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NUTRITIONAL SCREENING OF ELDERLY PEOPLE AFTER ISCHEMIC CEREBRAL VASCULAR ACCIDENT

TRIAGEM NUTRICIONAL DE IDOSOS PÓS-ACIDENTE VASCULAR CEREBRAL ISQUÊMICO

RIBADO NUTRICIONAL DE PERSONAS MAYORES TRAS ACCIDENTE VASCULAR CEREBRAL ISQUÉMICO

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ABSTRACT
Apply the nutritional risk screening / nutritional mini-assessment in elderly patients affected by Cerebral Vascular Accident in a Public Hospital in the Sertão Central do Ceará. Cross-sectional study through field research of an exploratory nature, with a quantitative approach, through the application of the nutritional screening questionnaire Mini Nutritional Assessment (MNA) in hospitalized elderly people affected by stroke. The research was carried out with 103 patients, of which 45.6% (n 47) were women and 54.4% (n 56) men. The average age of the group was 73.62 years. The results of the MNA risk screening revealed that 60.2% of the elderly were at risk of malnutrition, 24.3% were eutrophic and 15.5% were malnourished. Although many individuals in this study are elderly with a nutritional status of eutrophy, overweight or obesity, these present alert factors for imminent nutritional risk.
Keywords: *Stroke; Nutrition; Elderly.*

RESUMO
Aplicar a triagem de risco nutricional/mini avaliação nutricional em pacientes idosos acometidos por Acidente Vascular Cerebral em um hospital público do Sertão Central do Ceará. Estudo transversal, por meio da pesquisa de campo de caráter exploratório, com abordagem quantitativa, através da aplicação do questionário de triagem nutricional Mini Avaliação Nutricional (MAN) em idosos hospitalizados acometidos por AVC. A pesquisa foi realizada com 103 pacientes, dos quais 54,4% (n: 56) eram homens e 45,6% (n: 47) eram mulheres. A média de idade do grupo foi de 73,62 anos. Os resultados da triagem de risco da MAN revelaram que 60,2% dos idosos estavam sob risco de desnutrição, 24,3% estavam eutróficos e 15,5% estavam desnutridos. Apesar de muitos indivíduos deste estudo serem idosos com estado nutricional de eutrofia, sobrepeso ou obesidade, estes que apresentam fatores de alerta para risco nutricional iminente.
Descritores: *Acidente Vascular Cerebral; Nutrição do Idoso; Estado Nutricional*.

RESUMEN
Aplicar cribado de riesgo nutricional/ minie valuación nutricional en ancianos afectados por Accidente Vascular Cerebral en un Hospital Público del Sertão Central do Ceará. Estudio transversal mediante investigación de campo de carácter exploratorio, con enfoque cuantitativo, mediante la aplicación del cuestionario de tamizaje nutricional Mini Nutritional Assessment (MNA) en adultos mayores hospitalizados afectados por accidente cerebrovascular. La investigación se realizó con 103 pacientes, de los cuales el 45,6% (n 47) eran mujeres y el 54,4% (n 56) hombres. La edad media del grupo fue de 73,62 años. Los resultados del tamizaje de riesgo MNA revelaron que el 60,2% de los ancianos estaban en riesgo de desnutrición, el 24,3% estaban eutróficos y el 15,5% estaban desnutridos. Aunque muchos individuos de este estudio son ancianos con un estado nutricional de eutrofia, sobrepeso u obesidad, estos presentan factores de alerta de riesgo nutricional inminente.
Descriptores: *Nutricion del Anciano; Accidente Cerebrovascular; Estado Nutricional*.

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INTRODUCTION

Cerebrovascular accident (CVA) is defined as a neurological output, usually in a certain focus, of sudden onset and rapid evolution consequent to the failure located on some surface of the brain. As a result of spasm, clot, or interruption of a blood vessel, it can lead to lack of consciousness, immobility, and deformation, depending on the location and size of the brain injury. The characterization of the type of Cerebrovascular accident results from the artifice that caused it. Thus, it is possible to have two categories of stroke: ischemic and hemorrhagic[1].

