

Obese hypogonadal men with type 2 diabetes benefit from long-term treatment with testosterone undecanoate injections

F Saad, A Haider, G Doros, A Traish

Introduction: We have previously described substantial weight loss in a cohort of 255 hypogonadal men treated with testosterone undecanoate (TU) in a urological setting. The majority of these men (181 or 71%) were obese. Of these, 71 (39%) had type 2 diabetes (T2D) known at baseline. We performed a subgroup analysis in these obese diabetic men.

Methods: Subgroup analysis as part of a cumulative, prospective, registry study of hypogonadal men with testosterone levels below 12.1 nmol/L. 71 men were obese and had T2D diagnosed and treated by their family practitioner. After diagnosis of hypogonadism in our urology practice, they received TU 1000 mg/12 weeks following an initial 6-week interval for up to five years. Data are available for 71 men for one year, 57 for two years, 49 for three years, 42 for four years and 32 for five years. Declining numbers do not reflect drop-outs but are a result of the registry design. New patients are consecutively entered once they have completed one year of treatment.

Results: At the end of the observation period, mean weight (kg) decreased from 117.07 ± 11.66 (minimum 87.0, maximum 139.00) to 94.84 ± 9.38 (min 80.0; max 114.0). This decrease was statistically significant vs baseline ($p < 0.0001$) and each year compared to the previous year ($p < 0.0001$). Mean change from baseline was 18.29 ± 0.58 kg or $15.71 \pm 0.47\%$.

Waist circumference (cm) as a measure of abdominal fat decreased from 112.9 ± 7.21 (min 89.00; max 129.00) to 101.72 ± 7.29 (min 85.00; max 117.00), BMI from 37.75 ± 3.51 (min 30.10; max 46.51) to 31.09 ± 2.68 (min 25.88; max 35.98). These changes were also statistically significant vs baseline ($p < 0.0001$) and each year compared to the previous year ($p < 0.0001$).

At the end of each year, HbA_{1c} was available for 37, 30, 25, 22 and 16 men, resp. At baseline, HbA_{1c} was $8.33 \pm 0.78\%$ (min 6.90; max 11.60), declining steadily and statistically significantly to $5.88 \pm 0.4\%$.

Fasting glucose decreased from 6.61 ± 0.77 to 5.42 ± 0.16 mmol/L (119.07 ± 13.89 to 97.63 ± 2.83 mg/dl).

Conclusions: Normalizing testosterone in obese hypogonadal men with T2D produced weight loss and marked reductions in HbA_{1c} and fasting glucose. These improvements were progressive over the full 5 years of the study. It cannot be excluded that standard diabetes treatment was changed in some patients by their

family practitioners. However, our findings are consistent with the recent literature and confirm that major benefits can be expected from correcting hypogonadism in men with T2D.