Metabolic Correlates of Brain Reserve in Dementia with Lewy Bodies: An FDG PET Study

Abstract:
Background: Studies suggest that brain reserve allows patients with more years of schooling to cope better with brain damage. Research has been mainly focussed on Alzheimer’s disease and no studies exist on patients with dementia with Lewy bodies (DLB). The aim of this study was to provide evidence for brain reserve in DLB.

Methods: Twenty-one consecutive patients with DLB and 16 age-matched healthy controls were included. The participants underwent cerebral 18F-FDG PET imaging at rest. A group comparison was conducted in SPM2 between the patient and control groups. A linear regression analysis with glucose metabolism as the dependent and years of schooling as the independent variable was performed. Age, gender and a total score of the Consortium to Establish a Registry for Alzheimer’s Disease neuropsychological battery were included as covariates into the analysis.

Results: The patients showed a significant metabolic reduction in the frontal and posterior association cortices, the basal ganglia and the pulvinar of the thalami. Glucose metabolism and education showed an inverse relationship in an extensive cluster in the left temporo-parieto-occipital cortex.

Conclusion: Similar findings were previously reported in Alzheimer’s disease and are regarded as evidence for brain reserve.
reserve. Therefore, we suggest that brain reserve is also present in DLB.

Stichworte:  
Brain reserve; Neuroimaging; FDG PET; Education; Dementia with Lewy bodies

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