Testosterone Treatment with Injectable Testosterone Undecanoate Sustainably Improves Erectile Function, Urinary Function and Quality of Life in Elderly Hypogonadal Patients

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Objectives: Hypogonadism is often associated with erectile dysfunction (ED) and lower urinary tract symptoms (LUTS) and impaired Quality of Life. We studied long-term effects of testosterone treatment in elderly hypogonadal men treated with parenteral testosterone undecanoate.

Methods: A cumulative study of 255 men (mean age: 60.6 ± 8.0 years) with testosterone levels ≤ 3.50 ng/mL were treated with injectable testosterone undecanoate for up to 60 months. Injections were administered with an initial 6-week interval (loading dose) followed by 12-week intervals.

Results: The International Index of Erectile Function (IIEF) increased from 21.13 ± 4.63 at baseline to 24.83 ± 3.8 after 60 months, most pronounced over the first 24 months but still slowly progressive thereafter. The International Prostate Symptoms Score (IPSS) improved from 6.73 ± 4.21 to 2.83 ± 1.25 ($p<0.0001$ vs baseline with significant changes over the previous year up to 48 months). As an objective measurement, residual bladder volume decreased from 46.61 ± 22.74 mL to 19.74 ± 6.25 mL ($p<0.0001$ vs baseline with significant changes over the previous year up to 48 months). Quality of life was assessed by the Aging Males' Symptoms score (AMS). AMS improved from 55.01 ± 10.2 to 17.35 ± 0.55 ($p<0.0001$ vs baseline) reaching a plateau after 24 months.
Inflammation seems to play a role in both erectile and urinary function. As measures of inflammation, highly sensitive C-reactive protein (hsCRP) and leukocyte count were assessed. hsCRP decreased from 6.29 ± 7.96 mg/L to 1.03 ± 1.87 ($p<0.0001$ vs baseline) with a plateau after 36 months. Leukocyte count decreased from 8.06 ± 2.98 $x10^9$/L to 5.74 ± 0.81 ($p<0.0001$ vs baseline).

Conclusions: Sustainable and progressive improvement of IIEF and IPSS was remarkable in conjunction with improvement of body composition, lipid metabolism, inflammatory markers and blood pressure. We assume that ischemia, impairment of nitric oxide (NO) production and inflammation play a role in the etiology of ED and LUTS which often occur in a parallel pattern. Testosterone treatment in hypogonadal men may reduce inflammation and may have direct effects on NO mechanisms and reduction of ischemia resulting in improvement of erectile and voiding capacities.