85 obese hypogonadal men with type 2 diabetes treated with testosterone up to 6 years achieve weight loss and improved glycaemic control in an observational registry study

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Background: Obesity is a risk factor for type 2 diabetes (T2D). In men, both diseases have a high prevalence of testosterone deficiency (hypogonadism), and testosterone treatment has been shown to improve weight and T2D. We studied the effects of normalising testosterone in obese hypogonadal men with T2D.

Methods: Cumulative, prospective, observational registry study of 300 men with testosterone levels below 12.1 nmol/L receiving testosterone undecanoate injections for up to six years. We selected a subgroup of 85 men (mean age: 61.01±4.84 years) with obesity and T2D.

Results: Mean weight (kg) decreased from 114.93±11.88 to 93.19±8.74. This decrease was statistically significant vs baseline ($p<0.0001$) and each year compared to previous year. The mean change from baseline was -20.81±0.63 kg. The mean per cent weight loss (%) was 17.98±0.51 after 6 years.

Mean waist circumference (cm) decreased from 111.94±7.05 to 100.85±6.9. This decline was statistically significant vs baseline ($p<0.0001$) and each year compared to the previous. The mean change from baseline was -11.25±0.31 cm.

Mean BMI (kg/m^2) decreased from 37.05±3.62 to 30.45±2.58. This change was statistically significant vs baseline ($p<0.0001$) and each year compared to previous year.

Mean fasting glucose decreased from 116.89±13.88 to 96.19±2.55 mg/dl (6.49±0.77 to 5.34±0.14 mmol/L) ($p<0.0001$ vs. baseline, significant for the first 3 years vs. previous year). HbA_{1c} decreased from 8.21±0.76 to 6.31±0.56% ($p<0.0001$ vs. baseline, significant for the first 5 years vs. previous year).

Conclusions: Correcting hypogonadism by testosterone treatment in obese hypogonadal men with T2D resulted in significant and sustained improvements in weight, waist circumference, fasting glucose and HbA_{1c} over the full 6 years of the study.