Abstract

Obesity (Silver Spring). 2013 Mar;21(3):629-36.

Associations of testosterone and sex hormone binding globulin with adipose tissue hormones in midlife women.


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OBJECTIVE: Regulators of adipose tissue hormones remain incompletely understood, but may include sex hormones. As adipose tissue hormones have been shown to contribute to numerous metabolic and cardiovascular disorders, understanding their regulation in midlife women is of clinical importance. Therefore, we assessed the associations between testosterone (T) and sex hormone binding globulin (SHBG) with leptin, high molecular weight (HMW) adiponectin, and the soluble form of the leptin receptor (sOB-R) in healthy midlife women.

DESIGN AND METHODS: Cross-sectional analyses were performed using data from 1,881 midlife women (average age 52.6 (±2.7) years) attending the sixth Annual follow-up visit of the multiethnic Study of Women's Health Across the Nation.

RESULTS: T was weakly negatively associated with both HMW adiponectin and sOB-R (r = -0.12 and r = -0.10, respectively; P < 0.001 for both), and positively associated with leptin (r = 0.17; P <0.001). SHBG was more strongly and positively associated with both HMW adiponectin and sOB- R (r = 0.29 and r = 0.24, respectively; P < 0.001 for both), and more strongly and negatively associated with leptin (r = -0.27; P < 0.001). Adjustment for fat mass, insulin resistance, or waist circumference only partially diminished associations with HMW adiponectin and sOB-R, but attenuated associations with leptin. In conclusion, in these midlife women, lower SHBG values, and to a lesser extent, higher T levels, were associated with lower, or less favorable, levels of adiponectin and sOB-R, independent of fat mass.

CONCLUSIONS: These data suggest that variation in these adipose hormones resulting from lower SHBG levels, and possibly, though less likely, greater androgenicity, may contribute to susceptibility for metabolic and cardiovascular outcomes during midlife in women.

PMID: 23592672

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