Stroke

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SESSION TITLE: CLINICAL REHABILITATION AND RECOVERY ORAL ABSTRACTS I

Abstract 3: Genetic Factors And Motor Status After Stroke

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Abstract

BACKGROUND: Genetic factors may help identify biological subgroups of patients with stroke. The current study focused on two specific genetic polymorphisms and examined each in relation to baseline values for the two primary behavioral measures used in the Interdisciplinary Comprehensive Arm Rehab Evaluation (ICARE) After Stroke study: [1] the Stroke Impact Scale (SIS-16), a measure related to impairment, disability, and handicap after stroke, and [2] the Wolf Motor Function Test (WMFT) time, which measures arm disability. Specifically, the current substudy hypothesized that [1] the val66met polymorphism for brain-derived neurotrophic factor (BDNF) and [2] the ApoE e4 polymorphism are each associated with poorer motor status by the SIS-16 and the WMFT.

METHODS: Of the 361 subjects in the ICARE study, genetic samples were acquired in 216. BDNF polymorphism and ApoE e4 polymorphism status were determined, then compared with scores on SIS-16 and WMFT as determined at baseline in the ICARE study, adjusting for age.

RESULTS: The 216 enrollees in this genetics substudy had age 61 +/- 13, were 67% male, and did not differ from the other 145 ICARE participants in age or race. The BDNF val66met polymorphism was present in 19.7% of subjects, and ApoE e4 in 29.8%; both polymorphisms were in Hardy-Weinberg equilibrium. Among those with the BDNF val66met polymorphism, baseline scores on the SIS-16 were significantly poorer (58 +/- 18 vs. 67 +/- 16, p=0.007); BDNF polymorphism status explained 6.5% of the variance in SIS-16 score. BDNF polymorphism status did not correlate with WMFT, and ApoE e4 polymorphism status did not correlate with the score on either behavioral measure.

CONCLUSION: Among enrollees in a phase III clinical trial of motor therapy after stroke, genetic variation related to BDNF polymorphism status accounted for a significant difference in baseline status for SIS-16, one of the trial's two primary endpoints, to a degree (9 points) that approaches minimum clinically important difference. Genetic factors may be an important source of variance to consider in studies of restorative stroke therapy after stroke.

Footnotes

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