

Excessively obese hypogonadal men experience substantial and sustained weight loss upon long-term treatment with testosterone undecanoate (TU) injections: observational data from two registry studies

F Saad, A Haider, A Yassin, G Doros, A Traish

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Introduction: There is a robust inverse association between testosterone and obesity. Testosterone replacement therapy (TRT) in excessively obese hypogonadal men has not yet been studied.

Methods: From two cumulative, prospective, registry studies of 561 hypogonadal men (total testosterone ≤ 12.1 nmol/L plus symptoms of testosterone deficiency), 46 men with obesity grade III (BMI ≥ 40 kg/m²) were selected. Their mean age was 60.28 ± 5.39 years. They received parenteral TU 1000 mg/12 weeks for up to 6 years.

Results: Mean weight (kg) decreased from 129.02 ± 5.67 (minimum: 119, maximum: 141) to 103.33 ± 4.17 (minimum: 96, maximum: 112). This decrease was statistically significant vs baseline ($p < 0.0001$) and each year compared to previous year ($p < 0.0001$). Mean change from baseline was -27.15 ± 0.74 kg. The magnitude of weight loss was dependent on treatment duration: the longer the treatment, the greater the weight loss. Minimum weight loss was 5 kg in a subject who had received 15 months of treatment, maximum weight loss of 41 kg was observed in a man who had been treated for 69 months. No subject gained weight.

Percent change from baseline was $-2.73 \pm 0.45\%$ after one year, $-7.26 \pm 0.44\%$ after two, $-10.86 \pm 0.45\%$ after three, $-14.1 \pm 0.47\%$ after four, $-17.43 \pm 0.48\%$ after five, and $-20.83 \pm 0.54\%$ (minimum: -15.73% , maximum: -28.06%) after six years.

Waist circumference (cm) decreased from 118.41 ± 5.69 (minimum: 105, maximum: 132) to 106.48 ± 4.91 (minimum: 95, maximum: 116). This decrease was statistically significant vs baseline ($p < 0.0001$) and each year compared to previous year ($p < 0.0001$) with the exception of year 6 which had a p-value of 0.0132 vs year 5. The mean change from baseline was 12.44 ± 0.36 cm. The greatest reductions of 19 cm each were observed in two men who had been treated for 69 and 72 months, resp.

Body mass index (BMI; kg/m²) decreased from 41.93 ± 1.5 (minimum: 40.08, maximum: 46.51) to 33.62 ± 1.58 (minimum: 30.52, maximum: 36.08). The mean change from baseline was 8.79 ± 0.23 kg/m².

There were no drop-outs.

Conclusions: All anthropometric changes were progressive and remained statistically significant each year compared to previous year for the full observation period. TRT seems to be an effective approach to achieve sustained weight loss in excessively obese hypogonadal men.

Patients with a BMI ≥ 40 are candidates for metabolic surgery. In hypogonadal men with excessive obesity, TRT may provide a non-invasive alternative.