

Title

Belief on the role of amyloid in the pathogenesis of cognitive impairment

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Background

Dementia experts' (DEs) belief on the role of amyloid in the pathogenesis of cognitive decline can significantly influence the use of amyloid biomarkers in the clinical practice. Current thinking attributes a key role to both amyloid and tau in AD pathology. However, emphasis on the two proteins can be remarkably variable: (i) the baptists viewpoint posits that amyloid deposition causes neurodegeneration, (ii) the tauists viewpoint posits that tau hyperphosphorylation is the primary culprit.

Aim

To assess:

- the pathophysiological role attributed by DEs to amyloid in AD-related neurodegeneration;
- whether this belief is associated with diagnostic thinking.

Methods

20 DEs were asked to answer a questionnaire assessing their belief on the role of amyloid in AD pathogenesis with a score between 0 (tauist) and 10 (baptist). 6 clinical case-vignettes (CVs) representative of patients with diagnostic uncertainty were developed. DEs were asked to rate the probability (from 0 to 100) of a change in initial diagnosis after amyloid-PET results (positive/negative).

Results

DEs' belief on amyloid role scored slightly towards the baptists viewpoint (mean: 6±2). The highest probability of a change in diagnosis was for cases with an initial diagnosis of (i) AD with atypical profile and PET- (66%), and (ii) SIVD and PET+ (59%; $p>0.05$ on post-hoc ANOVA between the 2 CVs). The lowest probability was for cases with (iii) LBD and PET- (15%), and (iv) AD and PET- (32%). These values were different from CVs (i) and (ii) ($p<0.05$). For cases with an initial diagnosis of bvFTD or CBD and PET+, the probability of a change in diagnosis was 43 and 42%. These values were significantly higher compared with CV (iii) ($p<0.05$). A near-significant correlation was detected between the DEs' belief and the probability of a change in diagnosis ($p>0.07$).

Conclusion

Amyloid biomarkers proved to be most informative to rule out an AD etiology in cases with atypical AD, and to support an AD etiology in cases with a non-AD

dementia. A change in the diagnosis was less frequent in cases of SNAP. Amyloid imaging tends to be associated with greater diagnostic impact in baptists than tauists.