

# Subclinical hypothyroidism and subclinical hyperthyroidism have few deleterious cardiovascular effects

**The background of the study.** Subclinical thyroid dysfunction (high or low serum thyrotropin [TSH] and normal serum free thyroxine [T4] concentrations) may be associated with increases in cardiovascular morbidity and mortality. In this study, the incidence of cardiovascular mortality and overall (all-causes) mortality was determined in a group of older women and men in whom thyroid function was assessed at base line.

**How the study was done.** The study subjects were 3233 subjects (1926 women, 1307 men) aged  $\geq 65$  years enrolled between 1989 and 1993 in a study of risk factors for cardiovascular disease. At base line, serum TSH was measured in all subjects, and serum free T4 was measured in those with high or low serum TSH concentrations. The subjects were categorized into four groups: subclinical hyperthyroidism, low serum TSH–normal free T4; euthyroid; normal serum TSH; subclinical hypothyroidism, high serum TSH–normal free T4; and overt hypothyroidism, high serum TSH–low free T4.

Cardiovascular diseases were determined by self-report and review of medical records at base line and twice yearly thereafter. Cardiovascular death and death from other causes were determined from medical records, autopsy reports, and death certificates.

**The results of the study.** When evaluated initially, 2639 subjects (82 percent) were euthyroid, 47 (1 percent) had subclinical hyperthyroidism, 496 (15 percent) subclinical hypothyroidism, and 51 (2 percent) overt hypothyroidism. There were no differences in the frequency of atrial fibrillation, coronary heart disease, or cerebrovascular disease in the four groups at that time.

During a mean follow-up period of 12.5 years, atrial fibrillation occurred slightly more often in the subjects with subclinical hyperthyroidism than in the euthyroid subjects. There were no differences in the incidence of coronary heart disease or cerebrovascular disease or cardiovascular or all-cause mortality in the four groups.

**The conclusions of the study.** Among older subjects, the risk of cardiovascular disease or cardiovascular or all-cause mortality is not increased in those with subclinical hyperthyroidism or subclinical or overt hypothyroidism, but the risk of atrial fibrillation is increased in those with subclinical hyperthyroidism.