

## Vessels and Endothelium

### 12.1 Enhanced Proatherogenic Inflammation After Recombinant Human TSH Administration in Patients Monitored for Thyroid Cancer Remnant

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**Introduction.** Patients with either overt or subclinical hypothyroidism exhibit increased susceptibility to develop atherosclerotic disease. Since the proinflammatory activation of vascular endothelial cells and platelets represents a crucial step in atherogenesis, we evaluated the effect of recombinant human thyrotropin (rhTSH) on biomarkers of vascular endothelial cell and platelet activation in patients monitored for thyroid carcinoma remnant.

**Methods.** Circulating levels of soluble(s) intercellular adhesion molecule (ICAM)-1 and sE-selectin, as indices of vascular endothelial cell activation, of sP-selectin and sCD40 ligand (sCD40L), as indices of platelet activation, and of 8-iso-prostaglandin(PG)F<sub>2</sub>alpha, as index of lipid peroxidation, were evaluated in 20 patients (16 females, 48.0±13.6 years) at baseline and after intramuscular rhTSH injection (0.9 mg/day on 2 consecutive days).

**Results.** At baseline, serum thyrotropin values were below while free T<sub>3</sub> and free T<sub>4</sub> within the normal range. After rhTSH injection serum thyrotropin significantly increased while free T<sub>3</sub> and free T<sub>4</sub> remained unchanged. Concomitantly, plasma sICAM-1 (from 155.9±39.1 to 183.6±38.1 ng/mL, p<0.03), sE-selectin (74.8±15.4 vs 91.4±12.2 ng/mL, p<0.0006), sP-selectin (56.4±13.7 vs 72.2±14.9 ng/mL, p<0.002), sCD40L (2.1±0.9 vs 2.8±1.1 ng/mL, p<0.03) and total 8-iso-PGF<sub>2</sub>alpha (238.5±47.0 vs 307.8±41.2 pg/L, p<0.0001) concentrations significantly increased. Changes of circulating levels of sCD40L were directly correlated with changes of plasma total 8-iso-PGF<sub>2</sub>alpha (r:0.523, p<0.02) and sP-selectin (r:0.480, p<0.03) levels.

**Conclusions.** Our data suggest that rhTSH might exert proatherogenic effects by promoting activation of vascular endothelial cells and platelets probably through enhanced oxidative stress.