

PET scans may improve accuracy of dementia diagnosis

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A new study shows that the use of positron emission tomography (PET) scans may improve the accuracy of dementia diagnoses early in disease onset for more than one out of four patients.

Early, accurate diagnosis of [dementia](#) is critical for providing the best available courses of treatment and therapies in the beginning stages of disease, when treatments can be most effective. PET scans enable physicians to identify the neurological conditions underlying each patient's mental decline and choose appropriate courses of treatment.

"Routine clinical assessments do not accurately identify the root causes of dementia in the early stages," said Kirk A. Frey, a physician with the University of Michigan Hospitals' Division of Nuclear Medicine and lead author of the study. "Our preliminary results clearly indicate that [molecular imaging](#) technologies, such as PET scans, can help diagnose a patient's specific type of dementia. This is critical for providing the best possible care. Additionally, PET's ability to pinpoint neurological underpinnings of different forms of dementia could lead to new, more targeted drugs and therapies."

More than 5 million people each year are newly diagnosed with dementia, a disease that takes many forms and includes memory loss or other mental impairments that interfere with daily life. The most common type of dementia is Alzheimer's disease. Other types include frontotemporal dementia, which affects the frontal and temporal lobes of the brain, and Lewy body dementia, which involves degeneration of

dopamine nerves in addition to the temporal and parietal lobes. Although these types of dementia have different causes, patients can express similar symptoms in the early stages, making accurate diagnosis difficult. Providing appropriate treatments and therapies as early as possible can avoid unnecessary, and sometimes severe, side-effects and complications.

The new study identified 66 patients with mild dementia or mild cognitive impairment who were evaluated through standard neurological testing and anatomic brain imaging. Three clinical experts reviewed the results of these data to make diagnoses of either Alzheimer's disease, frontotemporal dementia or dementia with Lewy bodies. Patients then underwent PET scans for amyloid deposits and for dopamine nerve integrity. Patients' initial diagnoses changed more than 25 percent of the time after PET imaging. [PET scans](#) provided images of important signals for disease that other examinations missed, such as deposits of amyloid plaque, which are a common indicator of Alzheimer's disease, and damage to dopamine nerves in Lewy body dementia.

The study will track patients for two years to confirm the accuracy of their diagnoses.

Source: Society of Nuclear Medicine ([news](#) : [web](#))

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