Cod: PO162

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

L. Ming[1], P. Michael J[1], S. Andrew[1], J. Abhinay D[1], D. Michael D[1], M. Mark A[1], D. Grazia[2]
[1]*Avid Radiopharmaceuticals, Inc., 3711 Market Street, Philadelphia, USA*
[2]*Eli Lilly Italy, Florence, University of Rome Sapienza, Rome, Italy*

BACKGROUND-AIM

The Alzheimer's Disease Neuroimaging Initiative(ADNI) provides a unique opportunity to investigate the relationship between ◘-Amyloid neuropathology and patients' long-term cognitive function change. We examined baseline ^{18}F-florbetapir PET amyloid imaging status and 36-months change from baseline in cognitive performance in subjects with mild cognitive impairment(MCI).

METHODS

All ADNI subjects who underwent PET-imaging with ^{18}F-florbetapir and had a clinical diagnosis of MCI at the visit closest to florbetapir imaging, were included. ◘-Amyloid deposition was measured by florbetapir standard uptake value ratio(SUVR), and dichotomized as A◘+(SUVR>1.1) or A◘–(SUVR≤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◘+ and A◘– 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◘+ participants vs. A◘– participants.

RESULTS

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◘– and 74 A◘+. At 36-month visit, the A◘+ vs. A◘– group score changed from baseline(LS means 4.03 vs. 0.26 for ADAS11;-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◘+ vs. A◘– groups.

CONCLUSION

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