

Comparison of MK6240 and Flortaucipir in Mapping Tau Extent and Memory Decline



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Introduction

Methods

- Flortaucipir and MK6240 are among the most used tau PET tracers, but differences in their binding affinities and tracer-specific characteristics may lead to variations in the spatial patterns they detect.
- This study compares their ability to capture tau distribution and its relationship with memory decline.

- We studied 647 individuals (367 CU and 282 CI) with available Flortaucipir, and MK6240 and amyloid PET tracers.
- PET topographical spread was assessed using the percentage of abnormal voxels (PAV) above the mean + 2 SD of CU A β -negative individuals between 50 and 65 years of age.

- Group differences in PAV were compared across clinical stages, and spatial distributions were visualized on cortical surfaces.
- Binomial GLMs assessed associations between regional tau extent and normalized memory composite score, with marginal predictions derived across the memory range.

Results

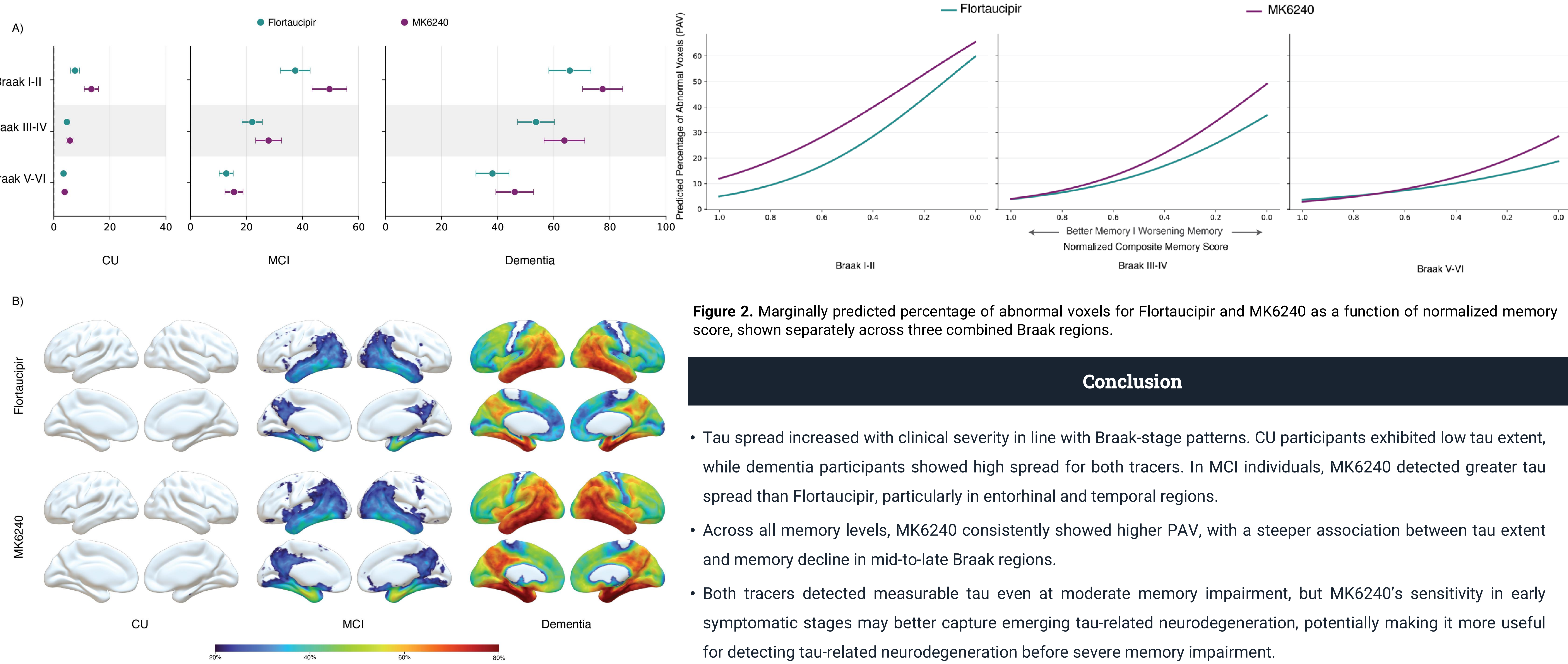


Figure 2. Marginally predicted percentage of abnormal voxels for Flortaucipir and MK6240 as a function of normalized memory score, shown separately across three combined Braak regions.

Conclusion

- Tau spread increased with clinical severity in line with Braak-stage patterns. CU participants exhibited low tau extent, while dementia participants showed high spread for both tracers. In MCI individuals, MK6240 detected greater tau spread than Flortaucipir, particularly in entorhinal and temporal regions.
- Across all memory levels, MK6240 consistently showed higher PAV, with a steeper association between tau extent and memory decline in mid-to-late Braak regions.
- Both tracers detected measurable tau even at moderate memory impairment, but MK6240's sensitivity in early symptomatic stages may better capture emerging tau-related neurodegeneration, potentially making it more useful for detecting tau-related neurodegeneration before severe memory impairment.

Acknowledgments:



Figure 1. Tau spatial extent measured with Flortaucipir and MK6240. (A) Forest plots display the mean percentage of abnormal voxels (PAV) across combined Braak regions by clinical group, with 95% confidence intervals. (B) Cortical surface maps illustrate the spatial distribution of mean PAV across the brain.