

Anthropometric and Metabolic Parameters in 46 Hypogonadal Men with Obesity Grade III Improve upon Long-Term Treatment with Testosterone Undecanoate (TU) Injections: Observational Data from Two Registry Studies

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Introduction

Numerous studies have reported inverse associations between testosterone and obesity as well as other components of the metabolic syndrome.

Methods

From two registry studies of 561 hypogonadal men, 46 men with obesity grade III (BMI ≥ 40 kg/m²) were selected. All patients received TU injections for up to 6 years. 46 men were followed for two years, 43 for three years, 37 for four years, 34 for five years, and 24 for six years. Declining numbers are result of the registry design.

Results

Weight (kg) decreased from 129.02 \pm 5.67 to 103.33 \pm 4.17, mean change from baseline -27.15 \pm 0.74 kg, percent change from baseline -20.99 \pm 3.16%. Waist circumference (cm) decreased from 118.41 \pm 5.69 to 106.48 \pm 4.91, mean change from baseline 12.44 \pm 0.36 cm. BMI (kg/m²) decreased from 41.93 \pm 1.5 to 33.62 \pm 1.58, mean change from baseline -8.79 \pm 0.23 kg/m².

Mean fasting glucose (mg/dl) decreased from 115.48 \pm 23.85 to 96.54 \pm 2.9 (p < 0.0001), mean change from baseline -18.48 \pm 2.96 mg/dl, HbA_{1c} (%) from 7.57 \pm 1.38 to 6.08 \pm 0.5, mean change from baseline -1.61 \pm 0.13%.

Total cholesterol (TC; mg/dl) decreased from 306.76 \pm 43.03 to 192.23 \pm 9.17 (p < 0.0001), LDL (mg/dl) from 190.57 \pm 36.6 to 136.24 \pm 28.07 (p < 0.0001), triglycerides (mg/dl) from 326.87 \pm 60.21 to 194.4 \pm 12.59 (p < 0.0001). HDL (mg/dl) increased from 62.76 \pm 18.7 to 72.55 \pm 13.34 (p < 0.0001). The TC:HDL ratio declined from 5.47 \pm 2.57 to 2.75 \pm 0.59 (p < 0.0001).

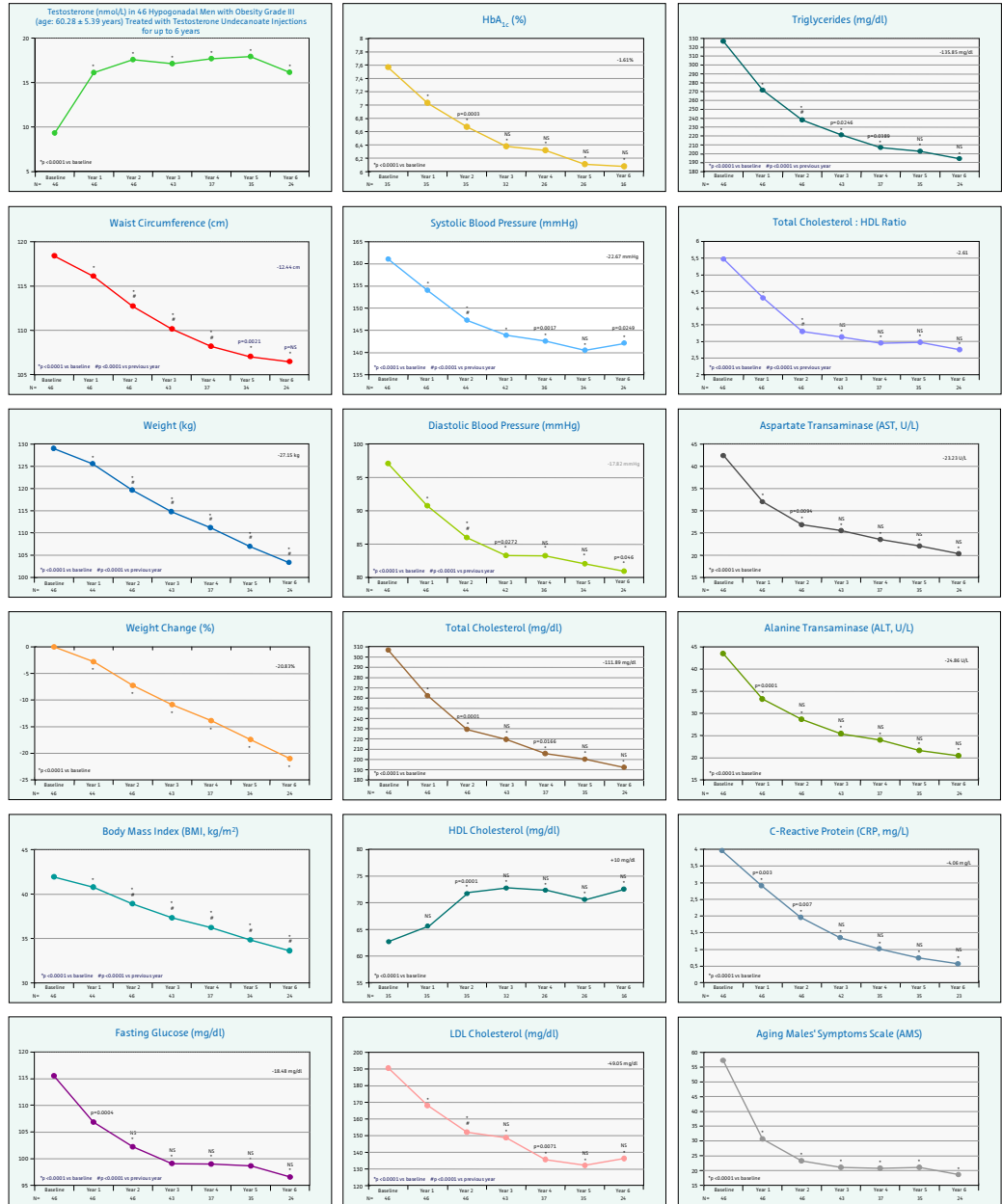
Systolic blood pressure (mmHg) decreased from 161.04 \pm 14.3 to 142.05 \pm 9.57, diastolic blood pressure from 97.07 \pm 10.91 to 80.89 \pm 6.76.

