Sex hormones, leptin and anthropometric indices in men

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Abstract

In this study, relationship of sex hormones, leptin and anthropometric indices in men were investigated and effect of average wieght loss on these variances in obese individuals was assessed. In 186 adult men with median age 33 years (22-49), body mass index (BMI) 27 kg/m^2 (18-43) and wieght of 80.1±13.8 kg, serum level of total testosterone, sex hormone binding globulin (SHBG), dehydroepiandrosterne sulfate (DHEA-S), Estradiol, LH,FSH, Insulin, leptin , BMI and waist to hip ratio (WHR) were measured and effect of weight loss on these variances in a group of 22 obese men with average weight of 88.7±14 kg were studied.

Serum testosterone and SHBG levels were inversely related with BMI (r=-0.18, P<0.05 and r=-0.33, p<0.001, respectively). Serum level of SHBG was also negatively related to WHR (r=-0.35, p<0.001). Serum leptin levels were positively correlated with BMI (r=0.68, p<0.001) and were negatively related to serum level of testosterone (r=-0.57, p<0.009). Serum level of testosterone and SHBG were significantly lower in obese than normal weight subjects (11.9±3.8 vs 13.9±4.2 nmol/l, p<0.009 and 17.0±13.9 vs 28.0±14.2 nmol/l, p<0.001 respectively). Mean weight loss of 6.1 kg resulted in serum leptin reduction from 11.8±7.8 to 7.6±3 ng/ml (p<0.01). In multiple regression analysis serum leptin levels were the only determinant of serum testosterone, while leptin variations were explained both by leptin and testosterone.

In Conclusion, elevated serum leptin and low testosterone and SHBG levels were associated with high BMI in men. Low serum testosterone levels were related to high serum leptin, independent of BMI. Inverse relation between serum leptin and testosterone shows the role of leptin in reducing serum testosterone in obese men. In this study serum level of SHBG was negatively correlated with WHR.

Keywords: Testosterone, Leptin, Obesity, Sex hormones, Anthropometric indices.
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