Objectives

Background: Insulin resistance (IR) is a state in which a given concentration of insulin produces biological effect less than expected and IR actually make up a broad clinical spectrum, as obesity, glucose intolerance, DM, & the metabolic S. that are associated with various endocrine, metabolic, & genetic conditions. There is an association of IR with thyroid abnormalities. Evidence for a relationship between T4 and T3 and glucose metabolism appeared over 100 years ago when the influence of hyperthyroidism in the deterioration of glucose metabolism was first noticed. More , hypothyroidism has been linked to decreased IR. Thyroid hormones exert both insulin agonistic and antagonistic actions in different organs. However, this occurs in a fine balance necessary for normal glucose metabolism. Deficit or excess of thyroid hormones can break this equilibrium leading to alterations of carbohydrate metabolism. Aim of this study to determine the association between thyroid function and IR.

Methods

This study included 90 non diabetic patients recruited from Fayoum university hospital 30 patients had hypothyroidism, 30 had hyperthyroidism, & 30 were euthyroid. All the patients were examined clinically and body measurements were obtained. HOMA IR were calculated. Using a calculator after measuring both fasting insulin and fasting blood glucose. Also thyroid functions were assessed and all medications used and their doses were checked.

Results

It was found that 50% of hypothyroid patients had IR, while 36% of hyperthyroid patients had IR while only 16.5% of the euthyroid subject had insulin resistance and the difference were statically significant (p=0.024). There was a highly statistically significant difference between groups of the study regarding the mean values of weight, BMI and waist circumference (P<0.0001). Conversely, there was no statistically significant difference as regards the mean values of height. There was no statistically significant difference between males and females as regards the mean values of HOMA/IR among the three study groups (P = 0.583, 0.552 and 0.077).

Conclusions

This study included 90 non diabetic or prediabetic subjects, of them 30 hypothyroid, 30 hyperthyroid, and 30 euthyroid. It was found that about 50% of hypothyroid patients and 36% of hyperthyroid patients had insulin resistance (HOMA-IR > 2) and only 17% of euthyroid group had insulin resistance. Also strangely there was no statisticaly significant correlation between body weight, BMI, as well as waist circumference with insulin resistance. We recommend further research as regards this topic with a larger sample size and more detailed data including lipid parameters and either related biomarkers.

References

