[P3-209] Effects of Testosterone Treatment on Inflammatory Markers in Older Men

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During aging in men there is a progressive reduction in testosterone levels and an increase in inflammatory markers (1-2). A causal relationship has been hypothesized (3-5) but never been tested in a randomized clinical trial.
Aim of the Study.To test the effects of transdermal testosterone on inflammatory markers.
Methods. 108 men ≥65 years were selected by testosterone levels <1 SD below the mean for normal young men, 475 ng/dL, and were randomized to receive a testosterone or placebo patch in a double blind fashion for 36 months. Ninety-six subjects completed 36 months of treatment. The present study was performed in 70 men, 42 in the testosterone group and 28 in the placebo group who had sufficient sera available for assay. We measured serum concentrations of testosterone, c-reactive protein (CRP), interleukin-6 (IL-6), soluble interleukin-6 receptors (sIL6r and sgp130),soluble TNF-alpha receptor 1 (sTNFR1) by immunoassays. Body composition had been measured previously by DXA. Statistical analyses were performed using random-effect regression analyses, modelling an unstructured covariance matrix with slope and intercept as random effects.
Results. The mean age at baseline was 71.8 ± 4.9 years in all 70 subjects. Testosterone- and placebo-treated groups had similar values for age, inflammatory markers and fat mass at baseline. The testosterone-treated group had lower levels of testosterone and BMI at baseline, but the differences were not statistically significant (p values of 0.06 and 0.07, respectively). Testosterone levels rose significantly following initiation of treatment in the testosterone-treated group but not in the placebo group. CRP levels were 1.58 ± 3.33 and 1.48 ± 2.75 at baseline in T and placebo-group, respectively. After 36 months of treatment, CRP levels increased in both the T (2.79 ± 4.10) and placebo (9.97 ± 24.77) groups. Similar trends were observed for the other inflammatory markers. A significant treatment*time interaction term, indicating a less steep increase in T-treated subjects compared to placebo-treated, was found only for CRP (p=0.03) and TNFR1 (p=0.02).No significant differences were found for IL-6 and soluble Interleukin-6 receptors (sIL6r and sgp130).
Conclusion.Transdermal testosterone treatment of men ≥65 years for 36 months was associated with less steep increase in CRP and TNFR1 than placebo treatment.

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