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# TSH Levels in Turkish Adults: Prevalences and Associations With Serum Lipids, Coronary Heart Disease and Metabolic Syndrome

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**Abstract:** Overt hypothyroidism is implicated in atherosclerosis through dyslipidemia, hypertension, and hyperhomoscysteinemia. Epidemiological data related to the role of thyroid hormones in the risk of coronary heart disease (CHD) and metabolic syndrome (MS) in Turkish adults are lacking. Thyroid stimulating hormone (TSH) was measured in the 2004 follow-up of the Turkish Adult Risk Factor Study, with the aim of investigating thyroid hormone status as a possible risk factor in CHD and MS in the population sample. To this end, a subgroup of the cohort (512 men and women: mean age 52 $\pm$ 11.4) in whom the prevalences for CHD, MS and diabetes (DM) were 8.2%, 42.4% and 10.7%, respectively, were screened for TSH. The cohort was classified as hypo-, hyper- or euthyroid according to cutoffs of 4.2 and 0.3 µU/ml for TSH, respectively. No distinction was made between overt and subclinical thyroid states. Total and LDL-cholesterol was lowest, but waist circumference unexpectedly highest in the hyperthyroid group. Women (1.3 µU/ml) had significantly higher ($P < 0.001$) TSH levels than men (0.95 µU/ml). The prevalence of hypo- and hyperthyoidism in men and women were 1.7%/7% and 4.4%/5%, respectively, and women overwhelmingly predominated the hypothyroid cases. TSH values did not significantly differ among groups diagnosed as or not CHD, MS, or DM. Log TSH was significantly correlated with total and LDL-cholesterol and, inversely, with alcohol usage. Multivariate linear regression analysis revealed total cholesterol as the sole independent covariate of TSH levels in men and both sexes combined. An increase by approximately one-third of the physiological TSH levels was associated with a 40 mg/dl-increase in total cholesterol concentrations. Age- and sex-adjusted TSH did not contribute to the risk of CHD, hypercholesterolemia, MS, or DM in logistic regression analyses. To conclude, TSH levels were independently associated with total cholesterol concentrations but did not appear to be a risk factor for CHD or MS in the cohort studied. Following up the group prospectively may give a better understanding concerning the thyroid status and CHD risk in Turkish adults.

**Key Words:** Coronary disease risk; serum TSH; thyroid status

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