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Subclinical hyperthyroidism and the risk of coronary heart disease and mortality.

Collet TH, Gussekloo J, Bauer DC, den Elzen WP, Cappola AR, Balmer P, Iervasi G, Åsvold BO, Sgarbi JA, Völzke H, Gencer B, Maciel RM, Molinaro S, Bremner A, Luben RN, Maisonneuve P, Cornuz J, Newman AB, Khaw KT, Westendorp RG, Franklyn JA, Vittinghoff E, Walsh JP, Rodondi N; Thyroid Studies Collaboration.

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Abstract

BACKGROUND: Data from prospective cohort studies regarding the association between subclinical hyperthyroidism and cardiovascular outcomes are conflicting.We aimed to assess the risks of total and coronary heart disease (CHD) mortality, CHD events, and atrial fibrillation (AF) associated with endogenous subclinical hyperthyroidism among all available large prospective cohorts.

METHODS: Individual data on 52 674 participants were pooled from 10 cohorts. Coronary heart disease events were analyzed in 22 437 participants from 6 cohorts with available data, and incident AF was analyzed in 8711 participants from 5 cohorts. Euthyroidism was defined as thyrotropin level between 0.45 and 4.49 mIU/L and endogenous subclinical hyperthyroidism as thyrotropin level lower than 0.45 mIU/L with normal free thyroxine levels, after excluding those receiving thyroid-altering medications.

RESULTS: Of 52 674 participants, 2188 (4.2%) had subclinical hyperthyroidism. During follow-up, 8527 participants died (including 1896 from CHD), 3653 of 22 437 had CHD events, and 785 of 8711 developed AF. In age- and sex-adjusted analyses, subclinical hyperthyroidism was associated with increased total mortality (hazard ratio[HR], 1.24, 95% CI, 1.06-1.46), CHD mortality (HR,1.29; 95% CI, 1.02-1.62), CHD events (HR, 1.21; 95%CI, 0.99-1.46), and AF (HR, 1.68; 95% CI, 1.16-2.43).Risks did not differ significantly by age, sex, or preexisting cardiovascular disease and were similar after further adjustment for cardiovascular risk factors, with attributable risk of 14.5% for total mortality to 41.5% forAF in those with subclinical hyperthyroidism. Risks for CHD mortality and AF (but not other outcomes) were higher for thyrotropin level lower than 0.10 mIU/L compared with thyrotropin level between 0.10 and 0.44 mIU/L(for both, P value for trend, .03).

CONCLUSION: Endogenous subclinical hyperthyroidism is associated with increased risks of total, CHD mortality, and incident AF, with highest risks of CHD mortality and AF when thyrotropin level is lower than 0.10 mIU/L.

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