

Abstract citation ID: bvac150.1415

Reproductive Endocrinology

OR25-6

In Men on Testosterone Therapy, Baseline Testosterone Level of <264 ng/dL is Associated with Greater Improvement in Body Composition, While Level of ≥ 264 ng/dL Favors Improvement in Metabolic Profile

Lina Aguirre, Reina Armamento-Villarea, Elliot Ballato, Rui Chen, Georgia Colleluori, Clifford Qualls, Dennis T. Villareal, and Fnu Deepika

Context: Male hypogonadism adversely affects body composition, bone mineral density (BMD), and metabolic health. A previous report showed that pre-treatment testosterone (T) levels of <200 ng/dL is associated with greater improvement in spine BMD with T therapy. However, to date, there is no study investigating whether baseline T levels also influences body composition and metabolic response to T therapy. **Objective:** To determine if there are differences in the changes in body composition, metabolic profile, and bone turnover markers, in addition to BMD, in response to T therapy in men with baseline T level of < 264 ng/dL compared to those with levels ≥ 264 ng/dL. **Methods:** Secondary analysis of single-arm, open-label clinical trial (NCT01378299) on pharmacogenetics of response to T therapy conducted between 2011-2016 involving 105 men (40-74 years old), with average morning T < 300 ng/dL, given intramuscular T cypionate 200 mg every 2 weeks for 18 months. Subjects were divided into those with baseline T levels of < 264 ng/dL (N=43) and those with ≥ 264 ng/dL (N=57). T and estradiol (E2) were measured by liquid chromatography/mass spectrometry; serum bone turnover markers (C-telopeptide [CTX], osteocalcin, sclerostin), adiponectin, and leptin by enzyme-linked immunosorbent assay; glycated hemoglobin (HbA1c) by high-performance liquid chromatography, areal BMD, and body composition by dual-energy x-ray absorptiometry (DXA). **Results:** Men with T < 264 ng/dL showed greater increases in total fat-free mass (FFM) at 18 months compared to those with T ≥ 264 ng/dL (4.2 ± 4.1 vs $2.7 \pm 3.8\%$; $p=0.047$) and unadjusted appendicular FFM at 6 and 18 months (8.7 ± 11.5 vs $4.4 \pm 4.3\%$, 7.3 ± 11.6 vs $2.4 \pm 6.8\%$; $p=0.033$ and $p=0.043$, respectively). Men with T ≥ 264 ng/dL showed significant decreases in HbA1c at 12 months (-3.1 ± 9.2 vs $3.2 \pm 13.9\%$; $p=0.005$), fasting glucose at 18 months (-4.2 ± 31.9 vs $13.0 \pm 57.3\%$; $p=0.040$), LDL at 6 months (-6.4 ± 27.5 vs $12.8 \pm 44.1\%$; $p=0.034$), leptin at 18 months (-40.2 ± 35.1 vs $-27.6 \pm 31.0\%$; $p=0.034$) compared to those with T < 264 ng/dL. No significant differences in BMD and bone turnover markers were observed. **Conclusion:** T therapy results in improvement in body composition irrespective of baseline T levels but T < 264

ng/dL is associated with greater improvement in FFM, whereas T level of ≥ 264 ng/dL favors improvement in metabolic profile.

Presentation: Monday, June 13, 2022 12:15 p.m. - 12:30 p.m.