EVALUATION OF NUTRITIONAL STATUS AMONG OLDER DEMENTIA PATIENTS

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Summary

Objectives: To assess the nutritional status among older dementia patients. ***Subjects and methods:*** A cross-sectional study on 87 dementia patients aged ≥ 60 years old who were examed or treated at National Geriatric Hospital. Patients were interviewed according to the uniform questionnaire, the nutritional status was assessed by MNA-SF, and dementia was diagnosed by neuropsychiatrists following DSM-5 criteria. ***Results:*** The mean age of the patients was 76.8±1.2 years, female patients accounted for 65.5%. The mean score of MNA-SF was 9.6 ± 2.4 points. The prevalence of malnutrition was 18.4%, and the risk of malnutrition was 59.8%. Dependence in activity daily living was associated with malnutrition or risk of malnutrition (OR = 20.5, 95%CI: 1.06 - 386.12) in the univariate logistic regression analysis. ***Conclusion:*** The study showed a high proportion of dementia patients who were malnourished and at risk of malnutrition. Dementia patients with dependence in activity daily living have more risk of malnutrition.

* *Keywords: Dementia; Nutrition; Elderly.*

INTRODUCTION

Dementia is a syndrome in which there is deterioration in memory, thinking, behavior, and the ability to perform everyday activities [1]. It is not only one of the most common health issues but also one of the leading causes of disability among elderly patients. In 2019, it had about 50 million people with dementia around the world,

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and there were nearly 10 million new cases every year [1]. The total number of dementia patients can be up to 82 million in 2030 and 152 million in 2050 [2]. In Vietnam, a research in National Geriatric Hospital showed that 4.5% of the elderly have dementia.

People with manifest dementia often have great difficulties in meeting universal self-care requisites, like maintaining a sufficient intake of fluid and food. So nutritional problems are often common among people with dementia [3]. Droogsma reported that about 14% of community-dwelling people with dementia were at risk of malnutrition [4]. Another study demonstrated prevalence of malnutrition among community-dwelling Alzheimer's disease patients varied between 0% and 23.2% in different populations. Optimal nutritional care can reduce the prevalence of complications of malnutrition in demented patients, such as irritability and insomnia, problems with urination and disorientation, risk of falls, infections, and pressure sores. It also helps to decrease longer hospital stays, and reduce the rate of unplanned readmissions as well as an outpatient health resource.

Alzheimer Disease International showed that one of the positive approaches to supporting people with dementia in dealing with terrible disease is focus on diet and nutrition. Identifying factors that may be associated with nutritional status, is also a method to address the nutritional issue in patients. Although many authors have researched about the nutritional status of demented patients, almost previous researches were performed in other countries instead of Vietnam. Thus, we conducted this research: *To assess the nutritional status among older dementia patients*.

SUBJECTS AND METHODS

1. Subjects

Patients were examined or admitted to National Geriatric Hospital from July to November 2021.

* *Inclusion criteria:* Age of 60 years old or older, examination or treatment at National Geriatric Hospital, diagnosis with dementia according to DSM-5 criteria [4].

* *Exclusion criteria:* Acute and malignant diseases (advanced cancers, end-stage chronic diseases, acute

myocardial infarction, acute stroke), severe loss of vision, hearing or communicative ability (according to the interRAI Community Health Assessment), participant or family unwilling to participate in the study.

2. Methods

* *Study design:* The cross-sectional study.

* *Sampling:* Random sampling.

* *Variables:*

- Demographic characteristics: Gender, age, educational level, living status.

Nutritional status assessment: The nutritional status was assessed by Mini Nutritional Assessment short-form (MNA-SF) [5]. The MNA-SF test comprises simple measurements and 6 questions that can be completed in less than 5 minutes. The patients were divided into three groups according to their MNA-SF scores.

Evaluation: 0 - 7 points: Malnourished; 8 - 11 points: At risk of malnutrition; 12 - 14 points: Normal nutritional status.

- Dementia was diagnosed by neuropsychiatrists following DSM-5 criteria [6].

- The time of memory loss was divided into two groups: 0 - 1 year and over 1 year.

