

Word count 250; max 250

Continuous improvements of the metabolic syndrome under testosterone treatment over 48 months in three cohorts, in total 410 men.

Objectives: Effects of normalization of testosterone over 48 months in three cohorts of men, mostly with the metabolic syndrome, following the same treatment protocol.

Design and Methods: Cohort 1 (MZ): 281 men (137 primary or secondary hypogonadal) (aged 40 ± 13 years), 59 with late onset hypogonadism (LOH). Cohort 2 (AH): 143 men, aged 34-78 years (mean \pm SD: 62 ± 8 yrs), 119 had LOH. Cohort 3 (AY): 130 men aged 46-79 years (mean \pm SD: 61 ± 9 yrs), 104 had LOH. Cut-off point was serum testosterone <12 nmol/L. Treatment with parenteral testosterone undecanoate.

Results: A remarkable progressive and sustained decline of body weight and waist circumference over the full study period. Plasma cholesterol, triglycerides, and LDL-cholesterol decreased significantly over the study period. Plasma glucose declined over the first 12-18 months and then stabilized. In cohort 1 at baseline 240/281 men fulfilled the harmonized criteria of the metabolic syndrome, fallen to 114/281 after two years. At baseline 88/143 men in cohort 2 and 93/130 men in cohort 3 met the criteria of the metabolic syndrome by the harmonized definition. After 48 months of testosterone treatment this number had declined to 48/143 in cohort 2 and to 62/130 in cohort 3.

Conclusion: In hypogonadal men testosterone treatment over 48 months improved the metabolic syndrome with sustained declines of body weight / waist circumference along with improvements of cholesterol, LDL and triglycerides. Improvements in younger men with 'classical' primary or secondary hypogonadism (cohort 1) were of a similar magnitude as in men with LOH (cohorts 2 and 3).