Influence of brain-derived neurotrophic factor and apolipoprotein E genetic variants on hemispheric and lateral ventricular volume of young healthy adults.

OBJECTIVE: Brain-derived neurotrophic factor (BDNF) and apolipoprotein E (ApoE) are thought to be implicated in a variety of neuronal processes, including cell growth, resilience to noxious stimuli and synaptic plasticity. A Val to Met substitution at codon 66 in the BDNF protein has been associated with a variety of neuropsychiatric conditions. The ApoE4 allele is considered a risk factor for late-onset Alzheimer's disease, but its effects on young adults are less clear. We sought to investigate the effects of those two polymorphisms on hemispheric and lateral ventricular volumes of young healthy adults.

METHODS: Hemispheric and lateral ventricular volumes of 144 healthy individuals, aged 19-35 years, were measured using high resolution magnetic resonance imaging and data were correlated with BDNF and ApoE genotypes.

RESULTS: There were no correlations between BDNF or ApoE genotype and hemispheric or lateral ventricular volumes.

CONCLUSION: These findings indicate that it is unlikely that either the BDNF Val66Met or ApoE polymorphisms exert any significant effect on hemispheric or lateral ventricular volume. However, confounding epistatic genetic effects as well as relative insensitivity of the volumetric
methods used cannot be ruled out. Further imaging analyses are warranted to better define any genetic influence of the BDNF Val6Met and ApoE polymorphism on brain structure of young healthy adults.

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