The probability of Cerebrovascular accident increases with advancing age, which is why people over 50 years of age are considered risk groups. Ischemic Cerebrovascular accident is typical of the elderly, but it can occur in any age group. Its occurrence is higher after the age of 65, doubling every decade after the age of 55 [2,3].

Cerebrovascular accident is also one of the predominant causes of hospitalizations[4]. Between 2008 and 2016, there were 296,489 hospitalizations for stroke in the nine Federative Unions of the Northeast territory of Brazil, through the Unified Health System (SUS). In 2008, Ceará accounted for a total of 2,910 hospitalizations. In 2016, 6,362 hospitalizations were recorded, a difference 118.6% higher[5].

It is known that advanced age is one of the non-modifiable conditions that can contribute to the onset of stroke. However, nutritional status is one of the modifiable conditions that can also be a decisive factor for a better prognosis, considering that there is a compromise in nutritional status in patients affected by stroke[2].

The assessment of the nutritional status of hospitalized patients is the essential basis for minimizing nutritional risks. The screening of hospitalized elderly patients leads to the discovery of Nutritional Risk (NR) and, as a result, to reduce complications caused by malnutrition in the hospital environment, which is prevalent in the elderly and critically ill6.

The *Mini Nutritional Assessment (MNA),* or Mini Nutritional Assessment (MNA), reduced in Portuguese, was created and validated by Guigoz and Vellas and the company Nestlé in 1997, through the Nestlé Research Center, and was initially validated in the English population. Subsequently, the instrument was translated and validated in other countries. Validation for Portuguese individuals occurred in 2008, through a study conducted by Loureiro in the city of Coimbra[7,8]. In 2019, the Brazilian Society of Enteral and Parenteral Nutrition (BRASPEN/SBNPE)[9] launched the BRASPEN Guideline on Nutritional Therapy in Aging, recommending the use of MNA for the evaluation of older adults in the hospital environment.

It is perceived that there is an urgent need to characterize the nutritional design of individuals affected by stroke, in order to provide more efficient precautionary devices based on changing causes. In this sense, the present study arises from the need to apply the specific nutritional risk screening for elderly individuals, the MNA, in patients affected by Cerebrovascular accident in the Central Sertão of Ceará. Thus, when applied to the population, is it possible to know the prevalence of nutritional status of the affected population? What is the epidemiological profile? The answers to these questions may expand the knowledge of this pathology so that specific guidelines can be drawn up in relation to health policies.

Thus, the objective of this study was to present the results of the nutritional risk screening/mini-nutritional assessment, reduced version, in elderly patients affected by Cerebrovascular accident in a public hospital in the Central Sertão of Ceará.

METHODS

A descriptive cross-sectional study was carried out through exploratory field research, using a quantitative approach.

The research took place in a tertiary care level public hospital, a reference in the care of individuals affected by stroke, located in the Sertão Central region of Ceará. The study was carried out from October to December 2022 in two Cerebrovascular Accident Care Units (CVVA), with individuals who had been admitted within 72 hours of data collection, which was the deadline recommended by the authors for the application of nutritional risk screening - MAN, and who met the other inclusion criteria.

Elderly patients over 60 years of age were invited to participate in the study, evaluated by the nursing team using the *Glasgow Coma* Scale, with a score of 12 to 15, *and the National Institute of Heart Stroke Score* (NIHSS), with a score of <16, values that indicate better levels of awareness and orientation to answer the nutritional risk screening questionnaire. hospitalized in the UAVC's during the study period. For the sample calculation, the number of patients over 60 years of age, diagnosed with iStroke and Transient Ischemic Attack (TIA), in the period of 4 months, with the base period for data collection being the months of January to April 2022, were considered. These data were extracted from the data sheets of the stroke care line of the hospital units where the data were collected. From the data collected, a value of 137 individuals was verified. This number was entered into the *Survey Monkey software*, a program used to calculate the sample. A reliability level of 95% and a margin of error of 5% were used, totaling a sample size of 102 individuals. Thus, a finite sample of 103 individuals who met the inclusion criteria of the research was obtained.

