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

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Introduction: Type 2 diabetes (T2D) 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 in BCAAs by these patients. Methods: Thus, a cross-sectional study was carried out in 2015, involving 150 T2D patients. Food consumption was estimated by 24-hour dietary recall method, and the content of BCAA estimated as composition database of national and international food. The study was conducted according to the principles of the Declaration of Helsinki and all study participants signed the consent form. Results: The 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. Conclusion: 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.