Study finds Amyloid Blood Tests for May Cut Need for PET in Half

Study authors suggest that the positive result of using the blood test methods may lead to faster clinical trial recruitment.

A recent study by authors Ashvini Keshavan, Josef Pannee, et al. aimed to evaluate population-based blood screening for preclinical Alzheimer's disease in a British birth cohort at age 70.

Alzheimer's disease affects more than 5 million Americans and is characterized by normal cognition and abnormal brain biomarkers, to mild cognitive impairment and then clinically apparent dementia.

"Using either [liquid chromatography-mass spectrometry] method to screen before PET scanning has the potential to yield significant savings for clinical trial recruitment, affording further reductions in the required number of PET scans compared to the number of scans needed without pre-screening or when using age, sex and APOE4 carrier status for screening," Schott and team wrote.

Consistent with prior studies, the researchers also noted that most of the discordant cases were "plasma-positive, PET-negative," and this persisted despite changing the PET positivity cutoff. Similar to CSF results, the data suggested that plasma amyloid-beta may become abnormal before a threshold for cortical amyloid-beta positivity is reached. If PET can be eliminated, it would be most benefificial as PET is costly, relatively inaccessible, and involves ionizing radiation.

Apart from affordability, plasma screening might enable screening of more diverse populations at scale and reduce screen failures, leading to faster clinical trial recruitment.

Addressing the issue of false positives and the possibility that amyloid-positive individuals might never develop cognitive symptoms in their lifetime, the researchers stated that “any use of plasma biomarker-based screening will require clear protocols for counselling and communicating plasma test results to prospective participants, including that a positive result is likely to require confirmation with another more definitive modality (PET or CSF).”

“Our study strengthens a growing body of evidence that plasma screening can reduce the numbers of amyloid PET scans required to identify amyloid-β-positive individuals, for recruitment to clinical trials or ultimately for giving anti-amyloid therapies, and suggests that this may be feasible in a preclinical cohort,” they concluded.

These innovations can change the future of research for Alzheimer’s studies.