American Journal of Clinical Nutrition, Vol. 86, No. 5, 1310-1315, November 2007

ORIGINAL RESEARCH COMMUNICATION

Serum retinol-binding protein 4 concentrations in response to short-term overfeeding in normal-weight, overweight, and obese men[1,2,3]

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Background: Retinol-binding protein 4 (RBP4) is a novel adipokine that induces insulin resistance in mice. Studies in humans have shown a correlation between serum RBP4 and insulin resistance in obese subjects and in subjects with type 2 diabetes. Few data are available regarding the nutritional regulation of RBP4.

Objective: The study investigated the relation of RBP4 with phenotypes of glucose and lipid metabolism at baseline and in response to a 7-d overfeeding protocol in young men.

Design: Sixty-five men participated in the study. Subjects were classified on the basis of body mass index (BMI; kg/m^2) as normal-weight (≤24.9) or as overweight or obese (≥25.0). Serum RBP4, interleukin-6, visfatin, glucose, insulin, total cholesterol, HDL cholesterol, and LDL cholesterol (calculated), and triacylglycerols were measured. Insulin resistance and ß cell function were assessed by using the homeostasis model. Percentage body fat was measured by using dual-energy X-ray absorptiometry.

Results: No significant differences were found in serum RBP4 between the 2 groups at baseline. Likewise, no significant differences were observed in fasting serum RBP4 in response to overfeeding. Baseline RBP4 was negatively correlated with the change in insulin resistance in normal-weight subjects, independent of age and BMI. No significant correlation was found between serum RBP4 and visfatin, interleukin-6, or any other variables measured.

Conclusions: Short-term overfeeding did not induce significant changes in RBP4. Baseline RBP4 concentrations may predict insulin resistance when exposed to a positive energy challenge in normal-weight men.

Key Words: Retinol-binding protein 4 • overfeeding • adiposity status • young men • insulin resistance • lipids

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