



Correlation between genetic polymorphisms and stroke recovery: analysis of the GAIN Americas and GAIN International Studies

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Résumé en anglais	<p>BACKGROUND AND PURPOSE: Recovery after stroke occurs on the basis of specific molecular events. Genetic polymorphisms associated with impaired neural repair or plasticity might reduce recovery from stroke and might also account for some of the intersubject variability in stroke recovery. This study hypothesized that the ApoE epsilon4 polymorphism and the val(66) met polymorphism for brain-derived neurotrophic factor (BDNF) are each associated with poorer outcome after stroke. Associations with mitochondrial genotype were also explored. METHODS: Genotypes were determined in 255 stroke patients who also received behavioral evaluations in the Glycine Antagonist In Neuroprotection (GAIN) clinical trials. The primary outcome measure was recovery during the first month post-stroke, as this is the time when neural repair is at a maximum and so when genetic influences might have their largest impact. Two secondary outcome measures at 3 months post-stroke were also examined. RESULTS: Genotype groups were similar acutely post-stroke. Presence of the ApoE epsilon4 polymorphism was associated with significantly poorer recovery over the first month post-stroke ($P = 0.023$) and with a lower proportion of subjects with minimal or no disability (modified Rankin score 0-1, $P = 0.01$) at 3 months post-stroke. Indeed, those with this polymorphism were approximately half as likely to achieve minimal or no disability (18.2%) versus those with polymorphism absent (35.5%). Findings were confirmed in multivariate models. Results suggested possible effects from the val(66) met BDNF polymorphism and from the R0 mitochondrial DNA haplotype. CONCLUSIONS: Genetic factors, particularly the ApoE epsilon4 polymorphism, might contribute to variability in outcomes after stroke.</p>
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