Regarding the inclusion criteria, the following study participants were considered in the study: elderly people over 60 years of age, already diagnosed with ischemic stroke during the investigation, hospitalized in the HCVA, able to answer the questionnaire, according to criteria previously described, walking or not, who agreed to participate in the research and application of the MA. Regarding the exclusion criteria, patients who were absent at the time of the evaluation, those with amputated lower limbs, who could not measure the data contained in the calf circumference and/or estimated weight questionnaire, or individuals who, even within the inclusion criteria, did not agree to participate in the study, were considered.

For data collection, the MAN was applied, recommended by BRASPEN/SBNPE for the evaluation of the elderly in the hospital environment. Its results are given in scores: a score less than or equal to 7 indicates malnutrition; a score between 8 and 11 indicates risk of malnutrition; and a score between 12 and 14 normal nutritional status. The differential of this instrument, according to the authors Vellas (1999) and collaborators, is that it can identify people at risk of malnutrition[7].

For anthropometric evaluation, weight and height were measured using an electronic scale, available at the unit itself for patient evaluation. When it was impossible

to move to the scale, knee height was measured in order to estimate height and weight. The knee height dimension was made with the individual lying on the bed, with the ankle and knee bent at a 90-degree angle, using a non-flexible tape measure, and one end of the tape was positioned on the edge above the patella, extending the other end laterally to the tibia up to heel[10]. The circumference of the bent right arm was also measured, forming a 90-degree angle to locate the midpoint, and the measurement was performed in the middle of the acromial process of the scapula and the olecranon process of the ulna. With these measurements, the weight and height estimation formulas of Chumlea[11] were used, according to gender and specific for the elderly.

The following variables were used: age (in years), gender (female or male), results of the nutritional risk assessment performed by the MAN, collected through the application of a nutritional screening questionnaire, measurement of anthropometric measurements.

The results were treated using Microsoft's Excel software and presented in a descriptive manner, referring to the absolute (n) and relative (%) frequencies regarding the quantitative variables. Displayed by means of tables for observation, study and understanding of them.

The research was approved by the Research Ethics Committee of the Institute of Health and Hospital Management (ISGH) of Fortaleza - CE, with opinion No. 5,666,599. All participants (or guardians) signed the Free and Informed Consent Form, following the regulation of the Ethical Principles of Resolution No. 466/2012 of the National Health Council, which deals with research with human beings.

RESULTS

The study was conducted with 103 hospitalized elderly patients with stroke, of whom 54.4% (n: 56) were men and 45.6% (n: 47) were women. The age group was divided into three ranges: one for the elderly between 60 and 69 years old (32.04%); another from 70 to 79 years (45.63%); and another ≥80 years old (22.33%). The average age of the group was 73.62 years. The average weight of the evaluated group was 68.09 kg and height was 1.58 m. Relating these values to extract the Body Mass Index (BMI), they indicated that the majority, around 46.6%, were eutrophic, according to the Lipschitz classification for the elderly[12].

The following tables present the main data collected from the nutritional risk screening (MAN) short version.

Table 1. Socioeconomic data of elderly people affected by cerebrovascular accident followed up in a public hospital in the Central Sertão of Ceará. Quixeramobim/CE/Brazil, 2023.

Variables		N	%
Sex	Male	56	54,4%
	Female	47	45,6%
Age group	60-69 years old	33	32,04%
	70-79 years old	47	45,63%
	80 years or older	23	22,33%

Source: Own Authorship.

Table 2 - Frequency of responses related to the screening section of the Mini Nutritional Assessment instrument. Quixeramobim/CE/Brazil, 2023.

