

Comparative study of apolipoprotein-E polymorphism and plasma lipid levels in dyslipidemic and asymptomatic subjects, and their implication in cardiocerebrovascular disorders

Cláudia N. Ferreira Maria G. Carvalho Ana P.S.M. Fernandes Luciana M. Lima Andréia A. Loures-Valle Julizar Dantas Zoltán Janka András Palotás Marinez O. Sousa



EN

Polymorphisms in the apolipoprotein-E (apoE) gene may modulate lipoprotein metabolism at different steps and influence total and low density lipoprotein (LDL) cholesterol (LDLc) levels, as well as other lipid features. Population studies have documented significant differences in the frequency of apoE alleles which are related to the prevalence of various cardio-vascular and neuro-psychiatric diseases. In this study, the apoE genotypes and allele frequencies were analyzed in 216 individuals (109 dyslipidemic and 107 normo-lipidic subjects), and the relative contribution of apoE polymorphism on plasma lipid and lipoprotein levels, as well as risk factors was evaluated. In normo-lipidic volunteers, the frequencies of $\epsilon 2$, $\epsilon 3$ and $\epsilon 4$ alleles were 0.042, 0.832 and 0.126, while in dyslipidemic subjects 0.046, 0.835 and 0.119, respectively. No significant difference was observed among $\epsilon 2$, $\epsilon 3$ or $\epsilon 4$ and plasma lipid-lipoprotein levels in the dyslipidemic group. In normo-lipidemics, however, total cholesterol, LDLc and non-HDLc plasma levels were significantly lower in $\epsilon 2$ subjects when compared to $\epsilon 3$ and $\epsilon 4$ individuals. The allelic frequencies of apoE $\epsilon 2$, $\epsilon 3$ and $\epsilon 4$ were similar in dyslipidemic and normo-lipemic subjects, suggesting that apoE polymorphisms have no effect on plasma lipid-lipoprotein levels in dyslipidemic subjects. In contrast, in normo-lipemic subjects the $\epsilon 2$ allele showed to be associated with lower total cholesterol and LDLc levels, the mark of a better lipid profile. Depending on other co-existing factors, the $\epsilon 2$ allele, therefore, may play either a protective or pathogenic role. This elementary knowledge is a fundamental prerequisite for a possible diagnostic application of these lipoproteins as biomarkers to predict adverse cardio-vascular and/or neuro-psychiatric maladies.