G-1639A but Not C1173T VKORC1 Gene Polymorphism Is Related to Ischemic Stroke and Its Various Risk Factors in Ukrainian Population.

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Abstract

Vitamin K epoxide reductase complex subunit 1 (VKORC1) is integral 163-amino acid long transmembrane protein which mediates recycling of vitamin K 2,3-epoxide to vitamin K hydroquinone and it is necessary for activation of vitamin K-dependent proteins (VKDPs). Herein, the association between G-1639A (rs9923231) and C1173T (rs9934438) single-nucleotide polymorphisms (SNPs) of the VKORC1 gene and ischemic stroke (IS) was tested in Ukrainian population. Genotyping was performed in 170 IS patients and 124 control subjects (total 294 DNA samples) using PCR-RFLP (polymerase chain reaction with following restriction fragment length polymorphism analysis) method. Our data showed that G-1639A but not C1173T polymorphism was related to IS, regardless of adjustment for age, sex, body mass index, smoking status, and arterial hypertension. The risk for IS in -1639A allele carriers (OR = 2.138, P = 0.015) was higher than in individuals with G/G genotype. Haplotype analysis demonstrated that -1639G/1173T and -1639A/1173C were related to increased risk for IS (OR = 3.813, P = 0.010, and OR = 2.189, P = 0.011, resp.), while -1639G/1173C was a protective factor for IS (OR = 0.548, P < 0.001). Obtained results suggested that -1639A allele can be a possible genetic risk factor for IS in Ukrainian population.