Study finds cognitive decline key factor in predicting life expectancy in Alzheimer's disease

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Cognitive decline is the biggest factor in determining how long patients

with Alzheimer's disease will live after being diagnosed, according to a new study from researchers at UT Southwestern. The findings, published in the *Journal of Alzheimer's Disease,* are a first step that could help health care providers provide reliable prediction and planning assistance for patients with Alzheimer's disease and their families.

Using a National Alzheimer's Coordinating Center dataset on 764 autopsy-confirmed cases, C. Munro Cullum, Ph.D., Professor of Psychiatry, Neurology, and Neurological Surgery, and first author Jeffrey Schaffert, Ph.D., a postdoctoral fellow in clinical neuropsychology at UT Southwestern, identified seven factors that helped predict life expectancy variances among participants. These factors are the most predictive of how many years of life remain after diagnosis.

"Life expectancy for patients with Alzheimer's disease typically ranges from three to 12 years but can be longer in some cases. Families are anxious to know what to expect and how to best plan for the time ahead in terms of finances, family caregiving, and how they want to live out their lives," said Dr. Cullum, a neuropsychologist Investigator in the Peter O'Donnell Jr. Brain Institute who specializes in cognitive assessment. "We're trying to get them better answers."

Of the many variables studied, performance deficiencies on a brief cognitive screening test that focuses on orientation was the most significant predictor, accounting for about 20% of the variance in life expectancy. This was followed by sex, age, race/ethnicity, neuropsychiatric symptoms, abnormal neurological exam results, and functional impairment ratings.

"We found that beyond global cognitive function, patients who were older, non-Hispanic, male, and who had more motor and psychiatric symptoms had a significantly shorter life expectancy," Dr. Schaffert

said.

The data was drawn from clinical records and autopsy reports on patients who died with Alzheimer's disease between 2005 and 2015. Alzheimer's disease was confirmed by traditional abnormalities observed in brain autopsy specimens, including the presence of abnormal protein aggregation. Life expectancy in the study group ranged from one month to 131 months after diagnosis, and most were diagnosed on their first visit.

Dr. Schaffert explained that past studies have focused on only a few of the 21 predictors identified for life expectancy. In this case, researchers had a complete dataset for 14 variables in this group, the largest to date. Moreover, past studies have not been autopsy-based, thereby confounding results with data from other forms of dementia that mimic Alzheimer's disease.

The researchers caution that prediction of life expectancy is complex and influenced by many factors. While the cognitive test used in the study was a relatively strong predictor, they plan to follow up using more sensitive measures of memory and other specific cognitive abilities as predictors and probe how the rate of decline in cognition may track with life expectancy. They also hope to expand the population base.

"This dataset was largely derived from well-educated white patients who donated their brains to research. We would like to extend this work to better reflect our more diverse patient population," Dr. Cullum said.

More information: Jeff Schaffert et al, Predictors of Life Expectancy in Autopsy-Confirmed Alzheimer's Disease, *Journal of Alzheimer's Disease* (2022). DOI: 10.3233/JAD-215200

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