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# Adiponectin SNP276 is associated with obesity, the metabolic syndrome, and diabetes in the elderly<sup>1,2,3</sup>

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**Background:** Genetic variations of the human adiponectin gene are associated with metabolic phenotypes, including obesity, insulin sensitivity, and diabetes. However, these associations have not been examined in an elderly population.

**Objective:** The objective of the study was to investigate whether the genetic variants of adiponectin are associated with any metabolic phenotype in the elderly.

**Design:** In a population-based, case-control genetic association study, a total of 1438 subjects >65 y old were recruited from the community. The phenotypes of the metabolic syndrome (MetS) were measured. Four single-nucleotide polymorphisms (SNP) were genotyped by mass spectrometry.

**Results:** The *G* allele of SNP276 in intron 2 was associated with a reduced risk of obesity, MetS, and diabetes mellitus. The *GT* genotype relative to the *GG* genotype had an age- and sex-adjusted odds ratio of 1.32 for obesity [body mass index (BMI; in kg/m<sup>2</sup>) ≥ 25; *P* = 0.014] and of 1.33 (*P* = 0.011) and 1.47 (*P* = 0.001) for MetS according to modified National Cholesterol Education Program and International Diabetes Federation criteria, respectively. The age-, sex-, and BMI-adjusted odds ratio of diabetes mellitus for the *GT* and *TT* genotypes relative to the *GG* genotype were 1.28 (*P* = 0.042) and 1.72 (*P* = 0.013), respectively, and there was an obvious dosage effect (*P* for trend = 0.004). In linear regression after adjustment for age, sex, and BMI, the *GT* and *TT* genotypes were associated with fasting plasma glucose concentrations 5.2 and 11.1 mg/dL higher, respectively, than those of the *GG* genotype.

**Conclusions:** Genetic variation of the adiponectin gene is associated with obesity, MetS, and diabetes mellitus in the elderly. The genetic effect on diabetes mellitus is partially independent of BMI.

**Key Words:** Adiponectin • genetics • metabolic syndrome • obesity • diabetes • elderly

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