

Sustained improvement of features of the metabolic syndrome upon normalization of serum testosterone in hypogonadal men. Follow-up up to 5 years

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Objectives: Hypogonadal men tend to increase body weight, fat mass and develop features of the metabolic syndrome. Long-term effects of normalization of testosterone in hypogonadal men on weight, waist circumference and lipid metabolism, liver functions upon treatment with parenteral testosterone undecanoate were studied.

Methods: A cumulative registry study of 255 men (mean age: 60.6 ± 8.0 years), with testosterone levels between $0.14 - 3.51$ ng/mL with late onset hypogonadism (LOH).

Results: A remarkable progressive and sustained decline of body weight and waist circumference over 5 years was observed. Fasting glucose decreased from 103.38 ± 14.44 mg/dL to 97.54 ± 2.34 ($p < 0.0001$). The proportion of patients who had glucose levels ≥ 100 mg/dL decreased from 45% at baseline to 16% at 60 months. HbA_{1c} was measured in 125 patients and decreased from $6.94 \pm 1.55\%$ to $6.01 \pm 1.41\%$. Total cholesterol decreased from 281.58 ± 39.8 mg/dL to 188.12 ± 11.31 ($p < 0.0001$), LDL from 163.79 ± 41.44 mg/dL to 109.84 ± 35.41 ($p < 0.0001$), triglycerides from 276.16 ± 51.32 mg/dL to 189.78 ± 11.33 ($p < 0.0001$). HDL was stable over the first 2 years (62 mg/dL at baseline and 63.26 at 24 months) and then declined to 52.45 at 60 months ($p < 0.0001$ vs baseline). Mean systolic blood pressure declined from 153.55 ± 17.6 mm Hg to 137.74 ± 10.92 ($p < 0.0001$) and diastolic blood pressure from 93.49 ± 11.21 mm Hg to 79.61 ± 7.35 at 60 months ($p < 0.0001$). At baseline, 91% of men had a systolic blood pressure of ≥ 130 mm Hg which declined to 80% after 60 months. At baseline, 75% of men had a diastolic blood pressure of ≥ 85 mm Hg declining to 22% at 5 years.

Conclusions: Normalization of serum testosterone leads to a sustained improvement of all components of the metabolic syndrome.