

Original Paper

## Insulin resistance in hypothyroid patients using HOMA and triglyceride- glucose indices

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### Abstract

**Background and Objective:** Insulin resistance (IR) is common in hypothyroidism. IR is one of risk factors for cardiovascular disease. Insulin clamp is the gold standard method for evaluation of IR but it is not routine in clinical usage. The triglyceride- glucose (TyG) and homeostasis model assessment (HOMA) indices are non-invasive surrogate of IR. This study was done to determine the IR using the TyG and HOMA indices in hypothyroid patients.

**Methods:** This descriptive-analytic study was done on 23 hypothyroid patients including 15 overt and 8 subclinical hypothyroid patients. All patients were new cases and were matched for age, sex, and high. TSH, FT4, TG, LDL, FBS and fasting plasma insulin level were measured twice at time of diagnosis and after treatment and the changes of TyG and HOMA indices were recorded.

**Results:** In two groups IR based on HOMA was more than TyG index. IR in overt hypothyroidism based on HOMA index was more than two times in comparison with TyG index at the first time and more than three times (10:3) at the second time. IR in subclinical hypothyroidism based on HOMA index was more than four times in comparison with TyG index at the first time and more than three times (7:2) at the second time. A significant difference was found in IR based on HOMA before and after treatment ( $P<0.05$ ). There were not any significant differences in IR indices of overt hypothyroidism group.

**Conclusion:** The eight weeks treatment of hypothyroidism and reducing TSH level is probably having no effect on HOMA and TyG in overt and subclinical hypothyroidism.

**Keywords:** Insulin resistance, TyG index, Glucose, Hypothyroidism

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