



Revista Española de Medicina Nuclear e Imagen Molecular



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

G. Dell'Agnello¹, M. Lu², M.J. Pontecorvo², A. Siderowf², A.D. Joshi², M.D. Devous² and M.A. Mintun²

¹Eli Lilly and Company. Indianapolis. IN. USA. ²Avid Radiopharmaceuticals. Inc. Philadelphia. PA. USA.

Resumen

Objective: The Alzheimer's Disease Neuroimaging Initiative (ADNI) provides a unique opportunity to investigate the relationship between β -amyloid neuropathology and patients' long-term cognitive function change. We examined baseline ¹⁸F-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 ¹⁸F-florbetapir and had a clinical diagnosis of MCI at the visit closest to florbetapir imaging, were included. β -amyloid deposition was measured by florbetapir standard uptake value ratio (SUVR), and dichotomized as A β + (SUVR > 1.1) or A β - (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 β + and A β - 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 β + participants vs A β - 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 β - and 74 A β +. At 36-month visit, the A β + vs A β - 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 β + vs A β - groups.

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