

Topic: Hypogonadism

Favourable changes in body composition and components of the metabolic syndrome in 410 hypogonadal men receiving testosterone over 48 months

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Objective: Metabolic syndrome is negatively associated with hypogonadism. This study tested the effects of 4 years of testosterone treatment in 410 men from three German centers, following the same protocol.

Methods: This is an uncontrolled, observational, ongoing study. Cohort 1 (University of Muenster) consisted of 137 men (aged 40 ± 13 years). Cohort 2 (Urology Practice in Bremerhaven) consisted of 143 men, aged 34-78 years (mean \pm SD: 62 ± 8 yrs). Cohort 3 (Urology Practice in Norderstedt) consisted of 130 men aged 46-79 years (mean \pm SD: 61 ± 9 yrs). The cut-off point for inclusion in the study was serum testosterone <12 nmol/L. All 410 men were treated with parenteral testosterone undecanoate for 48 months as the sole intervention. Statistical analysis: (STATA (Stata Corp, College Station, Texas, USA): linear mixed model for longitudinal data.

Results: Testosterone rose from a range of 5.6- 9.7 to 15.4- 19.0 nmol/L reaching maximum at 9 months and remaining stable over the next 33 months. There was a progressive decline of body weight and waist circumference over the total study period. Plasma cholesterol, triglycerides, and LDL-cholesterol decreased significantly. Plasma HDL increased significantly over the first 24 months and then declined in cohort 2 but increased over 48 months in cohorts 1 and 3. Plasma glucose declined over the first 12-18 months and then stabilized. Systolic and diastolic blood pressure declined.

Conclusion: In hypogonadal men testosterone treatment over 48 months led to an improvement of features of the metabolic syndrome. Body weight and waist circumference declined over the full observation period, indicating that long-term treatment with testosterone undecanoate injections may have profound effects on obesity.