit. It was determined that the MNA total scores between visits decreased statistically to a significant extent. In a meta-analysis carried out by Pauly et al. in 2007, studies on nutritional status screening with MNA in nursing homes between 1999 and 2006 were reviewed. In 12 studies conducted

with MNA, malnutrition risk was found at rates ranging from 2% to 38%, and malnutrition risks at rates ranging from 37-62%. [13] In a newer cross-sectional study conducted in Turkey, the risk of malnutrition in the elderly individuals living in nursing homes evaluated with MNA, the malnutrition risk was reported as 37%.[14] In our study, 38.13% of the patients participating in the study were found to be malnourished, while the prevalence of malnutrition risk was found to be 37.81%. Although these results can be evaluated in accordance with the studies conducted in general, it was a remarkable finding that the rate of patients at risk of malnutrition was lower than in other studies, but the cases with malnutrition were compatible with high rates. We think that this finding may be due to the low socioeconomic level of our patients and their inability to access healthy food sources.

In a study by Ülger et al. in which the malnutrition status and related factors of 2327 patients aged 65 and over were evaluated, they identified five factors highly associated with malnutrition as female gender, depression, dementia, congestive heart failure, and decubitus ulcer presence.[14] In a systematic review study carried out by Tamura et al. in 2013. They examined the factors associated with weight loss, low BMI and malnutrition in the elderly staying in long-term care institutions. According to the results of the study, they found that depression, swallowing and chewing problems, poor oral intake, and dependence on nutrition were associated with weight loss.[15] According to the study by Bell et al. conducted on the patient staying in the nursing home, malnutrition, depression, cognitive disability, functional disability, and chewing difficulties were found to be related.[16]

In the study carried out by Johansson et al. with 579 home care patients, advanced age, low self-care, and the presence of depression were found to be three notable factors in the development of malnutrition.[17]

A recent review stated that older adult's dietary pattern is influenced by socioeconomic factors, price of food items, marital status, psychological factors, changes in sensory functioning, access to food commodities, nutrition knowledge and cooking skills, gastrointestinal problems, oral health and medication factors .[18]

In our study, the nutritional status of the participants was evaluated according to their gender, the closeness of the caregiver, level of dependence, and primary diagnosis of home dependency. Except for the endocrine and metabolic disorder as the primary diagnosis that caused him/her to be home dependent, all reasons were found to be important for the deterioration of his nutritional status. In the first meeting, the most important factors affecting nutrition by the patients and caregivers were stated as the presence of the disease, low functional status, the effects of aging, inability to eat alone, inability to eat, polypharmacy, dental/oral health disorder, and the caregiver's lack of support. Additionally, during the second meeting, merely the factor of the absence of social security was added to these factors. The results of our study suggested that psychosocial factors, as well as biological factors, are effective in the risk of malnutrition seen in patients receiving home care.

Conclusion

Patients in need of home health services are a group prone to malnutrition, especially when they are elderly or have chronic, mental, or physical diseases. The general health status, quality of life, and complications related to diseases will be positively affected by screening the patients with convenient scales, identifying those with malnutrition and those at risk of malnutrition with further examinations, and improving their nutritional status with appropriate interventions. In order to prevent the risk of malnutrition, we recommend the implementation of an adequate, balanced and healthy diet plan, regular monitoring of body weight and screening of nutritional status as frequently as possible with appropriate scales so that weight loss can be noticed promptly.

Ethical Considerations: This study was carried out after the approval of the Clinical Research Ethics Committee of the University of Health Sciences, Dışkapı Yıldırım Beyazıt Training and Research Hospital, dated 06.11.2017 and numbered 42/09.

Conflict of Interest: The authors declare no conflict of interest.

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