BACKGROUND AND PURPOSE:
Recent evidence has implicated the genes for 5-lipoxygenase activating protein (ALOX5AP) and phosphodiesterase 4D (PDE4D) as susceptibility genes for stroke in the Icelandic population. The aim of the present study was to explore the role of these genes in a central European population of stroke patients.

METHODS: A total of 639 consecutive stroke patients and 736 unrelated population-based controls that had been matched for age and sex were examined using a case-control design. Twenty-two single-nucleotide polymorphisms (SNPs) covering ALOX5AP were genotyped. For PDE4D, microsatellite AC008818-1 and 12 SNPs, which tag all common haplotypes in previously identified linkage disequilibrium (LD) blocks, were analyzed. RESULTS: A nominally significant association with stroke was observed with several SNPs from ALOX5AP, including SNP SG13S114, which had been part of the Icelandic at-risk haplotype. Associations were stronger in males than in females, with SG13S114 (odds ratio, 1.24; 95% CI, 1.04 to 1.55; P=0.017) and SG13S100 (odds ratio, 1.26; 95% CI 1.03 to 1.54; P=0.024) showing the strongest associations. No significant associations were detected with single markers and haplotypes in PDE4D. The frequencies of single-marker alleles and haplotypes differed largely from those in the Icelandic population.
CONCLUSIONS: The present study suggests that sequence variants in the ALOX5AP gene are significantly associated with stroke, particularly in males. Variants in the PDE4D gene are not a major risk factor for stroke in individuals from central Europe. Population differences in allele and haplotype frequencies as well as LD structure may contribute to the observed differences between populations.