CORTICAL THINNING PATTERNS IN ALZHEIMER’S PATIENTS AND SUBJECTS WITH MILD COGNITIVE IMPAIRMENT FROM THE ADDNEUROMED STUDY

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Introduction: The AddNeuroMed project is a multi-centre European project which aims to identify biomarkers in Alzheimer’s disease (AD). In this study we measured cortical thinning in AD and MCI by comparing with healthy age-matched controls.

Aims: Investigation of regional cortical thinning patterns in AD and MCI.

Methods: High resolution MP-RAGE scans were acquired from patients with AD (n=107, MMSE:21.0±4.7), MCI (n=116, MMSE:27.2±1.7), and controls (n=110, MMSE:29.1±1.2) at baseline. Only subjects with scans which passed quality control for both acquisition and image processing were included. Cortical thickness was measured using FACE (fast accurate cortex extraction) and mapped to a reference space (cortical surface). Statistical parametric maps of differences in cortical thickness were calculated and results adjusted for multiple comparisons using FDR correction (threshold=0.05).

Results: The image shows comparisons between AD and MCI with controls. In AD, cortical thinning is spread over the temporal lobes, to most of the frontal and parietal lobes, and along the cingulate cortex. In MCI, cortical thinning is found focally in the temporal lobes, predominantly the left, but with some bilateral differences.
Conclusions: Widespread cortical thinning is found in AD patients, while more focal thinning is found in subjects with MCI. The thinning patterns are generally bilateral.