Effect of endothelial nitric oxide synthase gene polymorphism on cardiovascular death and nonfatal myocardial infarction in Japanese general population

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Introduction: Single nucleotide polymorphisms (SNP) of endothelial nitric oxide synthase (NOS3) have been reported to be associated with diabetes mellitus and myocardial infarction. However, few reports have prospectively investigated the effects of NOS3 SNP on cardiovascular death and nonfatal myocardial infarction.

Purpose: The purpose of this study was to investigate the impact of NOS3 SNP on cardiovascular death and the development of nonfatal myocardial infarction.

Methods: This prospective cohort study included 2,752 subjects (aged ≥40) who participated in a community based health checkup. We genotyped two SNPs within NOS3 (rs1808593, rs1799983). All subjects were prospectively followed during the median follow-up period of 15.4 years with the end point of cardiovascular death and nonfatal myocardial infarction.

Results: The homozygous G-allele (GG), heterozygous (GT), and homozygous T-allele (TT) carriers of rs1808593 were identified in 60 (2%), 706 (26%), and 1,986 (72%) subjects, respectively. Kaplan-Meier analysis demonstrated that homozygous G-allele carriers of rs1808593 had the greater risk than those without. Multivariate Cox proportional hazard regression analysis revealed that the homozygous G allele of rs1808593 was associated with cardiovascular death and the development of nonfatal myocardial infarction after adjusting for confounding risk factors.

Conclusions: NOS3 gene polymorphism could be a genetic risk factor for cardiovascular death and nonfatal myocardial infarction in the Japanese general population.

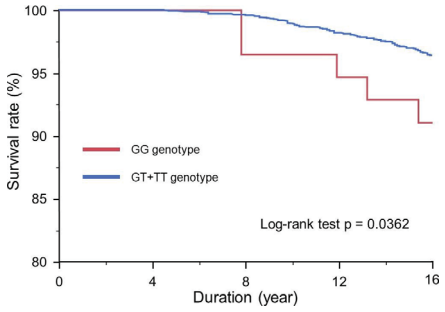

Figure 1

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