Variables	N	%
A - In the last 3 months, has there been a decrease in food intake due to loss of appetite, digestive problems or difficulties in chewing or swallowing?		
0= severe decrease	10	9,7%
1=moderate decrease	33	32%
2= no decrease	60	58,3%
B- Weight loss in the last 3 months		
0 = more than three kilograms	15	14,6%
1 = does not know how to inform	27	26,2%
2 = between one and three kilograms	15	14,6%
3 = no weight loss	46	44,7%
C- Mobility		
0 = bedridden or wheelchair restricted	20	19,4%
1 = wanders but is not able to leave the house	55	53,4%
2 = normal	28	27,2%
D- Have you experienced any psychological stress or acute illness in the last three months?		
0 = yes	28	27,2%
2 = no	75	72,8%

E- Neuropsychological problems		
0 = severe dementia or depression	6	5,8%
1 = mild dementia	72	69,9%
2 = no psychological problems	25	24,3%
F- Body Mass Index = weight in kg / (height in m)		
0 = IMC < 19	4	3,9%
1 = 19 ≤ IMC < 21	2	1,9%
2 = 21 ≤ IMC < 23	12	11,7%
3 = BMI ≥ 23	85	82,5%
Screening Score		
12-14: normal nutritional status	25	24,3%
8-11: at risk of malnutrition	62	60,2%
0-7: malnourished	16	15,5%

Source: Own Authorship.

As for the BMI ranges presented by the instrument, they refer to ranges of risk of malnutrition adapted from the Clinical Guidelines for the Identification, Evaluation and Treatment of Overweight or Obese Adults: The Evidence Report, from the National Institute of Health, National Heart Lung and Blood Institute[13].

DISCUSSION

This study had a higher participation of men (54.4%), which is slightly different from the reality of the distribution of the Brazilian population over 60 years of age, which, according to the Continuous National Household Sample Survey (PNAD), consists of 51.1% of elderly women[14].

Araújo et al.[15] also obtained different results in their study conducted with elderly people from a public hospital in the state of Paraíba, where about 54.9% were female and 45.1% were male.

The MNA was developed in order to identify the existence of malnutrition or nutritional risk of senile individuals in homes, outpatient clinics and hospitals. This instrument detects subjects who are malnourished or threatened with malnutrition as a tool that assists nutritional treatment, being easily applicable, efficient and validated in order to be used in hospitalized patients[16].

The first two questions, A and B, contained in the screening questionnaire, refer to the decrease in food intake and weight loss in the last 3 months. Regarding the nutritional aspects identified through the MNA, we can mention that in relation to the decrease in food intake and weight loss in the last three months, only 9.7% of the elderly

in this study reported that they decreased their food intake in a way considered severe by the instrument and 32% had a moderate decrease in intake, while 58.3% did not show a reduction when compared to other studies. Regarding weight loss, 44.7% reported that they had not lost weight in the last 3 months. And another 26.2% did not know how to inform, a result similar to the study below.

Ferreira et al.[17] found results of reduced food intake in 70% of the interviewees in their study with institutionalized elderly. In this same study, regarding weight loss, 171 (53.3%) answered that they did not lose weight and 88 (27.4%) did not know how to inform.

Question C of the questionnaire asks about mobility, difficulty in walking or lack of it. The results showed that most of the elderly, 53.4%, have difficulty in mobility, not being able to walk alone without assistance; Another 19.4% were bedridden and only 27.2% were walking normally. The literature shows that the vast majority of stroke survivors subsist with some consequence, be it physical, dialogical, operational, sensitive, cognitive and emotional[18], because stroke brings sequelae that take some time to recover.

Azevedo et al[19] perceived the absence of locomobility, reduced BMI, decreased food consumption, and the existence of acute illness or psychological exhaustion in the last three months as predominant factors linked to malnutrition, with the last two cited as the main factors related to nutritional loss.

