Ischemic Stroke and Six Genetic Variants in CRP, EPHX2, FGA, and NOTCH3 Genes: A Meta-Analysis

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Background Ischemic stroke (IS) is a leading cause of death and disability worldwide. As genetic heritability for IS is estimated at about 35%-40%, the identification of genetic variants associated with IS risk is of great importance. The main objective of this study was to carry out a meta-analysis for polymorphisms in CRP, EPHX2, FGA, and NOTCH3 genes and the risk for IS. Methods Literature search for 6 candidate polymorphisms and IS was conducted using HuGE Navigator, PubMed, and Google Scholar databases. Meta-Analyst program was used to calculate pooled odds ratios (ORs) with a random effects model. Results Twenty-five published studies for 6 candidate polymorphisms were included: CRP-rs1800947 (5 studies), CRP-rs1205 (3 studies), EPHX2-rs751141 (5 studies), FGA-rs6050 (6 studies), NOTCH3-rs3815188 (3 studies), and NOTCH3-rs1043994 (3 studies), for a total number of 7,825 IS cases and 56,532 control subjects. We did not find significant pooled ORs (P values?>?.05) for any of the genetic variants evaluated in this work. Conclusions Our meta-analysis results did not show significant associations between these 6 polymorphisms in 4 candidate genes and IS, despite the functional role of some of these single nucleotide polymorphisms (e.g., rs6050 in FGA gene). Future studies are needed to identify additional main genetic risk factors for IS in different populations.

Candidate gene

genetic factors

ischemic stroke

meta-analysis

polymorphism

risk factor

C reactive protein

epoxide hydrolase 2

fibrinogen alpha chain

Notch3 receptor

protein

unclassified drug

C reactive protein

EPHX2 protein, human

epoxide hydrolase

Notch3 receptor

prostaglandin A

Article

brain ischemia

gene frequency

genetic association

genetic risk

genetic variability

human

meta analysis

priority journal

restriction fragment length polymorphism

single nucleotide polymorphism

bibliographic database

brain ischemia

complication

genetic predisposition

genetic variation

genetics

statistics and numerical data

Stroke

Brain Ischemia

C-Reactive Protein

Databases, Bibliographic

Epoxide Hydrolases

Genetic Predisposition to Disease

Genetic Variation

Humans

Prostaglandins A

Receptor, Notch3

Stroke