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Nutritional Profile of People with Diabetes Mellitus Attended at a School Clinic

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Abstract

Aim: To evaluate the nutritional profile of people with type 2 diabetes mellitus, attended at the Integrated Health Care Clinic of the UNA University Center, Brazil.

Method: This is a descriptive cross-sectional study, based on data collected from medical records of people with type 2 diabetes mellitus of both sexes who were seen at the clinic in the second half of 2017.

Result: The study included 29 people, 79 of whom 3% female. There was a small predominance of elderly compared to adults, with a mean age of 58.7 ± 14.3 years. Only one adolescent was evaluated, all other people served were adults over 30 or elderly. 34.5% were single and 38% were married. Household income was concentrated in the middle income brackets. The average family income of the group was R $ 2,258.66 ± R $ 1,346.56. 48.3% had systemic arterial hypertension; 89.7% declared themselves non-smokers; 41.4% reported alcohol consumption; 75.9% were sedentary and 79.3% obese. 75.9% of the group had some degree of cardiovascular risk associated with waist circumference measurements found. The very high cardiovascular risk rating prevailed in both sexes, 86.4% female and 71.4% male. All women in the sample had high waist circumference. 91.3% of people who do not practice physical activity had cardiovascular risk.

Conclusion: It was found that the studied group had a high prevalence of obesity and sedentary lifestyle, with very high number of people with cardiovascular risk among women and sedentary. Strategies aimed at changing these conditions, integrating multidisciplinary teams are essential for the prevention and control of complications related to this disease, in addition, when performing nutritional planning, which must be individualized and these conditions need to be considered in its elaboration.

Keywords: Chronic disease; Epidemiological profile; Obesity; Nutrition; Type 2 diabetes mellitus

Introduction

Type 2 Diabetes mellitus (T2DM) is one of the most prevalent chronic non-communicable diseases (NCDs) in the world, resulting from changes in production, secretion and the mechanism of action of insulin that is characterized by chronic hyperglycemia with carbohydrate metabolism disorders. , lipids and proteins. DM2 is more common than type 1, covering about 90% of diabetes cases [1].

The worldwide prevalence of T2DM almost doubled between 1980 and 2014, from 4.7% to 8.5% in the adult population. These numbers are believed to reflect an increase in associated risk factors such as overweight or obesity [2].

Brazil ranks fourth among the countries with the highest number of diabetics, about 14.3 million in 2015, according to a study by the International Diabetes Federation [3]. In 2013, a National Health Survey conducted by the Brazilian Institute of Geography and Statistics and the Ministry of Health found that 6.2% of the Brazilian population aged 18 years or older reported having DM2 [4]. The highest prevalence of T2DM in Brazil has been associated with obesity, population aging and family history of diabetes [5].

In addition, DM2 relates to high social and economic costs for both the individual and society. Its costs are mainly related to a high frequency of acute and chronic complications such as renal, ophthalmological, neurological, circulatory and peripheral that are causes of hospitalizations, disabilities, loss of life productivity and premature death, negatively influencing their quality of life. burdens on health systems.

Factors explaining the high prevalence of T2DM, the increase in overweight and obesity rates related to lifestyle changes such as eating habits and physical inactivity. Changes in the food intake of the Brazilian population, such as low consumption of fiber-rich foods, increased proportion of saturated fat and simple carbohydrates in the diet, associated with physical inactivity are considered causal factors of obesity, T2DM and other chronic diseases [6].

Knowledge of this population allows the planning and application of more appropriate general strategies for better control and treatment of the disease. From this study it is possible to establish health care planning and more effective educational activities aimed at this public.

Given the context presented, the objective of this study is to evaluate the nutritional profile of people with T2DM treated at the Integrated Health Care Clinic of the UNA University Center, Belo Horizonte / Brazil.

Materials and Methods

This is a descriptive cross-sectional study, conducted through data collection in records of the first consultation of the medical records of patients with T2DM, at the Integrated Health Care Clinic of the UNA University Center, Belo Horizonte, Brazil. Inclusion criteria were patients diagnosed with T2DM who had nutritional consultation at the clinic in the second half of 2017, and exclusion criteria were patients who did not have complete records of the variables under study, or who did not have T2DM. The study was initiated after approval by the Research Ethics Committee of the UNA University Center under number CAAE 67531517.2.0000.5098.