Question D asks about psychological stress or acute illness in the last 3 months. Question E, on the other hand, investigates the presence or absence of neurological disease. When asked about stress or acute illness, most respondents, 72.8%, reported that they did not have it, while only 27.2% said they did. Regarding the presence of neurological problems, the vast majority of those evaluated reported having mild dementia, slight forgetfulness, 5.8% said they had severe dementia or psychological problems, and only 24.3% reported no psychological problems. It is known that stroke is one of the neurological complications that most cause disabilities that affect many people around the world[20].

The last question of the screening, question F, looks at the Body Mass Index (BMI). The results of this study, in relation to the diagnosis by BMI, according to the Lipschitz classification[12], showed that 46.6% of the elderly evaluated had a diagnosis of normal weight, 43.7% were overweight and only 9.7% were malnourished.

During 2019, about 2,626,017 older adults were followed up in Primary Health Care. Of these, 320,232 (12.19%) were diagnosed as underweight and 1,349,053 (51.37%) as overweight. Data from this research, referring to the elderly who were evaluated in the state of Ceará, showed that 11.26% were underweight, 37.35% were eutrophic and 51.39% were overweight. These results confirm the nutritional transition of the elderly, and it is still possible to verify the predominance of malnutrition, however, with higher data associated with overweight[21].

The results presented by the population of this study of the MNA risk screening revealed that 60.2% of the elderly were at risk of malnutrition, in the range of 08 to 11 points; 24.3% were eutrophic, reaching 12 to 14 points in the screening; and only 15.5% were in the range of 0 to 7 points, being considered malnourished. These data point to a

warning that the majority of elderly people affected by stroke, 75.7% (n: 78), are at nutritional risk or may already be malnourished before the attack.

In risk assessment studies carried out in hospitals, higher risks of malnutrition are observed when compared to assessments applied in other settings. Soares and Mussoi[22] evaluated elderly patients hospitalized in a medium-complexity hospital in Rio Grande do Sul and observed that the mean MNA screening score was 9.9 points (standard deviation: 3.4) and 40% had a score higher than 12 points. Approximately 40% were at risk of malnutrition and 18% were malnourished. On the other hand, Araújo et al[15] evaluated elderly people from a hospital in the state of Paraíba, located in the Northeast region of the country, and found that 74.5% of those evaluated had the MNA result referring to nutritional risk or malnutrition.

On the other hand, a study carried out by Ataide23, with 94 elderly people of both sexes, who attend a center for the elderly in Cuiabá - MT, showed that, according to the MNA assessment applied in this population, 86.2% of the elderly were eutrophic; 12.7% were at risk of malnutrition and 1.1% were malnourished. When assessed by BMI, 75.53% were overweight, 23.40% were normal weight, and 1.06% were underweight, demonstrating better nutritional and health status than hospitalized older adults.

Research related to this topic is very relevant, especially for nutritional surveillance, guiding health professionals and public administration. Surveillance directs the updating of the food and nutrition actions of the SUS and consists of materials that allow the development of official guidelines, in order to promote a balanced and healthy diet[24].

CONCLUSION

Population-specific screening tools expand the risk information for each stage of life presented. In the elderly, metabolic and structural alterations can lead to the impairment of nutritional risk, which can be discovered not only by weight loss or BMI, since this study showed that many individuals studied are elderly with nutritional status of eutrophy, overweight or obesity and who present other warning factors, such as depression, neurological disease, difficulty in walking, decreased consistency or habitual intake, which contribute to the nutritional risk of malnutrition.

The study had some limitations, such as the difficulty in collecting data from patients with compromised motor and/or cognitive systems, a factor that limited the sample size. However, it has great potential for knowledge about the nutritional aspects of the elderly population affected by stroke, which is still little explored in the country. The data collected point to new perspectives on the nutritional status of hospitalized elderly, especially those who are affected by chronic diseases such as stroke, contributing to better effectiveness in their nutritional monitoring, as they alerted nutritionists and other professionals of stroke units to take into account the particularities present in these individuals, which aggravate the nutritional risk and require immediate clinical and nutritional intervention. minimizing clinical and nutritional complications.

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