Body composition, insulin, and leptin levels in patients with ankylosing spondylitis

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Abstract

The aim of this study was to compare the effect of chronic inflammation on insulin resistance, serum leptin levels, and body composition (BC) in patients with ankylosing spondylitis (AS) and healthy controls. Twenty-eight AS patients and 17 healthy controls were included in this study. Subjects with hypertension, diabetes, hyperlipidemia, and obesity were excluded. Acute phase reactants and serum levels of glucose, insulin, lipids, and leptin were studied. BC was determined anthropometrically and by foot-to-foot body fat analyzer (BIA, bioelectrical impedance analysis). Quantitative insulin-sensitivity check index, homeostasis model assessment for insulin resistance, and McAuley indices were calculated. Spinal mobility was assessed by the Bath Ankylosing Spondylitis Metrology Index (BASMI). Patients were also evaluated with the Bath Ankylosing Spondylitis Functional Index and the Bath

Ankylosing Spondylitis Disease Activity Index. Age, sex distribution, smoking status, serum lipids, insulin concentrations, and insulin resistance indices were comparable between AS patients and controls ($p > 0.05$). However, acute phase reactants were significantly higher and leptin levels were significantly lower in the AS patients than in controls ($p < 0.05$). Fat percent assessed by both BIA and anthropometrical methods was lower in the male and female AS patients than in controls, and this reduced fat level reached statistical significance for men ($p < 0.05$). There were significant correlations between percent body fat, body mass index, leptin, age, and BASMI ($p < 0.05$; $r = 0.6, 0.75, 0.35, -0.41$, respectively). On the other hand, body fat percent, waist-to-hip ratio, C-reactive protein, and BASMI were significantly correlated with serum leptin levels ($p < 0.05$; $r = 0.75, -0.42, -0.52, -0.47$, respectively). Chronic inflammatory condition in AS may be responsible for the reduced body fat content and lower circulating leptin concentrations. Insulin levels and insulin resistance indices seem similar in patients and controls in the absence of classic vascular risk factors.

Keywords

Ankylosing spondylitis Body composition Insulin resistance Leptin

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