The patients' profile was built from the data collection in their records, referring to the first consultation at the clinic. Demographic partner data (gender, age group, family income, marital status), anthropometric data (weight, height, waist circumference - WC), lifestyle (smoking, alcoholism, physical activity, comorbidities) were considered.

The age classification was performed by dividing the sample into people under 30 years old, adults aged 30 to 59 years old and elderly aged 60 years or older.Body weight and height were measured using Welmy® platform type scales with a maximum capacity of 150 kg and 100 g scale, following the standards adopted by WHO [7].

From weight and height, the body mass index (BMI) was calculated by adopting the WHO criteria [8] for adults of both sexes, considering Thinness grade III BMI <16 Kg / m², Grade II BMI 16 to 16, 9 Kg / m², Grade I BMI 17 Kg / m² to 18.4 Kg / m²; Eutrophy BMI 18.5 to 24.9 Kg / m², Pre-obesity BMI 25 to 29.9 Kg / m²; Obesity Grade I BMI 30 to 34.9 kg / m², Grade II BMI 35 to 39.9 kg / m² and Grade III BMI> 40 kg / m². For the elderly, the BMI classification according to Lipschitz [9] was used, being considered Low weight BMI <22 Kg / m², Eutrophy 22 to 27 Kg / m² and Obesity>27.0 Kg / m².

The WC was measured with an inelastic tape positioned midway between the upper part of the iliac crest and the lower part of the last costal arch according to WHO recommendations. The WC classification used for males is at high risk for cardiovascular disease if WC ≥ 94 cm and very high risk for cardiovascular disease for WC if ≥ 102 cm and for females WC ≥ 80 cm and WC ≥ 88 cm and their risk ratings [10].

Lifestyle variables: smoking, drinking and physical activity were collected from the data reported in the anamnesis.

Quantitative data analysis was performed using Excel 2010 software from Microsoft Corporation.

Results

The total number of nutritional consultations performed in the second half of 2017 was 940, with 36 people attended (3.83%) diagnosed with diabetes and 29 people reported having DM2 (82.9%).

After applying the inclusion and exclusion criteria, these 29 individuals were kept eligible for the study.

The sociodemographic characteristics, comorbidities, smoking, alcoholism and practice of activities of the patients included in the study are presented in **Table 1**.

Regarding gender, there was a higher number of women attending. The disease was reported predominantly by adults over 30 years and the elderly. Only one teenager was attended,all other calls were from adults over 30 or older. Marital status of single and married predominated. In evaluating the family monthly income, it was found that 20.7%

Variáveis	n	%
Sex		
	23	79.3%
Feminine		
	6	20.7%
Male		
Age range (years)		
≤30	1	3,5%

31-59	13	44.8%
60 or more	15	51.7%
Média=58,7 ± 14,3 anos		
Marital status		
Single	10	34.5%
Married	11	38.0%
Divorced / Separated	5	17.2%
Widowed	3	10.3%
Family income		
<R$ 1000,00	6	20.7%
R$ 1000,00-R$ 2000,00	9	31.0%
R$ 2001,00-R$ 3000,00	8	27.6%
>R$ 3000,00	6	20.7%
Média=R$ 2.258,56 ± R$ 1346,56	-	-
Arterial hypertension		
Yes	14	48.3%
No	15	51.7%
Other pathologies	8	27.6%
Smoking		
Yes	3	10.3%
No	26	89.7%
Ethylism		
Yes	12	41.4%
No	17	58.6%
Physical activity practice		
Yes	7	24.1%
No	22	75.9%

Table 1: Sociodemographic characteristics, comorbidities, smoking, alcoholism and physical activity practice in people with type 2 diabetes mellitus, attended at the Integrated Health Care Clinic of Una University Center, Belo Horizonte, MG, 2018.

Received income below R $ 1,000.00, 31% received income from R $ 1,000.00 to R $ 2,000.00, 27.6% of R $ 2,001 .00 to R $ 3,000.00 and also 20.7% received family income over R $ 3,000.00. Since there was a higher concentration of people in the intermediate income brackets. The average family income of the group was R $ 2,258.66 ± R $ 1,346.56.

