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FOOD STANDARD, ANEMIA AND BODY COMPOSITION OF ELDERLY

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ABSTRACT

In recent years, a series of sociodemographic transformations around the world have been noted, changes that have even reflected on the nutritional profile of individuals. Not only the type or class of foods that have undergone these changes, but also the way they were prepared. Previously, foods used to be taken for cooking in iron pots, which favored the migration of this mineral to food. This is a cross-sectional and quantitative epidemiological research.The study included the elderly assisted by the Basic Health Units of Vitória da Conquista; active seniors; elderly who agree and sign the Informed Consent Form (ICF). And the elderly who had cognitive limitations and those who were bedridden or imprisoned were excluded.The sociodemographic variables (age, education, marital status, family arrangement, employment status, family income, contribution to family income). To identify the nutritional profile, weight and height were measured for the calculation of body mass index (BMI), a widely used and efficient measure for epidemiological measures. The Food Frequency Questionnaire (FFQ) is one of the most used instruments to measure dietary information. From the total of 197 elderly evaluated, of both genders, according to table 1, it can be observed that the nutrition of the elderly is in an unsatisfactory state, and it was observed that 88.32% have excessive carbohydrate consumption, 38.07% of lipids, 85.28% and 73.10% have insufficient intake of dietary fiber and protein respectively. Regarding the consumption of micronutrients, we can highlight the deficiency of vitamins B1 (89.34%), B2 (76.65%), B3 (87.31%), B6 (73.10%) and A (99, 49%) and for the minerals calcium, phosphorus, magnesium and iron, the prevalence of deficiency was close to or above 70%.The studied older apresented an unsatisfatory state of nutrition with excessive consumption of carbohydrate and lipids and insufficient intake of protein and fiber. Deficiency of vitams from B complex, calcium, phosphorus magnesium and iron were observed.

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INTRODUCTION

In recent years, a series of sociodemographic transformations around the world have been noted, changes that have even reflected on the nutritional profile of individuals (BAKER; FRIEL, 2014). This was due to the so-called Nutritional Transition (NT), in which the population, in search of practicality on a daily basis, started to increase the consumption of processed foods, the so-called "pseudo foods", and significantly reduced their intake. of fruits and vegetables (POPKIN; ADAIR; NG, 2012). Not only the type or class of foods that have undergone these changes, but also the way they were prepared. Previously, foods used to be taken for cooking in iron pots, which favored the migration of this mineral to food (QUINTAES, 2005). Thus, the preparation of legumes, red meat and vegetables, considered iron source foods, were even more enriched (ARCANJO *et al.*, 2018). When considering the new dietary pattern, many studies report

an increase in the number of anemia due to iron deficiency, a worrying situation since the described dysfunction causes a series of symptoms (POPKIN; ADAIR; NG, 2017). Fatigue, brittle nails and hair, poor appetite, paleness, hypocolored eye mucosa and fainting sensation are among the most common signs (JACKISCH *et al*., 2014; POPKIN; ADAIR; NG, 2017). The deficit of the referred mineral occurs in the shape mutation and reduction of red blood cell synthesis and, consequently, of hemoglobin (CASCIO; DELOUGHERY, 2017). This, in turn, is the protein that aims to carry oxygen through all cells of the body. Thus, when it is decreased, there is a compromise in the cellular respiration process (FERRO *et al*., 2012). This mechanism in the elderly tends to generate greater consequences and trigger a higher number of hospitalizations (GÓMEZ RAMÍREZ; REMACHA SEVILLA; MUÑOZ GÓMEZ, 2017). It is noteworthy that it should not be considered common due to the aging process, since anemia in this public is associated with underlying diseases (HALAWI; MOUKHADDER; TAHER, 2017). According to what has been exposed, the present study aims to evaluate the biochemical indicators associated with blood bioavailable iron with diet in the elderly.

