COMPARISON OF F-18 FLORBETAPIR (AV-45) AND FDG PET SCANS BETWEEN FAMILIAL AND SPORADIC ALZHEIMER’S DISEASE

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Introduction: Alzheimer’s disease (AD) is a heterogeneous entity and may present either as sporadic or familial disease. Some familial pedigrees of AD appear to have a shorter duration and an earlier onset of the disease. Studies of early onset AD (EOAD) showing ß-amyloid dysmetabolism may be a primary event in the pathogenesis of AD. Whether both forms of AD share a similar pathway remains largely unknown.

Aims: To investigate the severity and regional distribution of amyloid plaques and metabolic disruption in vivo by F-18 Florbetapir (AV-45) and FDG PET images in 3 familial EOAD patients and 12 sporadic AD patients.

Methods: Both FDG and AV-45 scans were performed at 50 minutes after tracer injection in all subjects within a 3-month interval. AV-45 parametric images were computed by calculating the region-to-cerebellum ratio in each voxel. Group comparison between these two groups was evaluated by statistical parametric mapping (SPM) after spatially normalized to a MRI template.

Results: There were no differences between groups in education, apolipoprotein E status, and Mini-Mental Status Examination scores. Regions-of-interest analysis of AV-45 parameteric image showed a higher AV-45 uptake in the occipital region of familiar EOAD patients. On SPM analysis, significant differences between two groups were found in the right temporal, right parietal, visual cortex of calcarine, and lingual regions (p< 0.001 uncorrected).

Conclusion: Our data suggest that amyloid deposition may be different in the distribution pattern between EOAD and sporadic AD patients.