All individuals in the sample had some comorbidity, with predominance of systemic arterial hypertension (SAH) in 14 individuals (48.3%). The sample revealed that 3 people (10.3%) were smokers and 20 people (89.7%) non-smokers, 12 people (41.4%) reported alcohol consumption and 1 It was found that 23 out of 29 patients had some degree of obesity, equivalent to 79 , 3% of the sample. The mean BMI of the total group was 33.5 ± 6.4 kg / m² **(Table 2).**

Variables	N	%
Teenager	1	3.5%
Obesity	-	-
Adults		
Thinness grade II	1	3.5%
Thinness grade I	0	0%
Eutrophy	1	3.5%
Pre-obesity	2	6.9%
Obesity Grade I	5	17.0%
Obesity grade II	3	10.3%
Obesity grade III	1	3.5%
Seniors		
Low weight	1	3.5%
Eutrophy	1	3.5%
Obesity	13	44.8%
Average=33,5±6,4 kg/m²	-	-

Table 2: Anthropometric profile by body mass index according to age group in people with type 2 diabetes, treated at outpatient level, Belo Horizonte, MG, 2018.

There was also a high prevalence of abdominal obesity, 75.9% of the group had cardiovascular risk classification associated with the WC measures found, and the very high risk classification prevailed in both sexes. All women in the sample had high WC. The average WC found in the group was 103.7 ± 14.2 cm as shown in **(Table 3).**

Cardiovascular risk	Female		Male	
-	N	%	N	%
No risk	-	-	2	28.6%
High risk	3	13.6%	-	-
Very high risk	19	86.4%	5	71.4%
Average of CC=103,7 ± 14,2 cm	-	-	-	-

Table 3: Cardiovascular risk according to waist circumference according to sex in people with type 2 diabetes, attended at the Integrated Health Care Clinic of Una University Center, Belo Horizonte, MG, 2018.

The association of cardiovascular risk classification with the physical activity variable revealed a very high number of people who did not practice physical activity (91.3%) and had cardiovascular risk as shown in **(Table 4).**

Cardiovascular risk	Practice Physical Activity		Does not practice Physical Activity	
-	N	%	n	%
No risk	0	0%	2	6.9%
High risk	0	0%	3	10.4%
Very high risk	6	20.7%	18	62.0%

Table 4: Cardiovascular Risk Relationship and Physical Activity Practice in people with type 2 diabetes, attended at the Integrated Health Care Clinic of the UNA University Center, Belo Horizonte, MG 2018.

Discussion

This study showed a high prevalence of obesity, increased WC, hypertension, sedentary lifestyle in people with T2DM. The association of these factors with diabetes increases the risk of complications of this disease, amplifies the morbidity and mortality of this population, increasing the frequency of hospitalizations and health costs, also burdening the family budget for treatment of the disease [6,11,12].

Thus, studies on the nutritional profile of people with T2DM may contribute to the implementation of preventive measures and better disease control.

The analysis of the profile of this public found that women were the ones who sought care the most (79.3%), a similar result found in other studies. It is believed that because women have continuous job positions that provide more flexible hours, women often access health services. There is more interest and less fear on the part of women to seek help in the prevention or treatment of their illnesses [13,14].

It was observed that the sample is predominantly composed of adults and the elderly (96.6%), similar to that found in other studies in which the highest incidence of the disease occurs between 30 and 69 years, and that there is a high frequency of late diagnoses in the population. old age, increasing the risk of cardiovascular complications [5,14,15].

In addition to no major differences in marital status predominance, no evidence was found in other studies of the correlation between marital status and T2DM.

The association between low income and the occurrence of T2DM was also not found, a result corresponding to that revealed in other studies [16,17]. However, there are studies in the literature that discuss the importance of having an adequate income to follow the nutritional planning by the patient and relate low income with diagnosis and disease control impaired by difficult access to health services [11,18].

