Tau PET performs well in predicting dementia in individuals with mild cognitive impairment

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Tau positron emission tomography (PET) has the best performance as a standalone marker for prediction of progression of mild cognitive

impairment (MCI) to dementia, according to a study published online June 10 in *JAMA Neurology*.

Colin Groot, Ph.D. from Lund University in Sweden, and colleagues examined the prognostic value of tau PET to predict clinical progression from MCI to dementia in a multicenter cohort study with external validation. The study included 448 eligible individuals with MCI (331 and 117 in the discovery and validation cohorts, respectively).

The researchers found that the mean Mini-Mental State Examination (MMSE) score was 27.1 in the discovery cohort, and 110 individuals (33 percent) with MCI converted to dementia (71 to Alzheimer disease [AD] dementia). All-cause dementia was better predicted by the model with tau PET (area under the receiver operating characteristic curve [AUC], 0.75) than a base model including age, sex, education, and MMSE score (AUC, 0.71), while prediction was not improved with models assessing the other neuroimaging markers.

Tau PET replicated prediction of all-cause mortality in the validation cohort. Compared with the base model (AUC, 0.75), there was significant improvement noted in prediction of AD dementia in the model including tau PET, tau PET visual read, and β-amyloid PET Centiloids (AUCs, 0.84, 0.83, and 0.83, respectively). Only the tau PET and tau PET visual reads replicated prediction of AD dementia in the validation cohort.

"Our findings constitute a next step toward the ultimate goal of accurate and individualized prognoses, which may reduce uncertainty and lower disease burden for individuals with MCI," the authors write.

More information: Groot C, Smith R, Collij LE, et al. Tau Positron Emission Tomography for Predicting Dementia in Individuals With Mild Cognitive Impairment. *JAMA Neurology*. (2024) DOI:

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