

## EFFECTS OF LONG-TERM TESTOSTERONE REPLACEMENT THERAPY IN MIDDLE-AGED TO ELDERLY HYPOGONADAL MEN ON THE PROSTATE AND ON URINARY FUNCTION

### Hypothesis / aims of study

Testosterone therapy for hypogonadal men has been used for decades. However, there are still concerns regarding the safety of this treatment, particularly in elderly men. We aimed to investigate whether there are any increased risks for prostate health and LUTS when treating men with testosterone replacement for up to five years.

### Study design, materials and methods

Open-label, single-center, cumulative, prospective registry study of 255 men (mean age  $60.6 \pm 8.0$  years), with testosterone levels  $\leq 3.5$  ng/mL (12 nmol/L) receiving parenteral testosterone undecanoate 1000 mg at baseline, after 6 weeks and thereafter at 12-week intervals.

### Results

After a maximum treatment duration of five years, the following changes were observed:

Prostate specific antigen (PSA) increased from  $1.77 \pm 0.96$  to  $1.82 \pm 0.96$  ng/ml ( $p < 0.0001$  vs baseline) with a plateau after 24 months. Prostate volume increased from  $28.51 \pm 11.2$  to  $30.23 \pm 12.4$  ml ( $p < 0.0001$  vs baseline). 3/255 patients were diagnosed with prostate cancer following elevated PSA ( $< 4$  ng/mL) at 18 weeks of treatment. Tumour grade was T2 in all three and Gleason score 3+3 in two and 3+2 in one patient, resp. They all underwent radical prostatectomy. The proportion was 1.18% with an incidence of 30.334 per 10.000 patient years. For comparison: in the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial (PLCO) with a 7-year follow-up, the proportion of prostate cancer was 7.35% with an incidence of 116 per 10.000 patient years [1], in the European Randomized Study of Screening for Prostate Cancer (ERSPC) with a 11-year follow-up, 9.6% and 96 per 10.000 patient years, resp. [2]. – The International Prostate Symptom score (IPSS) decreased from  $6.73 \pm 4.21$  to  $2.83 \pm 1.25$  ( $p < 0.0001$ ). The residual voiding volume decreased from  $46.61 \pm 22.74$  to  $19.74 \pm 6.25$  ml ( $p < 0.0001$ ).

After 60 months, reduction in IPSS correlated with reduction in waist circumference ( $r = 0.209$ ,  $p = 0.025$ ) and body weight ( $r = 0.208$ ,  $p = 0.025$ ).

### Interpretation of results

The incidence of 3/255 patients with prostate cancer does not suggest an increased risk of prostate cancer in elderly men on long-term testosterone treatment. Long-term treatment with testosterone undecanoate did not negatively affect urinary function as measured by IPSS and residual voiding volume. Part of these effects may be a result of parallel reduction in body weight and visceral fat, measured by waist circumference.

### Concluding message

Long-term testosterone replacement in middle-aged to elderly hypogonadal men does not increase the risk of prostate diseases and lower urinary tract symptoms.

### References

1. Andriole G et al. *New Engl J Med* 2009; 360(13): 1310-1319
2. Schröder F et al. *New Engl J Med* 2012; 366(11): 981-990

### Disclosures

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