The spatial-temporal ordering of amyloid pathology and opportunities for PET imaging

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Abstract:

While clinical routine focuses on dichotomous and visual interpretation of amyloid PET, in a research setting, regional image assessment may yield additional opportunities. Understanding the regional-temporal evolution of amyloid pathology may enable the earlier identification of subjects who are in the Alzheimer's Disease pathological continuum, as well as a more fine-grained assessment of pathology beyond traditional dichotomous measures. This review summarises the current research in the detection of regional amyloid deposition patterns and its potential for staging amyloid pathology. Pathology studies, cross-sectional and longitudinal PET-only studies, and comparative PET and autopsy studies are included. Despite certain differences, cortical deposition generally precedes striatal pathology, and in PET-only studies, medial cortical regions are seen to accumulate amyloid earlier than lateral regions. Based on regional amyloid PET, multiple studies have developed and implemented models for staging amyloid pathology which could improve subject selection into secondary prevention trials and visual assessment in clinical routine.

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