Is the Incremental Diagnostic Value of Amyloid-Pet Affected by Information on Other Core Biomarkers?

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Background

A rationale use of biomarkers for Alzheimer Disease (AD) diagnosis requires the definition of an optimal algorithm to maximize information while minimizing examination costs. In this study, we investigate the selection of bio-marker examinations by dementia experts of 18 Italian memory clinics in their ordinary clinical diagnostic work-up assessing AD or Frontal-temporal disease (FTD), with the aim of assessing whether a more complete work-up would attenuate the incremental diagnostic value of amyloid-PET.

Methods

From a naturalistic study evaluating the incremental diagnostic value of 18F-Florbetapir PET after routine clinical assessment, we considered the 210 subjects having a clinical diagnosis of AD or FTD. Clinical work-ups were categorized as “complete” if all structural (MRI or TC), functional and CSF were collected; “intermediate” if 2 exams were collected (structural and FDG-PET or structural and CSF), and “incomplete” when only structural imaging was available. We analyzed whether these 3 different work-ups affect the incremental value of amyloid-PET, performed on top of the traditional work-up, in terms of diagnostic changes, changes in diagnostic confidence and in treatment. Our hypothesis was that a more complete work-up would be associated with a lower incremental value of amyloid-PET.

Results

Only 16 (7.6%) of 210 patients underwent a complete diagnostic work-up; 70 (33.3%) had an “intermediate” work-up, and diagnosis was based on the only structural imaging for 124 subjects (59.0%). A similar pattern was observed in AD and FTD separately (Figure). However, centres prescribing complete, intermediate and incomplete work-ups were differently represented for the two diagnoses. No statistically significant change emerged in diagnosis, diagnostic confidence or clinical management between complete, intermediate or incomplete assessments (Table). Stratifying patients for etiopathology (AD-FTD) or clinical severity (MCI-dementia) led to the same results.

Conclusions

Collection of additional core bio-markers does not seem to affect the incremental value of amyloid-PET in naturalistic clinical setting. The clinicians combinations and use of instrumental examination needs to be better understood and elucidated in view of the definition of an evidence-based diagnostic algorithm.