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SUBCLINICAL HYPOTHYROIDISM IS ASSOCIATED WITH INCREASED CORONARY HEART DISEASE AND ALL-CAUSE MORTALITY

McQuade C, Skugor M, Brennan DM, Hoar B, Stevenson C, Hoogwerf BJ. **Hypothyroidism and Moderate Subclinical Hypothyroidism Are Associated with Increased All-Cause Mortality Independent of Coronary Heart Disease Risk Factors: A PreCIS Database Study.** Thyroid 2011;21:837-43. Epub July 11, 2011.

SUMMARY

BACKGROUND

Hypothyroidism is associated with various coronary artery disease risk factors. The purpose of this study was to determine whether hypothyroidism and subclinical hypothyroidism (SCH) was associated with increased mortality among patients in a preventive cardiology clinic.

METHODS

The patient population consisted of 4765 euthyroid subjects (thyrotropin [TSH], 0.4 to 3.0 mU/L), 1218 with mild SCH (TSH, 3.1 to 6.0), 178 with moderate SCH (TSH, 6.1 to 10.0), and 79 who had hypothyroidism (TSH, >10) who enrolled at the Preventive Cardiology & Rehabilitation Program of the Cleveland Clinic between January 1995 and June 2008. The patients had an extensive evaluation for coronary heart disease (CHD) risk factors and were followed for up to 8 years. The time to death was defined as the difference between the patient's prevention clinic entry visit until the date of death.

RESULTS

Patients in the SCH and hypothyroid groups had greater risk for vascular disease as shown by a higher prevalence of baseline CHD ($P<0.001$) and higher Framingham risk scores ($P<0.001$). All-cause mortality was increased in the hypothyroid (25.7%) and the moderate SCH (18.0%) patient groups, as compared with the euthyroid group, but not in the mild SCH group. After adjusting for variables such as smoking, hypertension, cerebrovascular disease, body-mass index, triglycerides, glucose, and homocysteine, the hazard ratio for mortality was still significantly increased, to 1.61, in the moderate SCH group, and to 2.34 in the hypothyroid group.

CONCLUSIONS

Hypothyroidism and moderate, but not mild, subclinical hypothyroidism are associated with increased prevalence of coronary heart disease and all-cause mortality.

COMMENTARY

As the authors note, this is a controversial area. Various meta-analyses have either supported or differed from their results. The population was by definition a high-risk population for coronary heart disease. The classification was based on a single TSH measurement at the entry visit. One fourth of the moderate SCH group and half of the hypothyroid group were on thyroid-replacement therapy but apparently not taking an optimal dose.

The findings confirm those in a population of Japanese men with subclinical hypothyroidism who had a 2-fold increase in all-cause mortality and coronary heart disease (1) and an Australian study that reported a 1.5-fold increased risk for coronary heart disease with subclinical hypothyroidism (2). In patients with known cardiac disease, an Italian study found more than a 2-fold increased risk in cardiovascular disease mortality in patients with subclinical hypothyroidism (3).

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continued on next page

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