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Topic: Capacity development for public health nutrition

Title: Dietary intake assessment of branched-chain amino acids in type 2 diabetic patients: a preliminary study

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Purpose: The aim of this study was to assess the dietary intake of branched-chain amino acids (BCAAs) in type 2 diabetic (T2D) patients

Motivation:

Diabetes mellitus is a chronic disease with an increasing global prevalence and a social impact that contributes directly to rising health care costs. Recent evidence supports the involvement of isoleucine, leucine and valine, referred to as BCAAs, and their active metabolites on modulation of glucose metabolism specially in T2D. However, there is still limited information about the consumption pattern of foods high in BCAAs by these patients. This knowledge is essential for nutritional preventive actions, along with other lifestyle factors, in order to prevent the metabolic abnormalities caused by the high consumption of BCAAs. Thus, a cross-sectional study was carried out in 2015, involving 150 T2D patients that had been diagnosed with the disease duration for more than one year and currently in use of only oral hypoglycemic agents. Food consumption was estimated by 24-hour dietary recall method (24HR). BCAAs intake was calculated by matching food consumption data from the 24HR with the BCAAs content in foods listed in the food composition database (ACO 2011 and USDA SRD26).

The study was conducted according to the principles of the Declaration of Helsinki and all study participants read and signed the consent form. All applicable institutional and

governmental regulations pertaining to the ethical use of human volunteers were followed during this research.

The e patients were predominantly female (80%), aging 52.5 ± 7.2 years old and with a disease duration of 3.2 ± 1.2 years. The average protein consumption was 70.9 ± 29.5 g/day, corresponding to 24.9% of the total energy intake. The dietary intake of BCAAs was 3.2 ± 1.3 , 5.23 ± 2.7 and 3.4 ± 1.4 g/day for isoleucine, leucine and valine, respectively. The food groups that contributed to the BCAAs content were meat and its by-products, followed by dairy products, legumes and grains.

Conclusions and future directions: Preliminary data demonstrated permit the dietary intake of BCAAs in T2D patients. However, the assessment of BCAAs plasma concentration, and their active metabolites, is necessary for a better understanding of the role of these amino acids in the pathogenesis and progression of diabetes.

Conflict of interest: None declared