Nutritional Status of the Elderly Living in Nursing Homes in Sabzevar, Iran

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ABSTRACT

Background and objectives: Despite the importance of physiological changes that occur in the aging process, monitoring the nutritional status of the elderly has been neglected in developing countries. Nutrition has a significant impact on the quality of life and risk of morbidity and mortality among the elderly. In this study, we evaluated nutritional status of older people living in nursing homes in Sabzevar, Iran.

Methods: This descriptive cross-sectional study was conducted on 120 randomly selected elderly men (n=60) and women (n=60) living in nursing homes in Sabzevar, Iran. Data were collected using a demographic survey and the standard Mini Nutritional Assessment (MNA) questionnaire. The collected data were analyzed using SPSS16 software at significance level of 0.05.

Results: Mean age of men and women was 65.4 ± 7.4 and 73 ± 7.3 years, respectively. There was a positive correlation between age and malnutrition in the elderly (P=0.013). Moreover, malnutrition was associated with gender in a way that women were more likely to suffer from malnutrition.

Conclusion: Our results indicate that the nutritional status of the studied population of the elderly is poor, which needs to be urgently addressed by healthcare policymakers.

KEYWORDS: Elderly; MNA; Nutritional status

INTRODUCTION

Older people need extra care and assistance due to the physiological and psychological changes that occur following aging (1). The population of the elderly is expected to reach over one billion by 2050 (2, 3). According to the latest statistics, the number of people over the age of 60 accounts for 8.1% of the total population of Iran, and it is expected to reach 21.7% in 2050. Therefore, elderly care has become a major challenge in the country (4-6). The nutritional status of the elderly is also an important issue that has been neglected in developing countries (7). The prevalence of malnutrition in the older people living in nursing homes is higher compared to those living alone or with family (8-10). In a cross-sectional study on 1144 older patients in Portugal, 36% were at risk of developing malnutrition and 7.9% had malnutrition (11). Improving the nutritional status of older people plays an important role in improving their health status and reducing the risk of chronic disease-associated morbidity and mortality (12). In this study, we aimed to evaluate nutritional status of older people living in nursing homes of Sabzevar, Iran.

MATERIALS AND METHODS

We performed this cross-sectional study on 120 older people (60 men and 60 women) living in the nursing homes of Sabzevar (Iran) in 2015. Data were collected using a demographic survey and the Mini-Nutritional Assessment (MNA) questionnaire. NMA was completed with the help of nurses working in the nursing homes. Moreover, for cases who were unable to answer, information was obtained from the nurses who had sufficient knowledge about these individuals. Demographic characteristics of the subjects were extracted from their records. The MNA is a suitable tool for assessing the nutritional

status of the elderly, which enables early identification of individuals and appropriate interventions (13, 14). The reliability of this tool has been evaluated in numerous studies (15-17).

The MNA consisted of 18 questions and a score of 24 or higher indicated a good nutritional status. Individuals who scored 17 to 23.5 were at risk of malnutrition. A score of less than 17 indicated malnutrition in the elderly.

The subjects were weighed using a digital scale (with accuracy of 0.5 Kg). Waist, hip, mid-upper arm and calf circumferences were measured using a cloth tape measure (with a precision of 0.1 cm).

The subjects were also categorized as completely dependent (confined to bed or with limited mobility) and non-dependent. Finally, data were analyzed using SPSS software (version 16).

RESULTS

Mean age of the elderly men and women was 65.4 ± 7.4 and 73 ± 7.3 years, respectively. There was a significant relationship between older age and malnutrition (P<0.013). The risk of developing malnutrition was higher in women and there was a direct correlation between gender and malnutrition (P=0.002). The mean body mass index (BMI) was 27.7 ± 3.9 Kg/cm^2 in men and 35.8 ± 4.9 Kg/cm^2 in women. There was also a significant relationship between BMI and malnutrition (P=0.002).

The mean weight was 40.2 ± 9.3 and 53.6 ± 7.2 Kg in men and women, respectively. The mean height was 160.01 ± 6.5 cm in men and 154.2 ± 5.1 cm in women. Both parameters had a significant correlation with malnutrition (P= 0.002). We found no significant relationship between malnutrition and the mid-upper arm circumference and calf circumference. The results indicated that the mobility and activity of the elderly were associated with malnutrition in a way that the elderly who were exercising at least one hour a day were at lower risk of developing malnutrition. Table 1 shows the characteristics of the older people who participated in the study.