METHODOLOGY

This is a cross-sectional and quantitative epidemiological research. The survey was conducted in Vitória da Conquista - BA, Brazil (latitude 14 ° 51 '58', longitude -40 ° 50 '22) which, according to the IBGE census (2010), has about 320129 inhabitants. The study was conducted with individuals aged 60 to 80 years, which corresponds to a sample composed of elderly. These can be classified as, according to the World Health Organization, elderly are those who, according to their chronological age, have reached 60 years of age, in underdeveloped or emerging countries, as in the case of Brazil. Nineteen elderly of both genders participated in the study. The study included the elderly assisted by the Basic Health Units of Vitória da Conquista; active seniors; elderly who agree and sign the Informed Consent Form (ICF). And the elderly who had cognitive limitations and those who were bedridden or imprisoned were excluded. The sociodemographic variables (age, education, marital status, family arrangement, employment status, family income, contribution to family income) were collected through a questionnaire, following the standards of the Brazilian Institute of Geography and Statistics (IBGE), so that it was possible. The characterization of the sample.

To identify the nutritional profile, weight and height were measured for the calculation of body mass index (BMI), a widely used and efficient measure for epidemiological measures. Body composition was used a bioimpedance scale to measure the amount of muscle mass and visceral fat. Waist circumference (WC) was also measured to verify cardiovascular risk. WC was measured according to pre-established guidelines and standards, in which the midpoint between the last rib and the apex of the iliac crest is used as a reference (DAVID *et al*., 2019). The Food Frequency Questionnaire (FFQ) is one of the most used instruments to measure dietary information (PEDRAZA *et al*., 2015). It is considered a simple evaluation method, having the following advantages: a) low cost, since it only requires an application through printed or digital form; b) quick use because it is composed of short and objective questions; c) efficiency in epidemiological practice, since it can confront the periodicity of consumption of certain foods, with the existence of a certain chronic disease, for example (BRITO *et al*., 2017). In which was verified the consumption of macro and micronutrients as: carbohydrate, lipids, proteins, dietary fiber, vitamin B1, vitamin B2, vitamin B3, vitamin B6, vitamin A, vitamin C, calcium, iron, phosphorus, sodium, potassium, magnesium and manganese (DAVID *et al*., 2019). Statistical analysis will be performed considering a significance level of $p < 0.05$, being usual for research with human beings. In addition, it is emphasized that the data will be processed and tabulated in the Excel program and then, with the help of the SPSS® 20.0 statistical program, the descriptive analysis of the data will be performed in absolute and relative frequency. Participants were explained about the methods to be used for collection according to Resolution 466/12 (National Health Council), which consists of international research documents involving human beings. Noteworthy is the approval by the Research Ethics Committee of the Independent Faculty of the Northeast (Opinion No. 1.859.545).

RESULTS AND DISCUSSION

From the total of 197 elderly evaluated, of both genders, according to table 1, it can be observed that the nutrition of the elderly is in an unsatisfactory state, and it was observed that 88.32% have excessive carbohydrate consumption, 38.07% of lipids, 85.28% and 73.10% have insufficient intake of dietary fiber and protein respectively. Regarding the consumption of micronutrients, we can highlight the deficiency of vitamins B1 (89.34%), B2 (76.65%), B3 (87.31%), B6 (73.10%) and A (99, 49%) and for the minerals calcium, phosphorus, magnesium and iron, the prevalence of deficiency was close to or above 70%. According to a study by Fernandes (2018) protein deficiency due to low consumption and excess lipid intake is related to the increased chance of developing anemia. The prevalence of iron deficiency anemia in the elderly has a negative repercussion, so this study should be considered relevant because this disease impairs health, quality of life, causes cell and organ dysfunction and increases the risk of morbidity and mortality of the elderly (SOUSA *et al*., 2018).
In addition, conditions associated with anemia are related to a decline in physical and mental performance, daily life skills and increased frailty (MILAGRES, 2015).

