[P02.115] Cortical Thinning in Alzheimer's Disease and Frontotemporal Dementia Assessed Using MRI

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OBJECTIVE: To compare the regional patterns of cortical thinning between Alzheimer's disease (AD) and frontotemporal dementia (FTD). **BACKGROUND:** Although volumetric MRI studies revealed characteristic patterns of brain atrophy in AD and FTD compared to healthy aging, there has been increasing interest in assessing cortical thinning as means to gain sensitivity and specificity to detect dementia. The motivation for measuring cortical thickness derives largely from pathological observations suggesting a disproportionate high loss of cortical layers compared to reductions of cortical surface area in dementia. **DESIGN/METHODS:** Twenty-four AD patients, 20 FTD patients and 25 cognitively normal subjects (CN) subjects were included in this 1.5 Tesla MRI study. The cortical thickness was measured by FreeSurfer(http://surfer.nmr.mgh.harvard.edu) and group comparisons were tested vertex-by-vertex using a general linear model accounting for age. **RESULTS:** Compared to CN subjects, AD patients had a thinner cortex in broad brain regions including bilateral temporal, parietal and frontal cortices, precuneus and posterior cingulate, while occipital and motor/sensory cortices were spared ($p<0.01$). Compared to CN subjects, FTD patients had a thinner cortex in bilateral frontal and temporal cortices ($p<0.01$) with some involvement ($p < 0.01$) of inferior parietal cortex and posterior cingulate. However, superior parietal, occipital and motor/sensory cortices were spared. Furthermore, AD patients −when compared to FTD - had a thinner cortex ($p<0.01$) bilaterally in parietal regions, precuneus and posterior cingulate. In contrast, FTD patients −when compared to AD - had a thinner cortex ($p<0.01$) bilaterally in prefrontal regions, as well as in right orbitofrontal cortex and anterior temporal cortex. **CONCLUSIONS/RELEVANCE:** AD and FTD are associated with different regional patterns of cortical thinning, consistent with the expected topology of pathology. Whether cortical thinning is a more powerful MRI measure than volume loss to detect disease and to differentiate between AD and FTD needs to be determined.
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