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Analysis of dietary intake, clinical, biochemical, and anthropometric measures and expression of interleukin-6 and tumor necrosis factor-alpha in non-alcoholic hepatic steatosis and non-alcoholic steatohepatitis in morbidly obese patients

Antônio Sérgio Barcala Jorge[1,2], João Marcus Oliveira Andrade[1], Alanna Fernandes Paraíso[1], Gislaine Candida Batista Jorge[1], Thaisa Soares Crespo, Christine Mendes Silveira[2], Erivelton Pereira Santos[1]; Sérgio Henrique Sousa Santos[1,2] and Alfredo Maurício Batista De-Paula[1,2]
[1]Universidade Estadual de Montes Claros, Brazil
[3]Universidade Federal de Minas Gerais, Brazil

Background: Non-alcoholic fatty liver disease (NAFLD) is an important complication of the metabolic syndrome, which is becoming an increasingly common cause of chronic liver disease. The clinicopathological spectrum of NAFLD ranges from simple non-alcoholic hepatic steatosis (NAHS) to non-alcoholic steatohepatitis (NASH) and ultimately cirrhosis. Recent evidences have evidenced the pivotal participation of pro-inflammatory cytokines of progression of NAFLD.

Aim: To analyze dietary intake, clinical, biochemical, and anthropometric measures and expression of interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α) in NAHS and NASH in morbidly obese patients.

Material and Methods: Participants were morbidly obese adults individuals (n=21). Dietary survey by food recording was done for estimative of food intake. Assessments were made for clinical, anthropometric, hematological and biochemical variables. Samples of liver tissue were submitted to morphological analysis for diagnosis of NAHS and NASH. Expression of IL-6 and TNF-α in liver samples were performed by using quantitative real time-polymerase chain reactions. Groups were compared by using univariate statistical analysis and level of significance was set at 5%.

Results: Individuals with NAHS significantly exhibited higher assessments for body mass index (p=0.02), and caloric (p=0.02) and saturated fat (p=0.03) intakes compared to NASH. A low but not significant expression of IL-6 was noted in NAHS samples (p=0.02). Samples of NASH showed a higher hepatic expression of TNF-α (p=0.04) compared do NAHS. Hepatic expressions of TNF-α and IL-6 were associated with elevated plasma levels of hepatic transaminase (p=0.02 and p=0.00, respectively).

Conclusions: Our findings suggested that imbalances on anthropometrics assessments, food intake with caloric and saturated food at first and hepatic TNF- α expression in the second moment might be associated with early events of NAFLD progression in individuals with morbid obesity.