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## 0 - PROGNOSTIC VALUE OF 18F-FLORBETAPIR SCAN: A 36-MONTH FOLLOW UP ANALYSIS USING ADNI DATA

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### Resumen

**Objective:** The Alzheimer's Disease Neuroimaging Initiative (ADNI) provides a unique opportunity to investigate the relationship between  $\beta$ -amyloid neuropathology and patients' long-term cognitive function change. We examined baseline <sup>18</sup>F-florbetapir PET amyloid imaging status and 36-months change from baseline in cognitive performance in subjects with mild cognitive impairment (MCI).

**Material and methods:** All ADNI subjects who underwent PET-imaging with <sup>18</sup>F-florbetapir and had a clinical diagnosis of MCI at the visit closest to florbetapir imaging, were included.  $\beta$ -amyloid deposition was measured by florbetapir standard uptake value ratio (SUVR), and dichotomized as A<sup>+</sup> (SUVR > 1.1) or A<sup>-</sup> (SUVR  $\leq$  1.1). The change of cognitive scores including ADAS11, MMSE and CDR sum of boxes (CDR-SB) were evaluated every 6 months. Mixed-effect Model Repeated Measures (MMRM) was applied to detect the difference between A<sup>+</sup> and A<sup>-</sup> subjects' cognitive score change from baseline, adjusting for baseline age and cognitive scores. Clinically significant cognitive change (4 point decline on the ADAS 11) was also evaluated using a multivariate-logistic-regression-model with general estimating equation (GEE) to account for within-subjects correlation. Marginal Odds Ratio was used to evaluate the risk difference for a clinically significant cognitive change among A<sup>+</sup> participants vs A<sup>-</sup> participants.

**Result:** Of 478 MCI-subjects who had at least one florbetapir scan, 153 had a cognitive evaluation at 36-month follow up. Of those, 79 were A<sup>-</sup> and 74 A<sup>+</sup>. At 36-month visit, the A<sup>+</sup> vs A<sup>-</sup> group score changed from baseline (LS means 4.03 vs 0.26 for ADAS 11; -2.61 vs -0.40 for MMSE; 1.53 vs -0.11 for CDR-SB [p 0.0001 all comparisons]). GEE analysis on clinically significant cognitive change showed a marginal Odds Ratio = 2.18 (95%CI: 1.47–3.21) for A<sup>+</sup> vs A<sup>-</sup> groups.

**Conclusions:** MCI subjects with higher  $\beta$ -amyloid deposition, had greater deterioration in cognitive function over the 36-month follow up, while subjects with no  $\beta$ -amyloid accumulation tended to be stable on these measurements. This finding is consistent with previously published studies.