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JOURNAL ARTICLE

Serum dihydrotestosterone and testosterone concentrations in human immunodeficiency virus-infected men with and without weight loss

S. Arver, I. Sinha-Hikim, G. Beall, M. Guerrero, R. Shen and S. Bhasin

Division of Endocrinology, Metabolism, and Molecular Medicine, Charles R. Drew University of Medicine and Science, Los Angeles, California 90059, USA.

Weight loss is an important determinant of disease outcome in human immunodeficiency virus (HIV)-infected men. Others have suggested that a defect in dihydrotestosterone (DHT) generation contributes to weight loss in HIV-infected men. To determine whether DHT levels correlate with weight loss independently of changes in testosterone levels, we prospectively measured serum total- and free-testosterone and DHT levels in 148 consecutive HIV-infected men and 42 healthy men. Thirty-one percent of HIV-infected men had serum testosterone levels less than 275 ng/dL, the lower limit of the normal male range; of these, 81% had normal or low LH and FSH levels (hypogonadotropic), and 19% had elevated LH and FSH levels (hypergonadotropic). Overall, serum testosterone, free-testosterone, and DHT levels were lower in HIV-infected men than in healthy men, but serum DHT-to-testosterone ratios were not significantly different between the two groups. Serum total- and free-testosterone levels were lower in HIV-infected men who had lost 5 lb or more of weight in the preceding 12 months than in those who had not lost any weight. Serum DHT levels and DHT-to-testosterone ratios did not differ between those who had lost weight and those who had not. Serum testosterone and free-testosterone levels, but not DHT levels, correlated with weight change and with Karnofsky performance status. We also performed a retrospective analysis of data from a previous study in which HIV-infected men with serum testosterone levels less than 400 ng/dL had been treated with placebo or testosterone patches designed to nominally release 5 mg testosterone over 24 hours. Serum testosterone-to-DHT ratios did not change after testosterone treatment. Changes in fat-free mass were correlated with changes in both serum testosterone ($r = 0.42$, $P = 0.018$) and DHT ($r = 0.35$, $P = 0.049$) levels. Serum total- testosterone and DHT levels were highly correlated with one another, and when the change in serum testosterone was taken into account, serum DHT levels no longer showed a significant correlation with change in fat-free mass. We conclude that DHT levels are lower in HIV-infected men than in healthy men but that neither DHT levels nor DHT-to-testosterone ratios correlate with weight loss. During testosterone treatment, serum DHT levels increase proportionately, but the increments in serum testosterone correlate with the change in fat-free mass. Our data do not support the hypothesis that a defect in DHT generation contributes to weight loss in HIV-infected men independently of changes in testosterone levels; it is possible that

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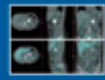
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such a defect might exist in HIV-infected men with more severe weight loss.

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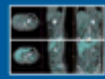
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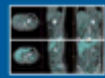
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