Abstract

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ACP1 genotype, glutathione reductase activity, and riboflavin uptake affect cardiovascular risk in the obese.

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OBJECTIVE AND METHODS: Erythrocyte acid phosphatase (ACP locus 1), also known as low-molecular-weight protein tyrosine phosphatase, has previously been associated to glycemia, dyslipidemia, and obesity. In this study, ACP1 genotype and activity were tested in 318 women aged 19 to 83 (mean, 51.74 +/- 13.44) years.

RESULTS: ACP1 genotype was found to directly correlate to glutathione reductase activity (P < .001) and levels of low-density lipoprotein cholesterol (P = .038). Glutathione reductase activity was in turn found to correlate to a series of cardiovascular risk factors such as systolic arterial pressure (P < .001), total cholesterol levels (P = .018), and low-density lipoprotein cholesterol levels (P = .039).

CONCLUSIONS: A possible protective effect of ACP1 genotype AA against these cardiovascular risk factors was observed in this study. Furthermore, this work hypothesizes that nutritional riboflavin uptake becomes more crucial as body mass index increases, to counteract oxidative stress and minimize cardiovascular risk. This might be especially true in ACP1 genotypes AC, BC, and CC, which might possibly show the least endogenous protection against oxidative stress.

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