**Topic**: SUBCLINICAL HYPOTHYROIDISM

**Title**: Subclinical hypothyroidism and the risk of heart failure, other cardiovascular events, and death.

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**SUMMARY**

**Background**: Subclinical hypothyroidism (SCH) has been associated with systolic and diastolic cardiac dysfunction and an elevated cholesterol level, but data on cardiovascular outcomes and death are limited.

**Methods**: The authors studied 2730 men and women (age 70-79 yrs), with baseline TSH measurements and 4-year follow-up data to determine whether SCH was associated with congestive heart failure (CHF) coronary heart disease, stroke, peripheral arterial disease, and cardiovascular-related and total mortality. After excluding participants with abnormal T4 levels, SCH was defined as a TSH level of 4.5 mU/L or greater, and was further classified according to TSH levels (4.5-6.9; 7.0-9.9; and >10.0 mU/L).

**Results**: SCH was present in 338 participants (12.4% of the cohort). Compared with euthyroid patients, CHF events occurred more frequently among those with TSH of 7.0 mU/L or greater (35 vs 17 per 1.000 persons-year; P=0.006), but not among those with TSH levels between 4.5-6.9 mU/L. In multivariate analyses, the risk of CHF was higher among those with high TSH levels: TSH of 7.0-9.9 mU/L (hazard ratio: 2.58 with 95% C.I.: 1.19-5.60) and TSH of >10.0 mU/L (hazard ratio: 3.26 with 95% C.I.: 1.37-7.77). Among the 2,555 participants without CHF at baseline, the hazard ratio for incident CHF events was 2.33 (95% C.I.: 1.10-4.96; P=0.03) in those with a TSH of 7 mU/L or greater. SCH was not associated with increased risk for coronary heart disease, stroke, peripheral arterial disease, or cardiovascular-related or total mortality.

**Conclusions**: SCH is associated with an increased risk of CHF among older adults with a TSH level of 7.0 mU/L or greater, but not with other cardiovascular events or mortality. Further investigation is warranted to assess whether SCH causes or worsens pre-existing heart failure.

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**COMMENT**

This prospective study suggests that subclinical hypothyroidism (SCH) is associated with an increased risk of incident and recurrent congestive heart failure events among older adults (55% females) with a TSH level of 7.0 mU/L or greater. Because no other prospective study has assessed the risk of CHF events in subjects with SCH, the present results should probably be confirmed in other large prospective investigations, perhaps also including younger populations.

It remains to be shown whether SCH causes or worsens pre-existing heart failure, since this distinction is crucial to decide on embarking on systematic screening programs for SCH in elderly subjects and, moreover, on deciding whether thyroxine treatment may be beneficial.

*(Daniel Glinoer, MD; PhD)*

See Figure on next page.
Figure. Cumulative congestive heart failure (CHF) events in older subjects according to thyrotropin (TSH) levels. The rate of CHF events increased with higher TSH levels ($P=0.03$ for trend). Participants with a TSH level of 7.0 mIU/L or greater had a higher rate of CHF events compared with euthyroid participants ($P=0.006$); this was not the case for those with a TSH level between 4.5 and 6.9 mIU/L.