Comparative Study

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Apolipoprotein E, epsilon 4 allele as a major risk factor for sporadic early and late-onset forms of Alzheimer's disease: analysis of the 19q13.2 chromosomal region

M C Chartier-Harlin[1], M Parfitt, S Legrain, J Pérez-Tur, T Brousseau, A Evans, C Berr, O Vidal, P Roques, V Gourlet, et al.
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Abstract

An association between the 19q13.2 chromosomal region and Alzheimer's disease (AD) has been reported in AD families and for sporadic AD. Recent observations provide evidence that the epsilon 4 allele of the apolipoprotein E gene (APOE), located in this region, is a risk factor for late-onset AD. Within this region, other genes possibly involved in the pathophysiology of AD and in strong linkage disequilibrium with the APOE locus may be responsible for this association. To test this hypothesis, we analysed the allelic distribution of four polymorphic genetic markers flanking the APOE gene (D19S178 (CA)n repeat, D19S47 (CA)n repeat, APOCI HpaI restriction fragment length polymorphism, APOCII (CA)n repeat). We performed these analyses in a sample of late-onset sporadic cases (n = 36) versus controls (n = 38), and in a sample of early-onset sporadic cases (n = 34) versus controls (n = 36). Early-onset cases were analysed for two

cut-offs with late-onset: less than 60 and less than 65. We observed a significant increased frequency of the APOE epsilon 4 allele in late-onset and early-onset AD with ages at onset less than 60 and less than 65. The adjusted odds ratio (OR) of the bearers of at least one APOE epsilon 4 allele was 4.10 ([1.84;9.16]) when estimated in both populations with a logistic regression model. Surprisingly, the odds ratio of the bearers of at least one APOE epsilon 2 allele was also significant and equal to 0.11 ([0.02;0.50]) suggesting a possible protective effect.(ABSTRACT TRUNCATED AT 250 WORDS)

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