Dataset Summaries

Progressive improvement of T-scores in middle-aged men with osteoporosis upon long-term treatment with testosterone

L Gooren, A Haider, A Traish, G Doros, U Meergans, F Saad

Klinik für Orthopädie IV, Chefarzt: Dr. med. U. Meergans, Facharzt für Orthopädie und Chirurgie

Introduction: Numerous studies point to the significance of normal serum testosterone to maintain bone mineral density (BMD) at various stages of life. Testosterone deficiency leads to loss of BMD and testosterone treatment has a beneficial effect. This study investigated the effects of normalizing serum testosterone on BMD in 36 men with osteoporosis who had consulted an orthopedic surgeon and who were diagnosed as testosterone deficient.

Methods: Cumulative, prospective, registry study of men (mean age: 54.89 ± 6.31 years) with testosterone levels below 12.1 nmol/L. Their T scores were -2.99 ± 0.4 (minimum -3.90, maximum -2.60). They received parenteral testosterone undecanoate 1000 mg/12 weeks following an initial 6-week interval for up to five years. After one year, 36 men were included in the registry, after two years, 32 men, after three years, 26 men, after four years, 10 men, after five years, 4 men. The declining numbers do not reflect drop-out rates but are a result of the registry design. New patients are consecutively entered once they have completed one year of treatment.

Results: Over the 5 year period there was a significant improvement of the T-score in these men. The mean T-score decreased from -2.99 ± 0.4 (minimum: -3.90; maximum: -2.60) at baseline to -2.62 ± 0.34 at 12 months, -2.29 ± 0.32 at 24 months, -2.03 ± 0.35 at 36 months, -1.75 ± 0.2 at 48 months and -1.58 ± 0.19 at 60 months without reaching a plateau. The improvement was progressive: each year of testosterone treatment led to a significant further improvement of the T-score ($p < 0.0001$ vs baseline and vs previous year).

Conclusions: Normalizing of serum testosterone leads to an improvement of bone mineral density and this improvement is progressive throughout the time period of testosterone administration.

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Visit Month --- T-Score	N	Mean ± SD	Minimum	Maximum
0 Month	36	-2.99±0.4	-3.90	-2.60
12 Month	36	-2.62±0.34	-3.80	-2.10
24 Month	32	-2.29±0.32	-3.70	-1.80
36 Month	26	-2.03±0.35	-3.50	-1.70
48 Month	10	-1.75±0.2	-2.10	-1.50
60 Month	4	-1.58±0.19	-1.70	-1.30

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Comparison	Difference ± StDerr	P-Value
12 Month - Baseline	0.37±0.03	<0.0001
36 Month - Baseline	1±0.04	<0.0001
48 Month - Baseline	1.28±0.05	<0.0001
60 Month - Baseline	1.67±0.08	<0.0001
36 Month - 24 Month	0.26±0.04	<0.0001
48 Month - 36 Month	0.29±0.06	<0.0001
60 Month - 48 Month	0.39±0.09	<0.0001

Comparison | Difference ± StDerr | P-Value

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