

# Long-Term Testosterone Replacement Therapy Improves Erectile Function, Urinary Function and Quality of Life in Middle-Aged to Elderly Hypogonadal Patients

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**Introduction and Objectives:** Hypogonadism is often associated with erectile dysfunction (ED), 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.

**Materials and Methods:** In a cumulative registry study, 255 men (mean age:  $60.6 \pm 8.0$  years) with testosterone levels  $\leq 3.50$  ng/mL were treated with injectable testosterone undecanoate for up to 60 months. An initial 6-week interval (loading dose) was followed by 12-week intervals.

**Results:** Testosterone increased from  $2.87 \pm 0.4$  at baseline to  $5.26 \pm 0.44$  at the end of five years. The International Index of Erectile Function (IIEF) increased from  $21.13 \pm 4.63$  at baseline to  $24.83 \pm 3.8$  after 60 months, most pronounced over the first 24 months but still slowly progressive thereafter. The International Prostate Symptoms Score (IPSS) improved from  $6.73 \pm 4.21$  to  $2.83 \pm 1.25$  ( $p < 0.0001$  vs baseline with significant changes over the previous year up to 48 months). As an objective measurement, residual bladder volume decreased from  $46.61 \pm 22.74$  mL to  $19.74 \pm 6.25$  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  $55.01 \pm 10.2$  to  $17.35 \pm 0.55$  ( $p < 0.0001$  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  $6.29 \pm 7.96$  mg/L to  $1.03 \pm 1.87$  ( $p < 0.0001$  vs baseline) with a plateau after 36 months. Leukocyte count decreased from  $8.06 \pm 2.98 \times 10^9/L$  to  $5.74 \pm 0.81$  ( $p < 0.0001$  vs baseline).

**Conclusions:** Sustainable and progressive improvement of IIEF and IPSS was remarkable in conjunction with improvement of features of the metabolic syndrome. Testosterone treatment in hypogonadal men may reduce inflammation resulting in improvement of erectile and voiding capacities.