Androgen Replacement Therapy Improved High-Molecular Weight Adiponection Status in Patients with Late-Onset Hypogonadism

Introduction and Objective: Several reports have suggested serum total adiponectin (Ad) levels may be repressed by testosterone (T) concentrations increased in men. But little is known whether androgen replacement therapy (ART) may reduce high-molecular weight (HMW)-Ad levels. In this study we prospectively clarify an inverse correlation of plasma HMW-Ad levels with free-T (FT) concentrations and evaluate a change in HMW-Ad status during ART in late-onset hypogonadism (LOH) patients.
Materials and Methods: In 253 patients with LOH, height, weight, waist, fasting plasma glucose (FBS), serum FT, serum total-Ad and molecular weight fractions of Ad, serum total cholesterol (Chol), triglyceride (TG), high-density lipoprotein (HDL)-Chol, and low-density lipoprotein (LDL)-Chol levels were evaluated. All participants randomly assigned to the two groups with or without ART. Both HMW-Ad levels before and after ART were also compared in patients with serum FT < 11.8 pg/mL.
Results: Serum HMW-Ad levels increased with increased age ($P < 0.01$) and HDL-Chol ($P < 0.001$), decreased with increased FT ($P < 0.01$), BMI ($P < 0.001$), waist circumference ($P < 0.001$), TG ($P < 0.001$), and FBS ($P < 0.05$). Multiple regression analysis revealed that FT, TG, and HDL-Chol were factors influencing on serum HMW-Ad levels. In the 104 patients receiving ART, HMW-Ad levels before and after ART did not differ significantly. Moreover, HMV-Ad levels after ART were increased in baseline characteristics of subjects (n = 68) with low concentrations of HMW-Ad (< 2.5 μg/mL) and were decreased in those (n = 36) with high concentrations of HMW-Ad (≥ 2.5 μg/mL) ($P < 0.01$ and $P < 0.05$, respectively). In the 149 patients as a control without ART, there was no significant difference between HMW-Ad concentrations at baseline and one year later.
Conclusion: We conclude that an inverse correlation between HMW-Ad and FT levels exists in LOH patients, and that ART does not reduce serum concentration of HMW-Ad in its lower levels at baseline. These results indicate that ART appear to be a reasonable treatment strategy for LOH patients without risk of side effect due to a decrease in HMW-Ad levels.