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NEWS

The Effect of Anxiety, Depression, Apolipoprotein E Genotype, and Mesial Temporal Atrophy on the Progression from Mild Cognitive Impairment to Alzheimer's Disease

Monday, November 30, 9:00 AM – 5:00 PM CT | SSNR05-06 | On Demand Paper (7 minutes)

PURPOSE

Anxiety and depression have been frequently observed in patients with amnestic mild cognitive impairment (MCI). Our aim was to study the effect of anxiety and depression on the progression of MCI to Alzheimer's Disease (AD).

METHOD AND MATERIALS

The study population included 339 patients (mean age of 72 years) from the Alzheimer's Disease Neuroimaging Initiative 2 cohort with a baseline diagnosis of MCI. Of these, 72 progressed to AD and 267 remained stable. Demographic characteristics and apolipoprotein E (APOE) genotype were recorded. Symptoms of anxiety and depression were assessed using the anxiety score from the Neuropsychiatric Inventory (NPI) and Geriatric Depression Scale (GDS), respectively. Maximum NPI and GDS scores during the study were recorded. Brain MRIs obtained at an initial clinic visit were used to determine the baseline hippocampal (HV) and entorhinal cortex volumes (ERV), normalized to the baseline intracranial volume (ICV). Chi-square test and independent-samples T-test were used to compare demographic, clinical, and neuroimaging variables of patients with and without progression to AD. A Cox regression model was used to study the effect of variables on the time to progression to AD. Results were considered significant when $p < 0.05$.

RESULTS

There was no difference in age, gender, or years of education among MCI patients with and without progression to AD. Patients that progressed to AD had significantly lower normalized HV ($p < 0.001$) and ERV ($p < 0.001$), greater frequency of the ApoE4 allele ($p < 0.001$), and greater maximum levels of anxiety and depression ($p < 0.001$). The presence of ApoE4 ($p < 0.001$), higher level of anxiety ($p < 0.001$), and lower HV ($p = 0.019$) and ERV ($p = 0.004$) were associated with increased rate of progression from MCI to AD.

CONCLUSION

ApoE4, anxiety, and lower hippocampal and entorhinal cortex volumes are associated with an increased rate of progression from MCI to AD.

CLINICAL RELEVANCE/APPLICATION

Anxiety symptoms may hasten progression to AD in patients with MCI. Recognizing and treating neuropsychiatric symptoms is important in the management of patients with early MCI.