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[Heterogeneity of the frequency of the apolipoprotein E-epsilon 4 allele in the European population]

[Article in Czech]

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Abstract

Background: Apolipoprotein E (apo E) is one of the most important constituents of plasma lipoproteins. A genetic polymorphism in the 4th exon of the apo E gene determines the existence of epsilon 2, epsilon 3 and epsilon 4 alleles in human population coding for three common isoforms of apo E: apo E2, apo E3, and apo E4. The aim of the study is to present the heterogeneity of the epsilon 4 allele frequency in the European region.

Methods and results: The mean frequency of the epsilon 4 allele is 13.6% in the whole European population (95% confidence interval: 7.2-20.0%; 45 evaluated studies, 19940 subjects). Frequency of the epsilon 4 is 17.7% in Northern Europe (12.0-23.4%; 11 studies, 4564 subjects), 15.5% in Western Europe (10.9-20.0%; 21 studies, 11,615 subjects), 12.8% in Central Europe (9.1-16.5%; 5 studies, 939 subjects), and 8.0% in Southern Europe (3.2-12.8%; 8 studies, 2822 subjects). The mean frequency of epsilon 4 allele established preliminary in two localities (Prague, Hradec Králové) in the Czech Republic is 15.7% (15.5-15.9; 2 studies, 95 subjects).

Conclusions: The study confirmed an apo E-epsilon 4 frequency heterogeneity in the European population. The occurrence of epsilon 4 allele decreases from the North to the South in Europe. The highest frequency of epsilon 4 allele is in Finland (mean 22.1%), the lowest in Sardinia (5.2%).

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