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Cardiovascular medicine

Testosterone replacement in hypogonadal men with angina improves ischaemic threshold and quality of life

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Abstract

Background: Low serum testosterone is associated with several cardiovascular risk factors including dyslipidaemia, adverse clotting profiles, obesity, and insulin resistance. Testosterone has been reported to improve symptoms of angina and delay time to ischaemic threshold in unselected men with coronary disease.

Objective: This randomised single blind placebo controlled crossover study compared testosterone replacement therapy (Sustanon 100) with placebo in 10 men with ischaemic heart disease and hypogonadism.

Results: Baseline total testosterone and bioavailable testosterone were respectively 4.2 (0.5) nmol/l and 1.7 (0.4) nmol/l. After a month of testosterone, delta value analysis between testosterone and placebo phase showed that mean (SD) trough testosterone concentrations increased significantly by 4.8 (6.6) nmol/l (total testosterone) ($p = 0.05$) and 3.8 (4.5) nmol/l (bioavailable testosterone) ($p = 0.025$), time to 1 mm ST segment depression assessed by Bruce protocol exercise treadmill testing increased by 74 (54) seconds ($p = 0.002$), and mood scores assessed with validated questionnaires all improved. Compared with placebo, testosterone therapy was also associated with a significant reduction of total cholesterol and serum tumour necrosis factor α with delta values of -0.41 (0.54) mmol/l ($p = 0.04$) and -1.8 (2.4) pg/ml ($p = 0.05$) respectively.

Conclusion: Testosterone replacement therapy in hypogonadal men delays time to ischaemia, improves mood, and is associated with potentially beneficial reductions of total cholesterol and serum tumour necrosis factor α .

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