
Titel des Beitrags: Association between Cognitive Performance and Cortical Glucose Metabolism in Patients with Mild Alzheimer's Disease

Abstract: Background: Neuronal and synaptic function in Alzheimer’s disease (AD) is measured in vivo by glucose metabolism using positron emission tomography (PET). Objective: We hypothesized that neuronal activation as measured by PET is a more sensitive index of neuronal dysfunction than activity during rest. We investigated if the correlations between dementia severity as measured with the Mini Mental State Examination (MMSE) and glucose metabolism are an artifact of brain atrophy. Method: Glucose metabolism was measured using [18F]fluorodeoxyglucose PET during rest and activation due to audiovisual stimulation in 13 mild to moderate AD patients (MMSE score ≥17). PET data were corrected for brain atrophy. Results: In the rest condition, glucose metabolism was correlated with the MMSE score primarily within the posterior cingulate and parietal lobes. For the activation condition, additional correlations were within the primary and association audiovisual areas. Most local maxima remained significant after correcting for brain atrophy. Conclusion: PET activity measured during audiovisual stimulation was more sensitive to functional alterations in glucose metabolism in AD patients compared to the resting PET. The association between glucose metabolism and MMSE score was not dependent on brain atrophy.