- The stage of dementia included: Mild, moderate, and severe dementia which was assessed based on the Clinical Dementia Rating scale (CDR).

- Functional dependence assessment based on Katz index of Independence in Activities of Daily Living (IADL). A score of less than 8 indicates dependence in activity daily living.

* *Data analysis:*

The process of data coding and entry was done by using Redcap software, and data analysis was done by SPSS software version 22.0. Descriptive statistics were adopted to examine characteristics data: Frequency, percentage, mean. Inferential statistics were done to perform a comparison between groups using Chi-square, t-test, and univariate logistic regression analysis. Statistical significance was defined as any p-value less than 0.05.

* *Ethical consideration:*

Ethical approval has been performed in accordance with the Declaration of Helsinki and approved by Hanoi Medical University (IRB00003121) on December 31st, 2020.

RESULTS

Table 1: General characteristics among participants (n = 87).

Characteristics	Frequency (n)	Percentage (%)
Age (mean ± SD: 76.8 ± 1.2)		
60 - 69	18	20.7
70 - 79	36	41.4
≥ 80	33	37.9
Gender		
Male	30	34.5
Female	57	65.5
Educational level		
Undergraduate high school	51	58.6
Graduate high school	28	32.2
Graduate university	7	8
Living with		
Family	78	89.7
Caregiver	3	3.4
Alone	6	6.9
Time of memory loss		
≤ 1 year	33	37.9
> 1 year	54	62.1

Overall 87 participants were enrolled in the sample. The age ranged from 60 to 96 years old, which were divided into three groups: 60 - 69 years old (20.7%, n = 18), 70 - 79 years old (41.4%, n = 36) and above 80 years old (37.9%, n = 33). Among participants, 30 participants (34.5%) were male and 57 participants (65.5%) were female. Almost participants reported to be undergraduated high school (58.6%, n = 51) and graduated high school (32.2%, n = 28). The majority of participants lived with family (89.7 %, n = 78) and 10.3% lived alone or with others. Almost patients had memory loss for more than 1 year (62.1%, n = 54). 33 patients (37.9%) had memory loss under 1 year.

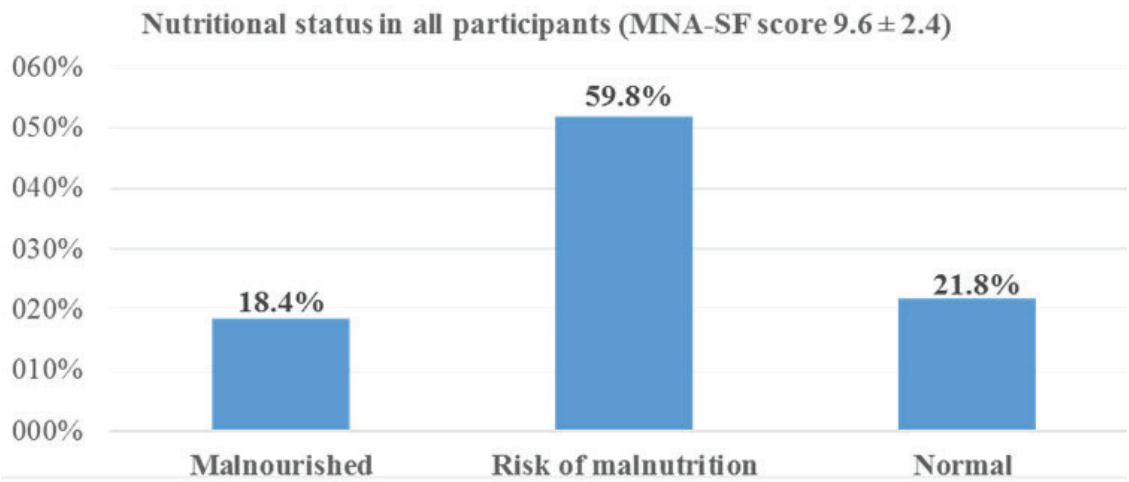

Figure 1: Nutritional status among all participants by MNA-SF tool (n = 87).

