THYROID FUNCTION, SERUM LIPIDS AND INSULIN RESISTANCE IN PATIENTS WITH AUTOIMMUNE THYROIDITIS

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Background: Thyroid disease, insulin resistance, and serum lipids are associated with cardiovascular disease.

Objective: To evaluate the hypothesis that thyroid function, in euthyroid subjects with autoimmune thyroiditis (AIT) is associated with insulin resistance, serum lipid concentrations and other cardiovascular (CV) risk factors.

Methods: We recorded in 112 patients (91.2 \% females; mean age of 48.42 \( \pm \) 14.2 years) with AIT, thyroid function tests, BMI, insulin resistance markers (HOMA, QUICKI, Hepatic Insulin Sensitivity Index, Whole-Body Insulin Sensitivity Index (WBISI), Insulinogenic Index (IGI)) and total cholesterol, HDL, LDL-cholesterol, triglycerides (TG), apolipoprotein B (ApoB), ApoA1, lipoprotein (a) (Lp(a)), homocysteine, C-reactive protein (CRP), folic acid and vitamin B12 levels. A 75-g OGTT was performed and blood samples for glucose, insulin, and C-peptide were obtained. Statistical analysis was performed with ANOVA and Pearson's Correlations test. Results are expressed as means \( \pm \) SD or percentages. A two-tailed \( p \) value < 0.05 was considered significant.

Results: There were significant positive correlations between TSH and serum total cholesterol (\( R=0.382; P=0.01 \)), LDL (\( R=0.384; P= 0.01 \)), TG (\( R=0.278; P=0.01 \)), and ApoB (\( R=0.341; P=0.01 \)). BMI was positively correlated with FT4 (\( R=0.274; P=0.01 \)) and negatively with HDL (\( R=-0.279; P=0.01 \)) and Apo A1 (\( R=-0.299; P=0.01 \)). There were significant negative correlations between CRP and HDL (\( R=-0.269; P=0.01 \)) and a positive correlation between CRP and TG (\( R=0.567; P=0.01 \)) and homocysteine (\( R=0.234; P=0.05 \)). There were significant positive correlations between IGI and TG (\( R=0.264; P=0.01 \)) and TSH (\( R=0.217; P=0.05 \)), and between WBISI and HDL-C (\( R=0.203; P=0.05 \)).

Conclusion: Thyroid function and lipid levels are associated even in subjects classified as being euthyroid. These findings are consistent with an increased cardiovascular risk in subjects with low normal thyroid function.