Thus it was found in the present study that 73.10% of elderly individuals have iron deficiency, and iron is the indispensable mineral for the body, as it is responsible for the production of hemoglobin and oxygenation of red blood cells (YAMAGISHI, 2017). Regarding the insufficient consumption of micronutrients this may be due to the little variety of foods that make up the diet in the daily lives of Brazilian elderly, so the intake of vitamins and minerals are below the recommended values, so a healthy diet can reverse this picture. disability (FISBERG, 2013). According to table 2, it was found that individuals have ideal body mass (61.42%), high visceral fat (69.04 %), more than half with normal skeletal muscles and more than 60% with increased abdominal circumference at risk. Abdominal obesity in the elderly may be related to changes in physiological and metabolic functions, which ultimately reflect the body composition and health of the elderly (SILVEIRA, 2018). Thus, the accumulation of adipose tissue can develop chronic noncommunicable diseases and other morbidities correlated with increased waist circumference (NEUMANN, 2014).

Table 1. Macro and Micronutrient Consumption by the Elderly

Macronutrient Consumption		n	%
Carbohydrate	Deficient	4	2.03
	Normal	19	9.63
	Excessive	174	88.32
Lipids	Deficient	70	35.53
	Normal	52	26.40
	Excessive	75	38.07
Protein	Deficient	144	73.10
	Normal	36	18, 27
	Excessive	17	8.63
Food Fiber	Deficient	168	85.28
	Normal	21	10.66
	Excessive	8	4.06
MICRONUTRIENT CONSUMPTION		n	%
Vitamin B1	Deficient	176	89.34
	Normal	21	10.66
Vitamin B2	Deficient	151	76.65
	Normal	46	23 35
Vitamin B3	poor	172	87.31
	Normal	25	12.69
Vitamin B6	poor	144	73.10
	Normal	53	26.90
Vitamin A	Disabled	196	99.49
	Normal	1	0.51
Vitamin C	Deficient	12	6.09
	Normal	185	93.91
Calcium	Deficient	180	91.37
	Normal	15	7.61
	Excessive	2	1.02
Magnesium	Deficient	167	84.77
	Normal	9	4.57
	Excessive	21	10.66
Manganese	Deficient	102	51.78
	Normal	89	45.18
	Excessive	6	3.05
Phosphorus	Deficient	142	72.08
	Normal	53	26.90
	Excessive	2	1.02
Iron	Deficient	144	73.10
	Normal	53	26.90
Sodium	Deficient	68	34.52
	Normal	63	31.98
	Excessive	66	33.50
Potassium	Deficiency nte	132	67.01
	Normal	60	30.46
	Excessive	5	2.54

Source: own research, 2019.

Table 2. Body composition of the elderly

		n	%
Nutritional Assessment (BMI)	Underweight	40	20.30
	Obesity	5	2.54
	Ideal Weight	121	61.42
	Overweight	31	15.74
Visceral Fat	High	136	69.04
	Normal	61	30.96
Skeletal Muscle	High	33	16 , 75
	Low	63	31.98
	Normal	101	51.27
Waist Circumference	Ideal Range	72	36.04
	Increased Risk	125	63.46

Source: Own Research, 2019.

From the sample, 2,54% was classified with obesity and 15,74% with overweight, however, when analyzed the WC, 63,46% were in increased risk. This can be explained because BMI is measured by the height and weight and can be affected by others factors as body size, skeletal and muscular weight and does not indicates the body fat distribution while WC reflects abdominal or central obesity and more visceral fat (GU *et al*, 2018; LIAO *et al*, 2018). Hu *et al* (2018) suggest that combined BMI and WC are more realible to predict the risk of all-cause of mortality and is necessary to measure both BMI and WC to assess mortality associated to obesity in elder population.

Final Considerations

The studied older apresented an unsatisfatory state of nutrition with excessive consumption of carbohydrate and lipids and insufficient intake of protein and fiber. Deficiency of vitams from B complex, calcium, phosphorus magnesium and iron were observed. The elderly presented ideal body mass, high visceral fat and the majority had increased abdominal circumference at risk. This excessive number of elderly in increased risk for waist circumference is alarmant once this measure is a risk factor for metabolics sindromes and has been associated with morbidities and mortality

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