
Abstract:
BACKGROUND: A polymorphism consisting of a C825T substitution in the G-protein beta3 subunit gene (GNB3) has been associated with enhanced human atrial inward rectifier potassium currents regarding the TT genotype. Therefore, we investigated a possible impact of the GNB3 C825T polymorphism on atrial fibrillation in an association study. METHODS: Two hundred ninety-one consecutive patients admitted to our center with atrial fibrillation (age, 58 +/- 10 years) and 292 consecutive control patients without atrial tachyarrhythmias (59 +/- 11 years) were genotyped for the C825T polymorphism. Patients with coronary heart disease, valvular heart disease, or cardiomyopathy were excluded from the study. Both patient groups had a similar incidence of cardiovascular risk factors (hypertension, hypercholesterolemia, body mass index). RESULTS: The prevalence of the GNB3 TT genotype was significantly lower in patients with atrial fibrillation (5.8%) than in the control group (12.0%); however, no significant differences in the frequencies of the CT and CC genotypes were found. The TT genotype was associated with a 54% decrease in the adjusted risk (OR from a multivariant model, 0.46; 95% CI, 0.24 to 0.87; P =.02) for the occurrence of atrial fibrillation. CONCLUSIONS: The current study
suggests an association between the GNB3 TT genotype and a reduced risk for the occurrence of atrial fibrillation.