Table 1. Characteristics of the older people living in nursing homes of Sabzevar, Iran

Parameter	Men	Women	Overall mean value
Age (years)	65.4 ± 7.4	73 ± 7.3	69.2 ± 7.35
Weight (Kg)	40.2 ± 9.3	53.6 ± 7.2	48.8 ± 8.25
Height (cm)	160.01± 6.5	154.2 ± 5.1	157.5 ± 6.8
BMI (Kg/cm2)	27.7 ± 3.9	35.8 ± 4.9	35.31 ± 4.4
Mid-upper arm circumference (cm)	26.6 ± 2.6	30.4 ± 2.1	29.8 ±2.35
Calf circumference (cm)	35.7	33.2	34.1
Waist circumference (cm)	53.3 ± 6.1	60.2 ± 5.9	56.75 ± 6
Hip circumference (cm)	59.1 ± 7.3	73.3 ± 6.5	66.2 ± 6.9

Data are expressed as mean ± standard deviation.

Table 2 shows the prevalence of illnesses in the elderly. The results show that older people with at least one disease are more likely to develop malnutrition. There was a significant relationship between having an illness and malnutrition (P=0.002). Gastrointestinal disease and respiratory disease were the most common and the least common diseases, respectively. Moreover, 99 subjects had at least one underlying disease.

Table 2. Frequency of diseases in the studied population

Type of disease	Men	Women	Overall
Gastrointestinal	22	17	40
Cardiovascular	15	18	33
Musculoskeletal	9	6	15
Respiratory	7	5	12
Overall	53	46	99

According to the results of the questionnaire, only 47.5% of the subjects had a good nutritional status and more than 50% of the elderly did not have a favorable nutritional status. In addition, malnutrition was more frequent in women and they were more vulnerable to malnutrition (Table 3).

Table 3. Frequency of malnutrition in the older men and women based on the MNA

	Malnutrition	At risk of malnutrition	Good nutritional status
Men	7	16	39
Women	13	26	19
Total	20	42	58

We also assessed the daily activity of the subjects using the MNA. In the regression model, MNA score as a dependent variable, was significantly correlated with the amount of daily activity (P=0.05). Moreover, the daily activity as a dependent variable, was correlated with the MNA score (P=0.001).

DISCUSSION

Aging is accompanied with numerous physiological changes that affect the nutritional status (18). In our study population, 51.6% of the elderly did not have a good nutritional status. In a study on 247 older people living in the Kahrizak Charity Foundation in Tehran (Iran), malnutrition was confirmed in 41% of the subjects (19). In a study on 108 older people living in a nursing

home, 19.4% of the subjects had malnutrition and 57.4% were at risk of malnutrition (20).

Our study showed that the nutritional status of the elderly is not favorable, but the active subjects had a better nutritional status. We also found that malnutrition is correlated with BMI, height and weight. Therefore, implementing lifestyle change programs for the elderly by introducing simple exercise routines and entrepreneurial projects can help these individuals become more active and dynamic. We also found that the frequency of women with malnutrition was significantly higher than that of men. According to previous studies, this could be due to the relatively lower level of education and socioeconomic status and higher level of stress in women (21, 22).

It is well demonstrated that malnutrition in the elderly is a result of decreased dietary intake, decreased digestibility and nutrient uptake, and increased need for nutrients (23).

Our results indicated a correlation between a positive history or presence of a disease and malnutrition. In line with our findings, other studies have shown that chronic diseases affect the quality of life and risk of malnutrition (24, 25).

CONCLUSION

Considering the high prevalence of malnutrition and increased risk of malnutrition, there is an urgent need for nutrition interventions for the elderly living in the nursing home of Sabzevar. It is also recommended to offer an appropriate meal plan that meets the requirements of the elderly. Based on our results, it is recommended to use the MNA survey at time of admission to nursing homes and periodically for timely diagnosis of malnutrition and monitoring improvement of nutritional status. Healthcare policy makers should address the issue of malnutrition among the older people, by developing and implementing necessary screening, prevention, control and treatment programs.

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