

Identifying a biomarker of neuroinflammation for patient stratification in Alzheimer's disease

AIM

Investigating the relationship between clinical progression of Alzheimer's disease (AD) and microglial activation measured by [¹⁸F]-DPA-714 PET imaging

METHODS

- PET imaging of microglial activation using [¹⁸F]-DPA-714, a ligand of 18kDa translocator protein (TSPO) in AD patients and control subjects
- Longitudinal functional and cognitive assessment for 2 years
- Longitudinal microglial activation measurement by PET
- Analysis of the predictive value of microglial activation

RESULTS

- [¹⁸F]-DPA-714 binding is higher in the temporo-parietal cortex of AD patients than in controls (Fig. 1)
- Heterogeneous [¹⁸F]-DPA-714 binding progression profiles among patients with AD: slow cognitive decliners show high initial neuroinflammation (blue) whereas fast cognitive decliners show lower initial neuroinflammation (red) (Fig.2)

CONCLUSION

- [¹⁸F]-DPA-714, a marker of microglial activation, useful for AD patient stratification
- [¹⁸F]-DPA-714 PET is now used in clinical trials of immuno-modulation

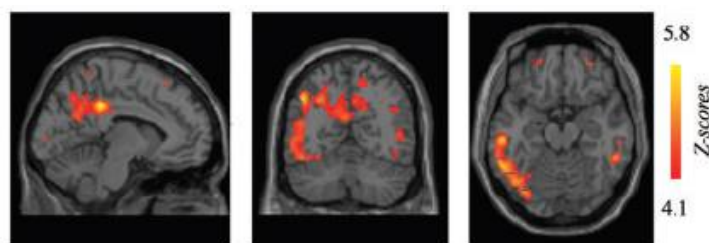


Fig. 1 - Statistical parametric mapping analysis of [¹⁸F]-DPA-714 binding between patients with prodromal AD and controls

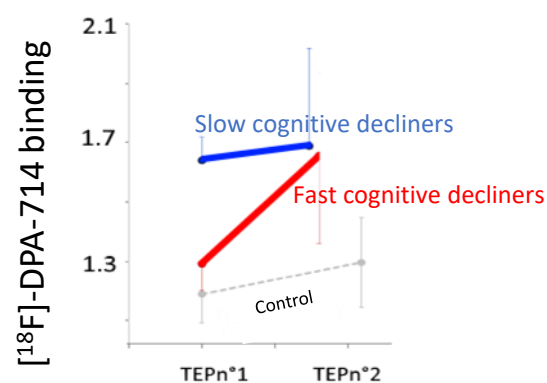


Fig. 2 - Longitudinal change of [¹⁸F]-DPA-714 binding in AD patients, demonstrating 2 evolution profiles