Is HOMA-IR a potential screening test for non-alcoholic fatty liver disease in adults with type 2 DM?

Thesis
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ABSTRACT

Background: Non-alcoholic fatty liver disease (NAFLD) is increasingly recognized as a major cause of liver related morbidity and mortality, because of its potential to progress to cirrhosis and liver failure. Patients with type 2 diabetes mellitus (T2DM) appear to have an increased risk of developing NAFLD, and have a higher risk of developing advanced stages of NAFLD, such as fibrosis and cirrhosis. Insulin resistance is an important pathogenic factor in the development of nonalcoholic fatty liver disease. We aimed to evaluate the diagnostic accuracy of HOMA-IR for NAFLD in T2DMand sought to estimate an optimal cut-off value for discriminating NAFLD from non-NAFLD cases.

Study purpose, design, and methods: this study is a retrospective cohort study included 100 patients with type 2 DM from the outpatient clinic of internal medicine department at Fayoum University Hospital from (December, 2017 to June, 2018). They were divided into two equal groups according to the presence of NAFLD by ultrasound. All patients were subjected to history taking, clinical examination and investigations which included: ALT, AST, total cholesterol, TG, FBG and fasting insulin level.

HOMA-IR was calculated by the following formula:

$$\text{HOMA-IR} = [\text{plasma glucose (mg/dL)} \times \text{plasma insulin (}\mu\text{U/mL)}] / 405.$$

Results: An association between HOMA-IR and NAFLD was found (OR: 1.25; 95% CI: 1.04 to 1.51; p= 0.020). A value of HOMA-IR of 4.2 was estimated to be an optimal threshold for discriminating NAFLD from non-NAFLD cases.

Conclusion: HOMA-IR is independently associated with the presence of NAFLD in adults with T2DM, and might potentially be applied in clinical practice as a screen for NAFLD in type 2 diabetic patients.