The most prevalent comorbidity was hypertension present in 48.3%, however in other studies higher values were found [19] found 72.8%, [20] 72.9%. This result may be justified by the fact that the presence of hypertension was detected by self-referral and many patients are unaware of the hypertensive condition. Even so, there are many studies that reinforce the prevalence of hypertension in people with T2DM is high, and consequently the presence of hypertension can be considered a risk factor for common cardiovascular complications in diabetes [14,21].

Smoking is considered a risk factor for the development of diabetes. Research indicates that the relationship between smoking and diabetes is due to the fact that smoking appears to be associated with the promotion of central obesity, increased plasma cortisol concentrations in smokers, as well as increased inflammatory markers and oxidative stress. caused by smoking and it is still known that nicotine can also bind to nicotinic receptors of pancreatic cells and thus directly reduce insulin secretion [4]. In Brazil, due to the intensification of the Tobacco Control Program promoted by the Brazilian government, smoking has decreased significantly (it was 34.8% in 1989), which could be detected by the Survey of Risk Factors and Protection for Chronic Diseases by Inquiry. Telefônica-VIGITEL [22] where 10.2% of respondents in Brazil were smokers and in Belo Horizonte 15.3%, results close to what was found in the present study (10.3%).

Moderate alcohol intake does not have a consensual definition in the world. In Brazil, a standard dose measurement of approximately 10-12 grams of ethanol / day (equivalent to a 330 ml beer can or 100 ml wine glass or ml of distilled beverage) as a limit for non-harmful ingestion. There are studies that point out the benefits of moderate alcohol consumption for people with T2DM, however the mechanisms of action are not well established. It is suspected to be related to decreased glucose intolerance and insulin resistance [23]. Data obtained by VIGITEL [22]report that 15.3% of the population investigated in Belo Horizonte drink moderately. In the study group, although 12 people (41.4%) reported alcohol consumption, only one of these people could be considered as a person who makes excessive use of alcohol, according to information found in the medical record. The other 11 people reported low frequency use and there is no record of the amount ingested to infer harmful or abusive use.

Regarding the practice of physical activity, the study revealed that 75.9% of the group is sedentary, being superior when compared to the findings in VIGITEL [22], which describes a percentage of 47.6% of people in Belo Horizonte who are sedentary. , This factor has a negative impact on diabetes control, as there are studies in the literature that showed that obese and sedentary people are twice as likely to develop diabetes when compared to those who did not have such characteristics. In addition, increased physical activity and weight control have been associated with reduced peripheral insulin resistance, thus decreasing the possibility of diabetes, affirming the importance of these factors as beneficial for disease prevention and control [6,11].

The high prevalence of obesity found in the group corresponds to results found in other studies conducted in Rio de Janeiro [24] and Pernambuco [14], respectively 70% and 60.7%. Obesity has been considered to be one of the main risk factors for T2DM and is directly linked to increased BMI. Weight gain worsens pancreatic beta cell response to glucose, decreases insulin release and increases insulin resistance. Therefore studies are unanimous

in stating the need for weight control in the management of T2DM [25].

Studies indicate an association between WC and cardiovascular metabolism alterations related mainly to lipid profile, fasting glucose and insulin resistance [26]. WC is considered the best indicator of visceral obesity and is strongly related to atherosclerotic cardiovascular diseases [27]. Therefore, abdominal obesity is a strong risk factor for noncommunicable chronic diseases such as T2DM and cardiovascular diseases [28]. The present study found a high prevalence of increased WC, predicting cardiovascular risk, especially among women, since all women have some degree of cardiovascular risk prevailing the very high risk rating (86.4%) [28, 29] also found a high prevalence of altered WC among patients with T2DM, with a predominance in women, 65.8% and 74%, respectively.Estudos destacam a associação entre medidas de CC, risco cardiovascular e práticafísica. Aponta também, como nesse trabalho, alta frequência de risco cardiovascular entre sedentários [25].

Conclusion

The studied group of people with DM2 attended at the Integrated Health Care Clinic of the UNA University Center had a high prevalence of obesity and sedentary lifestyle, with very high numbers of people at cardiovascular risk, especially among women and sedentary. Strategies aimed at changing these conditions, integrating multidisciplinary teams are essential for the prevention and control of complications related to this disease. In addition, when performing nutritional planning, it must be individualized and these conditions need to be considered in its elaboration.

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