The older dementia patients who were malnourished, accounted for 18.4% (n = 16), 59.8% (n = 52) were identified as at risk of malnutrition and 21.8% (n = 19) had normal nutritional status. The average score of MNA was 9.6 ± 2.4.

Table 2: Components of MNA-SF instrument (n = 87).

Components	Classification	Frequency (n)	Percentage (%)
Food intake declined over the past 3 months	Severe decrease	3	3.4
	Moderate decrease	22	25.3
	No decrease	62	71.3
Weight loss during the last 3 months	Weight loss greater than 3 kg	4	4.6
	Does not know	15	17.2
	Weight loss between 1 and 3 kg	11	12.6
	No weight loss	57	65.5
Mobility	Bed or chair bound	10	11.5
	Able to get out of bed	20	23.0
	Go out	57	65.5

Components	Classification	Frequency (n)	Percentage (%)
Suffered psychological stress or acute disease in the past 3 months	Yes	13	14.9
	No	74	85.1
Neuropsychological problems	Dementia or depression	51	58.6
	Mild dementia	36	41.4
Body Mass Index (BMI)	BMI < 19	14	16.1
	BMI 19 to less than 21	15	17.2
	BMI 21 to less than 23	26	29.9
	BMI 23 or greater	32	36.8

A great number of samples had no decrease in food intake (71.3%, n = 62) and two-third of participants did not have weight loss over the last 3 months (65.5%, n = 57). Only a small proportion of them complained of a severely declined food intake and losing more than 3 kg of weight (3.4% and 4.6%, respectively). In terms of mobility, 65.5% (n = 57) of the participants could go out of their homes. The proportion of patients who were able to get out of bed and only in bed or chair bound was 23% (n = 20), and 11.5% (n = 10), respectively. Most of them did not get any acute diseases or stress during the past 3 months. All samples had neuropsychological problems. The percentage of mild dementia patients (41.4%, n = 36) was lower than the percentage of dementia or depression patients (58.6%, n = 51). Participants with BMI equal to 23 or greater accounted for the highest percentage (36.8%, n = 32). The proportion of BMI 19 to less than 21 (17.2%, n = 15) was similar to BMI < 19 (16.1%, n = 14). Over a half of samples reported that they did not have any eating problems (63.2%, n = 55). A quarter of patients (25.3%, n = 22) suffered from the loss of appetite, and the proportion of patients with dysphagia accounted for only a small percentage (6.9%).

Table 3: Univariate logistic regression analysis of the association between malnutrition or risk of malnutrition and related factors (n = 87).

Variables	Univariate Odds ratio (95% CI)	p
Female gender	0.5 (0.05 - 4.28)	0.5
≥ 80 years old	1.08 (0.17 - 6.8)	0.94
Dependence in activity daily living according to IADL index	20.25 (1.06 - 386.12)	0.046
Over 1 year of memory loss	0.87 (0.14 - 5.48)	0.89
Type of dementia	1.1 (0.36 - 2.8)	0.98
Time of memory loss	1.07 (0.91 - 1.25)	0.44

Dependence in activity daily living was associated with malnutrition or risk of malnutrition (OR = 20.5, 95%CI: 1.06 - 386.12) in the univariate logistic regression analysis.

DISCUSSION

In a total of 87 participants, female patients accounted for 65.5%, which was significantly higher than the proportion of males. A research at National Geriatric Hospital indicated a similar result, with the proportions of males and females 38% and 62%, respectively [7]. The age in samples ranged from 60 to 96 years old, the mean age was 76.8 ± 8.3. The age was divided into three groups: 60 - 69 years old (20.7%, n = 18), 70 - 79 years old (41.4%, n = 36) and above 80 years old (37.9%, n = 33). The mean age in our study were similar to the previous study by Tran Thao Phuong (2019) (75.6 ±7.3 years) and lower than the study by Demet Yildiz in Turkey (79 ± 7.4 years) [8]. 62.2% of patients in our study had memory loss for more than 1 year. The rate of patients with memory loss under 1 year was 37.9% (n = 33). Quite a few patients complained of memory loss but did not go to hospital for screening dementia.