Liver enzymes AST and ALT (U/L) decreased from 42.39 \pm 17.84 to 20.33 \pm 1.9 and from 43.52 \pm 20.68 to 20.43 \pm 2.75, respectively (p < 0.0001 for both), suggesting a reduction in liver fat content.

C-reactive protein (CRP, mg/L) declined from 3.96 \pm 4.31 to 0.57 \pm 0.59 (p < 0.0001). There were no drop-outs.

Conclusions

All changes were in a clinically meaningful magnitude and sustainable for the full observation period. TRT seems to be an effective approach to achieve sustained weight loss in excessively obese hypogonadal men.



Patients with Excessive Obesity (BMI ≥ 40 kg/m²; n = 46)

ID	Duration	BMI ₀	WC (cm)	ΔBU	Weight (kg)	ΔWeight	Weight Loss (%)
11	69 mo	46.5	122-109	-13	136-103	-33	24.3
13	75 mo	41.1	108-98	-10	123-103	-20	16.3
18	72 mo	41.1	120-107	-13	123-99	-24	19.5
25	72 mo	43.3	116-106	-10	128-103	-25	19.5
58	72 mo	40.5	115-105	-10	124-103	-21	16.9
65	69 mo	41.8	121-108	-13	125-98	-27	21.6
78	72 mo	42.8	119-106	-13	128-102	-26	20.3
79	72 mo	42.6	119-107	-12	132-102	-30	22.7
80	72 mo	42.8	119-109	-10	134-110	-24	17.9
91	69 mo	43.1	120-108	-12	132-95	-37	28.0
101	69 mo	42.4	123-104	-19	139-102	-37	26.6
103	69 mo	43.9	128-116	-13	139-110	-29	20.9
104	69 mo	40.4	105-94	-11	128-99	-29	22.7
116	72 mo	42.3	112-100	-12	128-101	-27	21.1
129	66 mo	44.0	124-110	-14	138-106	-32	23.2
132	63 mo	40.8	113-103	-10	125-98	-27	21.6
136	66 mo	45.6	118-105	-13	138-108	-30	21.7
138	66 mo	42.1	112-100	-12	126-100	-26	20.6
140	66 mo	41.3	117-106	-11	125-99	-26	20.8
141	66 mo	45.1	128-113	-15	138-110	-28	20.3
142	69 mo	42.8	119-105	-14	128-102	-26	20.3
144	63 mo	41.3	119-109	-10	125-101	-24	19.2
147	54 mo	42.1	122-111	-11	129-104	-25	19.4
148	54 mo	40.2	110-99	-11	119-101	-18	15.1
150	54 mo	43.2	113-102	-10	129-107	-22	17.1
152	54 mo	40.6	119-109	-10	123-102	-21	17.1
202	39 mo	40.3	118-100	-18	122-105	-17	13.8
208	36 mo	41.8	118-111	-7	131-114	-17	13.0
212	36 mo	40.5	114-107	-7	127-110	-17	13.2
215	39 mo	41.6	108-103	-5	126-110	-16	12.7
218	33 mo	40.1	116-106	-10	127-106	-21	16.5
227	30 mo	40.4	119-111	-8	125-108	-17	13.6
230	30 mo	40.4	119-107	-12	128-108	-20	15.6
239	27 mo	40.5	118-110	-8	124-106	-18	14.5
240	24 mo	42.8	119-113	-6	134-123	-11	8.2
252	24 mo	41.7	122-115	-7	135-121	-14	10.4
Y15	60 mo	43.1	122-107	-15	126-106	-20	15.9
Y60	69 mo	42.4	129-111	-18	139-98	-41	29.5
Y63	57 mo	41.7	120-114	-6	132-104	-28	21.2
Y68	72 mo	41.8	128-109	-19	141-106	-35	24.8
Y71	51 mo	40.8	112-101	-11	122-116	-6	4.9
Y93	51 mo	40.1	122-109	-13	130-112	-18	13.8
Y77	57 mo	40.5	115-100	-15	124-96	-28	22.6
Y92	57 mo	40.6	115-102	-13	120-106	-14	11.7
Y108	54 mo	43.1	120-103	-17	132-111	-21	15.9
Y143	15 mo	43.3	132-128	-4	128-123	-5	6.8