APPLICATION OF THE DIABETES RISK SCORE (FINDRISC) IN A BARRA DO GARÇAS (MT), LEGAL AMAZON, BRAZIL

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ABSTRACT — Aims: to study the populational risk of type 2 diabetes mellitus among a population from epidemiology a municipality of the Central-Western Brazilian region. Methods: the Finnish Diabetes Risk Score (FINDRISC) was applied in 304 (99 men, and 205 women) adults of Barra do Garças, MT. Results: more men had lower risk score, and more women had light increased risk of type 2 diabetes according to FINDRISC score ($p<0.0001$). However, considering moderate, higher and highest risks of diabetes, there was no statistical difference among gender. Conclusion: this population of the Middle Araguaia Region, Legal Amazon, had a considerable risk of type 2 diabetes, which raises a new paradigm in primary health care for diabetes prevention.

KEYWORDS — type 2 diabetes mellitus, risk, score, Brazil, Amazon.

INTRODUCTION

In a few decades, there was a great growth on incidence and prevalence of diabetes and metabolic syndrome in Brazil (Schmidt et al., 2011).

Beyond unhealthy lifestyles, cultural, social, economic, educational, and environmental determinants have been associated with spreading of type 2 diabetes mellitus and other chronic non-communicable diseases (CNCD) in Brazil (Sá & Catarina, 2010; Dias et al., 2011; Schmidt et al., 2011; Galego et al., 2014; Farias jr et al., 2014; Garcia & Freitas, 2015; Malta et al., 2015; Azevedo & Silva et al., 2016).

Type 2 diabetes mellitus and other CNCDs are relevant causes of premature morbidity and mortality and high treatment costs for the Brazilian nation, including morbidity, economic costs, and years of life lost due to leg amputations (Alves & Morais Neto, 2015; Tavares et al., 2015; Santos et al., 2018).

In the 2000's, the Finnish Diabetes Association created a simple score to measure the risk of type 2 diabetes mellitus, the Finnish Diabetes Risk Score (FINDRISC). This is a simple, easy to use, and reliable score for estimation of the diabetes risk among population (Saaristo et al., 2005; Fokkens et al., 2018). The FINDRISC is also a reliable tool to detect cases of prediabetes and metabolic syndrome (Janghorbani et al., 2013; Silvestre et al., 2017).

Then, this is the first work regarding population risk of type 2 diabetes mellitus in the Mato Grosso State, Central-Western Brazil.

SUBJECTS AND METHODS

This descriptive transversal study covered 304 subjects from Aragarças (geographic coordinates 15°53'52" S, 52°15'3" W; 19,959 inhabitants), Pontal do Araguaia (15°56'2" S, 52°19'1" W; 6,578 inhabitants) and Barra do Garças (15'53'24" S, 52°15'25" W; 60,661 inhabitants) municipalities (IBGE, 2018). Those municipalities comprised the Middle Araguaia region located at the Central Western Brazil in the border of Goiás and Mato Grosso states.

Those 304 subjects (99 men and 205 women) presented aging variation between 20 and 60 years old, with a mean of 35.7±11.12 years-old.

The inclusion criteria were being 18 years old or more, of both gender, be willing to participate in the study after signed the informed consent form. Exclusion criteria were the refusal to participate in the study. A Portuguese version of the Finnish Diabetes Risk Score (FINDRISC) (Saaristo et al., 2005) was applied between April and August 2018.

Ethical and statistical aspects

Before engaging into the research people received an explanation regarding the procedures and they signed a written informed consent. This study is a subsample from study "The Epidemiology and Risk Factors of Chronic Non-Communicable Diseases: Development and Application of a Health Promotion Scale (HPS) which was approved by the Ethics Committee on Research of the "Campus Universitário do Araguaia" from "Universidade Federal de Mato Grosso (UFMT)" (protocol CAAE: 62989416.1.0000.5587 – 2017). Statistical analysis was done using the program Epitools® (Australia). In order to correct, standardize and balance the samples by gender, a two-tailed, 2-proportion z-test was performed. Statistical significant differences were considered when $p<0.05$.

RESULTS

More men had lower risk score (59% x 36.92% with 5.5 z-value and $p<0.0001$), and more women had light increased risk (37.51% x 21% with 4.5 z-value and

p<0.0001) of type 2 diabetes according to FINDRISC score. However, considering moderate (1.4 z-value and p=0.1661), higher (0.6 z-value and p=0.5359) and highest (0.7 z-value and p=0.4958) risks of diabetes, there was no statistical difference among gender (Fig. 1).

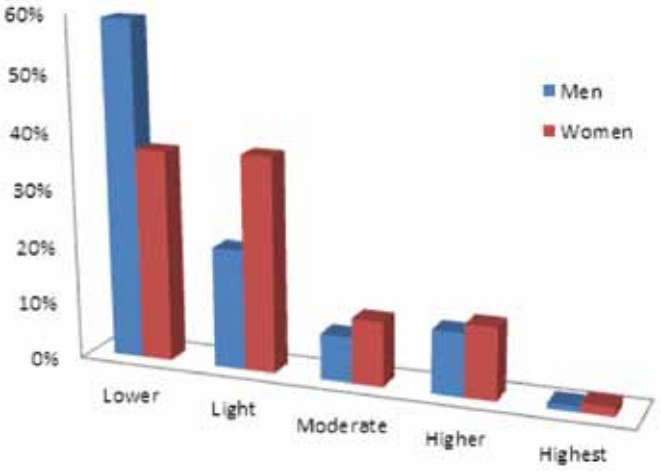

Fig. 1. *Categories of the FINDRISC, according to gender, in a population from the Middle Araguaia region, Brazil*

In the past few years, many authors have grouped the people with moderate and high risk of diabetes. The sum of those groups resulted in a frequency 19.2% for men and 23.9% for women.

DISCUSSION

A study in Zulia, Venezuela, reported frequencies of high and highest risks of type 2 diabetes mellitus, respectively, of 10.89% and 0.99% which were similar to those found in the current work (Paredes et al., 2014).

Studying university students in Jordan, authors found that 5.2% and 1.8% had moderate and higher risk of type 2 diabetes mellitus, respectively (Al-Shudifat et al., 2017).

Considering the sum of moderate and high risk groups, a study in Amarante, Portugal, reported that 12.8% presented elevated risk of disease (Valente et al., 2012).

In the present study, the frequency was higher even for men (19.2%) than women (23.9%).

The high risk of diabetes found in the current study was also higher to the 14.7% of frequency reported by a study developed in Horizonte, Ceará, Northeast Brazil (Cândido et al., 2017).

However, in the Mexico city the frequency of high risk of type 2 diabetes mellitus reached 44.8%, which was the double compared with the work presented here (Avilés et al., 2018).

A previous study of Fonseca et al. (2012) in Barra do Garças (MT), revealed an adult prevalence of type 2 diabetes mellitus of 19.8%.

Considering the above discussion it is important to note that health promotion practices in Brazil, especially targeted to prevention of chronic non-communicable diseases are absent in the majority of the country territories and is also very poor and insufficient (Ferrari, 2018) to face the epidemics of diabetes and other CNCDs.

CONCLUSION

In this population from the Middle Araguaia region, a territory belonging to the Legal Amazon region, the frequency of type 2 diabetes mellitus risk was elevated, which shows the urgency of a new paradigm in primary health care diabetes mellitus prevention.

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