Study finds that memory complaints can predict biological changes in the brain

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A new study adds further evidence that when a patient or family member notices signs of persistent memory loss, it's important to speak with a doctor. While there are many reasons why someone's memory may

change, researchers from Mass General Brigham who are studying patients prior to diagnosis with Alzheimer's disease found changes in the brain when patients and their study partners—those who could answer questions about their daily cognitive function—reported a decline in cognition.

Using imaging, the researchers found reports of cognitive decline were associated with accumulation of tau tangles—a hallmark of Alzheimer's disease. Results are published in *Neurology*.

"Something as simple as asking about memory complaints can track with disease severity at the preclinical stage of Alzheimer's disease," said senior author Rebecca E. Amariglio, Ph.D., of the Department of Neurology at Brigham and Women's Hospital. Amariglio is a clinical neuropsychologist at both Brigham and Women's Hospital and Massachusetts General Hospital, the founding members of Mass General Brigham.

"We now understand that changes in the brain due to Alzheimer's disease start well before patients show clinical symptoms detected by a doctor. There is increasing evidence that individuals themselves or a close family member may notice changes in memory, even before a clinical measure picks up evidence of cognitive impairment."

The new study, led by first author Michalina F. Jadick, included researchers from across the Brigham and Mass General. The research team designed their study to include participants from the "Anti-Amyloid Treatment in Asymptomatic AD/Longitudinal Evaluation of Amyloid Risk (A4/LEARN) and Neurodegeneration" studies and the "Harvard Aging Brain Study" and affiliated studies.

Participants were cognitively unimpaired individuals at risk but not yet diagnosed with Alzheimer's disease. Each participant and respective

study partner completed evaluations of cognitive function for the participant. Each participant also underwent PET imaging to detect levels of tau and amyloid beta.

Across 675 participants, the team found that both amyloid and tau were associated with greater self-reported decline in cognitive function. The team also found that subjective reports from patients and their partners complemented objective tests of cognitive performance.

The authors note that the study was limited by the fact that most participants were white and highly educated. Future studies that include more diverse participants and follow participants in the longer term are needed.

Amariglio cautions that noticing a change in cognition does not mean that one should leap to the conclusion that a person has Alzheimer's disease. However, a patient's or family member's concerns should not be dismissed if they are worried about cognition.

More information: Michalina F. Jadick et al, Associations Between AU1 Self and Study Partner Report of Cognitive Decline With Regional Tau in a Multicohort Study *Neurology* DOI: 10.1212/WNL.0000000000209447

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