

Long-term treatment with testosterone undecanoate (TU) injections improves urinary and sexual functions and quality of life (QoL) independent of age

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**Objective:** Hypogonadism is a risk factor for a host of diseases. This study analysed effects of testosterone replacement therapy (TRT) in hypogonadal men on urinary and sexual functions and QoL.

**Material and Methods:** Two pooled, prospective, cumulative registry studies in 561 men (age:  $58.55 \pm 7.59$  years) with T levels below 12.1 nmol/L. 450 men were aged  $\leq 65$  years (Group Y), 111 were  $> 65$  years (Group O). They received parenteral TU 1000 mg/12 weeks following an initial 6-week interval for up to six years. The International Prostate Symptom Score (IPSS), International Index of Erectile Function-Erectile Function Domain (IIEF-EF, maximum score: 30) and Aging Males' Symptoms Scale (AMS) were assessed at every visit. Post-void residual urine volume (PVR) as well as prostate volume were measured by ultrasonography.

**Results:** Prostate volume increased in Group Y from  $26.77 \pm 9.4$  to  $31.58 \pm 10.9$  ml ( $p < 0.0001$ ), in Group O from  $33.85 \pm 8.66$  to  $39.95 \pm 7.6$  ml ( $p < 0.0001$ ).

IPSS improved in Group Y  $7.74 \pm 5$  to  $3.89 \pm 3.12$  ( $p < 0.0001$ ), in Group O from  $10.7 \pm 4.07$  to  $4.63 \pm 2.63$  ( $p < 0.0001$ ). These changes were statistically significant vs. previous year for all six years in Group Y and the first five years in Group O and were then maintained throughout the observation period.

PVR declined in Group Y from  $34.87 \pm 23.12$  to  $16.72 \pm 6.74$  ml ( $p < 0.0001$ ), in Group O from  $41.46 \pm 23.48$  to  $18.84 \pm 5.75$  ml ( $p < 0.0001$ ).

IIEF improved in Group Y from  $14.94 \pm 7.34$  to  $24.21 \pm 4.39$  ( $p < 0.0001$ ), in Group O from  $11.87 \pm 7.58$  to  $22.12 \pm 6.41$  ( $p < 0.0001$ ). These changes were statistically significant vs. previous year for the first four years in Group Y and the first two years in Group O and were then maintained throughout the observation period.

AMS improved in Group Y  $53.53 \pm 9.47$  to  $21.68 \pm 6.88$  ( $p < 0.0001$ ), in Group O from  $54.99 \pm 9.02$  to  $23.45 \pm 7.91$ . These changes were statistically significant vs. previous year for the first three years in both groups and were then maintained throughout the observation period.

C-reactive protein (CRP) as a marker of inflammation dropped in Group Y from  $4.04 \pm 6.34$  to  $0.75 \pm 1.06$  ( $p < 0.0001$ ), in Group O from  $2.65 \pm 3.75$  to  $0.71 \pm 0.51$  mg/dl.

**Conclusions:** Despite an expected increase in prostate volume, TRT in both younger and older hypogonadal men produced sustainable improvements in urinary function with parallel improvements in sexual function and QoL. These effects are closely interrelated and may be partly mediated through anti-inflammatory effects of T.