Testosterone and Blood Pressure: Is the Decreased Sodium Excretion the Missing Link?

To the Editor:

With great interest I read the article by Davis et al. published very recently in Hypertension. The authors gave testosterone treatment for a 10-week period to both obese Zucker rats and lean Zucker rats. In obese Zucker rats, testosterone supplements reduced body weight, plasma insulin, and cholesterol levels and improved the oral glucose tolerance test. Mean arterial pressure was significantly increased in obese Zucker rats but not in lean Zucker rats. Testosterone supplements increased proteinuria and accelerated renal injury in lean Zucker rats only. In a very recent study, we demonstrated that, in 80 stage I hypertensive patients who were hitherto treated, there was a negative correlation between logarithmically converted 24-hour urinary sodium excretion and logarithmically converted serum total testosterone ($r = -0.272; P = 0.015$). In stepwise regression analysis, serum total testosterone ($B = -0.009 95\% \text{ CI: } -0.015 \text{ to } -0.004; P = 0.002$) was found to be independently related to logarithmically converted 24-hour urinary sodium excretion. There was no relationship between serum total testosterone with urinary protein and albumin excretion (unpublished data).

Additionally, it was shown that testosterone contributes to the development of hypertension and renal injury in male Dahl salt rats on a high-salt diet possibly through upregulation of the intrarenal renin-angiotensin system. It was also shown that androgens have been shown to stimulate sodium reabsorption by the proximal tubule in a renin-angiotensin system-dependent manner.

By the light of the aforementioned data, I wonder whether Davis et al. have additional data regarding urinary sodium excretion and renin-angiotensin system before and after testosterone treatment.

Disclosures

None.

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