PW01-87 - **DEFICITS OF SPATIAL AND TASK-RELATED ATTENTIONAL SELECTION IN MILD COGNITIVE IMPAIRMENT AND ALZHEIMER'S DISEASE**

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Accumulating evidence suggests that deficits of visual selective attention may already occur at early stages of Alzheimer's disease (AD) like the prodromal phase of mild cognitive impairment (MCI).

Our study investigated visual selective attention in amnestic MCI and probable AD patients compared to healthy elderly controls. Groups were matched for age, gender and education. In combination with Bundesen's 'theory of visual attention', two mathematically independent and quantitative parameter estimates were derived from a partial report of briefly presented letter arrays: top-down control of attentional selection, representing task-related attentional weighting for prioritizing relevant visual objects, and spatial distribution of attentional weights across the left and right hemifield.

Compared to controls, MCI patients showed significantly reduced top-down controlled selection which further deteriorated in AD subjects. Moreover, attentional weighting was significantly unbalanced across hemifields in MCI and tended to be more lateralized in AD. The majority of patients was biased to the left. Across MCI and AD patients, carriers of the apolipoprotein E ε4 allele (ApoE4) revealed a leftward spatial bias. The leftward bias was the more pronounced the younger the ApoE4-positive patients and the earlier disease onset. ApoE4-negative subjects showed balanced attentional weighting.

These results indicate that impaired top-down control may be linked to early dysfunction of fronto-parietal cortico-cortical networks. Accompanying, an early interhemispheric asymmetry in temporo-parietal cortical interactions might cause a pathological spatial bias. As the inheritance of ApoE4 is associated with asymmetric parietal metabolism, a pathological spatial bias may function as early cognitive marker for detecting probable AD subjects.

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