

Effects of 4 year testosterone treatment on components of the metabolic syndrome

Saad F.^{1,2}, Haider A³, Gooren LJ⁴

¹Bayer Schering Pharma, Scientific Affairs Men's Healthcare, Berlin, Germany; ²Gulf Medical University School of Medicine, Ajman, UAE; ³Private urology praxis, Bremerhaven, Germany; ⁴Endocrinology, VUmc, Amsterdam, the Netherlands

Background: Elderly men often show a concurrence of a decline of testosterone with features of the metabolic syndrome. This study tested the effects of normalization of testosterone.

Materials and methods: 136 hypogonadal men (38 – 83 years, mean 60.6 ± 8.0 years), with testosterone levels between 0.14 –4.51 ng/mL ($N > 4.90$ ng/ml) were treated with parenteral testosterone undecanoate for 4 years as the sole intervention.

Results: Plasma testosterone rose from 3.3 ± 1.9 ng/mL to 4.1 ± 1.5 ng/mL ($P < 0.01$) at 3 months, then stabilized at 6.8 ± 1.3 ng/mL after the first 6 months. There was a remarkable progressive linear decline of body weight, waist circumference, serum cholesterol, triglyceride, LDL-cholesterol and C-reactive protein over the 4 year period. Plasma glucose declined over the first 18 months. There was a significant decrease of levels of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) over the first 24 months, then values leveled off. Both systolic and diastolic blood pressure decreased over the first 30 months. At baseline 52/136 met the criteria of the metabolic syndrome as defined by the National Cholesterol Education Program (2001); after two years of testosterone treatment this number had declined to 12/136.

Conclusion: With testosterone treatment over four years, the most significant improvement of the metabolic syndrome, including blood pressure, was noted over the first 24 months but over the following 24 months improvements were at least maintained or

even further improvement was observed. Decreases in AST and ALT are likely to indicate improvement of liver steatosis.