
Abstract

Objective: It is uncertain whether subclinical hypothyroidism (SCH) is associated with hypercholesterolaemia, particularly in subjects with SCH and serum TSH<=10 mU/l.

Design, patients and measurements: Cross-sectional study of 2108 participants in a 1981 community health survey in Busselton, Western Australia. Serum total cholesterol and triglycerides were measured in all subjects and high density lipoprotein cholesterol (HDL-C) measured (and low density lipoprotein cholesterol (LDLC) calculated) in a subgroup of 631 subjects at the time of the survey. In 2001, TSH and free T4 concentrations were measured on archived sera stored at -70°C. Serum lipid concentrations in subjects with thyroid dysfunction and euthyroid subjects were compared using linear regression models.

Results: In the group as a whole, serum total cholesterol was higher in subjects with SCH (N = 119) than in euthyroid subjects (N = 1906) (mean ± SD 6·3 ± 1·3 mmol/l vs. 5·8 ± 1·2 mmol/ l, P < 0·001 unadjusted, P = 0·061 adjusted for age, age² and sex). Serum total cholesterol was similarly elevated in subjects with SCH and TSH <= 10 mU/l (N = 89) (6·3 ± 1·3 mmol/l, P < 0·001 unadjusted, P = 0·055 adjusted for age, age² and sex). In the subgroup analysis, LDL-C was higher in subjects with SCH (N = 30) than in euthyroid subjects (N = 580) (4·1 ± 1·2 mmol/l vs. 3·5 ± 1·0 mmol/ l, P < 0·01 unadjusted, P = 0·024 adjusted for age, age² and sex). LDL-C was significantly increased in subjects with SCH and TSH <= 10 mU/l (N = 23) (4·3 ± 1·3 mmol/l, P < 0·001 unadjusted, P = 0·002 adjusted for age, age² and sex).

Conclusion: SCH is associated with increased serum LDL-C concentrations, which is significant after adjustment for age, age² and sex.