G protein beta 3 subunit 825T allele carriage and risk of coronary artery disease.

Abstract:
C825T polymorphism in the G protein beta3 subunit gene (GNB3) is associated with increased transmembrane signal transduction via adenylyl cyclase inhibiting G (G(i)) proteins. We tested whether GNB3 C825T is associated with an increased risk of coronary artery disease (CAD). Genotypes were determined with polymerase chain reaction and allele-specific fluorogenic probes. Angiographically examined, consecutive patients (n=998) with CAD and angiographically examined, sex- and age-matched controls (n=340) with no evidence of CAD were studied. The proportion of T allele carriers was significantly higher in the group with CAD compared with the control group (55.6 vs. 48.5; P=0.02). T allele carriage was associated with a 33% increase in the unadjusted risk (OR 1.33 [95% confidence interval, 1.04-1.70]) and a 37% increase in the adjusted risk (OR from the multivariate model 1.37 [95% CI, 1.06-1.76]) for CAD. Moreover, an increase in T allele carriage was associated with an increase in disease severity (P=0.006; test for trend). The strongest association was observed between T allele carriage and three-vessel disease (unadjusted OR 1.47 [95% CI, 1.10-1.96]). Thus, carrying this allele is associated with the presence as well as the severity of CAD.