Association between triglyceride glucose-body mass index and risk factors linked to non-alcoholic liver disease in subjects with metabolic syndrome

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Abstract

Introduction

Non-alcoholic fatty liver disease (NAFLD) is a chronic liver condition, whose prevalence increases in parallel with obesity, diabetes and metabolic syndrome (MetS) rates. The aim of the study was to investigate the relationships between the triglyceride glucose-body mass index (TyG-BMI) with lifestyle, dietary variables, and metabolic risk factors linked to NAFLD in subjects diagnosed with MetS.

Materials and methods

A baseline cross-sectional study on 331 participants (aged 65.8 ± 5.1 years) recruited in Navarra was conducted. Subjects were stratified by tertiles of the TyG-BMI index. Dietetic, Mediterranean diet adherence (MedDiet-17 points) and physical activity data were assessed through validated questionnaires. Sociodemographic, lifestyle, anthropometric and biochemical parameters were also recoreded. The Cockcroft-Gault equation was performed to estimate clearance of creatinine. For comparisons between TyG-BMI tertiles and several variables, ANCOVA and chi-square test analyses were performed.

Results

Subjects in T3 of TyG-BMI index were more likely to have diabetes (50.9%). Interestingly, physical activity decreases across tertiles (p = 0.030). There were no differences between tertiles in energy intake and MedDiet adherence. However, total meat consumption is highest in T3. ANCOVA test after adjustment for potential confounders revealed that participants in T3 showed more several clinical and metabolic alterations. Moreover, ALT (p = 0.002) and GGT (p = 0.047) levels increased and mean corpuscular volume decreased across tertiles of the TyG-BMI index.

Discussion

Obesity, MetS and insulin resistance (IR) play a key role in the development of NAFLD promoting lipotoxicity and overproduction of proinflammatory mediators. This state induces hepatic steatosis and liver injury. Some studies suggest TyG-BMI index as a surrogate marker of IR and risk to NAFLD[1]. In our study, patients in the highest TyG-BMI tertile showed more adverse cardiometabolic profile, lower physical activity and higher total meat intake. In summary, the TyG-BMI index could be a simple and reliable marker to characterize the risk of NAFLD among individuals diagnosed with MetS.

Conflict of Interest

There is no conflict of interest.

Reference

1. Zhang S, Du T, Li M, *et al.* (2017) Triglyceride glucose-body mass index is effective in identifying nonalcoholic fatty liver disease in nonobese subjects. *Medicine (Baltimore)* **96**(22), e7041.