In MNA-SF score, although there was quite a high percentage of patients with positive answers in two questions at first. In the latter questions, the percentage of patients with problems was also high. 71.1% of participants

had no declined food intake over the past 3 months, and 65.5% of participant maintained their weight over 3 months. A lot of participants had severe loss of memory or complication of stroke or Parkinson's disease. Up to 34.5% of participants were unable to go out. All samples were dementia patients, thus 100% of participants had neuropsychological problems (41.4% mild dementia and 58.6% dementia and depression. 14.9% of participants experienced stress or acute disease in the past 3 months. Up to 16.1% of participants had BMI < 19 and the percentage of patients with BMI greater than 23 was not so high.

Our study indicated that 18.4% of samples were malnourished which was higher than the findings by Roque, et al (5.2%) [9]. The difference might be in our study, we used MNA-SF but others used the full MNA. MNA-SF was a good screening tool, which was validated and recommended. However, further evaluation using the full MNA was needed to identify the exact malnutrition status. Some patients at risk of malnutrition in our study might be classified as malnutrition if we performed a deeper assessment. In addition, our samples were smaller than the study by Roque. However, the rate of malnourished patients in our study was lower than in Park M.'s et al and Muurinen's study with proportion of malnutrition of 34.8% and 28%, respectively. It could be explained that both of the above studies were conducted in a long-term care unit. The patient's health condition is probably also much worse than the outpatients in our study.

The prevalence of malnutrition and risk of malnutrition in males and females were quite similar. This result was consistent with the result of the previous study [9]. By type of dementia, malnutrition in our study was more frequent among patients with vascular dementia ($p < 0.05$). This result was not consistent with the finding of M. Rouque in Spain. Malnutrition prevalence was higher among patients with Lewy bodies dementia (18.2%), the result may be related to increased eating and swallowing problems in Lewy bodies dementia compared to Alzheimer's disease [8].

The study result showed a relationship between nutritional status and physical function in activity of daily living. The more activities patients need help with, or in other words, the more independent they were, the more malnourished or at risk of malnutrition they will be. This finding was consistent with the result of the research of M. Roque in Spain. Results in the Spain study, patients dependent on eating, food preparation,

and shopping had a much higher rate of malnutrition or the risk of malnutrition than the independent group. It is necessary to pay special attention to functional capacity when planning nutritional care for this group, especially when they are debilitated by the disease.

CONCLUSION

The study showed a high proportion of dementia patients who were malnourished and at risk of malnutrition. Dementia patients with dependence in activity daily living have more risk of malnutrition.

REFERENCES

1. Dementia. https://www.who.int/news-room/fact-sheets/detail/dementia.

2. Dementia statistics. https://www.alzint.org/about/dementia-facts-figures/dementia-statistics/.

3. Holm B. (2003). Factors associated with nutritional status in a group of people in an early stage of dementia. *Clinical Nutrition*; 22: 385-389.

4. Droogsma E., et al. (2013). Nutritional status of community-dwelling elderly with newly diagnosed Alzheimer's disease: Prevalence of malnutrition and the relation of various factors to nutritional status. *J Nutr Health Aging*; 17: 606-610.

5. Kaiser M.J., Bauer J.M., Ramsch C., et al. (2009). Validation of the Mini Nutritional Assessment short-form (MNA-SF): A practical tool for identification of nutritional status. *J Nutr Health Aging*; 13(9): 782-788. doi:10.1007/s12603-009-0214-7.

6. Regier D.A., Kuhl E.A., Kupfer D.J. (2013). The DSM-5: Classification and criteria changes. *World Psychiatry*; 12(2): 92-98. doi:10.1002/wps.20050.

7. Herdman M., et al. (2011). Development and preliminary testing of the new five-level version of EQ-5D (EQ-5D-5L). *Qual Life Res*; 20: 1727-1736.

8. Yildiz D., Pekel N.B., Kiliç A.K., Tolga E.N., Tufan F. Malnutrition is associated with dementia severity and geriatric syndromes in patients with Alzheimer disease. *Turk J Med Sci* 4.

9. Roque M., Salva A., Vellas B. (2013). Malnutrition in community-dwelling adults with dementia (Nutrialz Trial). *J Nutr Health Aging*; 17: 295-299.