

Biomarkers for Alzheimer Disease Diagnosis

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Editorial Note

Current diagnosis of Alzheimer's disease relies largely on documenting mental decline, at which point, Alzheimer's has already caused severe brain damage. Researchers hope to get a simple and accurate means to detect Alzheimer's before these devastating symptoms begin.

Experts believe that biomarkers (short for "biological markers") offer one among the foremost promising paths. A biomarker are some things which will be measured to accurately and reliably indicate the presence of disease, like fasting blood sugar (blood sugar) level, which indicates the presence of diabetes if it's 126 mg/dL or higher.

Several potential biomarkers are being studied for his or her ability to point early stages of Alzheimer's disease. Examples being studied include beta-amyloid and tau levels in spinal fluid (CSF) and brain changes detectable by imaging. Recent research suggests that these indicators may change at different stages of the disease process.

Before a biomarker are often utilized in medical clinics, it must be validated, during which multiple studies in large groups of individuals establish that it accurately and reliably indicates the presence of disease. Furthermore, the laboratory methods wont to measure the biomarker must be shown to be stable and reliable.

Having shown that the brains of individuals with Alzheimer's shrink significantly because the disease progresses, structural imaging research also has shown that shrinkage in specific brain regions like the hippocampus could also be an early sign of Alzheimer's.

However, scientists haven't yet prescribed standardized values for brain volume that might establish the importance of a selected amount of shrinkage for a person person at one point in time.

Functional imaging research suggests that those with Alzheimer's typically have reduced nerve cell activity in certain regions. for instance, studies with fluorodeoxyglucose (FDG)-PET indicate that Alzheimer's is usually related to reduced use of glucose (sugar) in brain areas important in memory, learning and problem-solving. However, like the shrinkage detected by structural imaging, there's not yet enough information to translate these general patterns of reduced activity into diagnostic information about individuals.

Even though amyloid plaques within the brain are a characteristic feature of Alzheimer's disease, their presence can't be wont to diagnose the disease. many of us have amyloid plaques within the brain but haven't any symptoms of cognitive decline or Alzheimer's. Because amyloid plaques can't be wont to diagnose Alzheimer's, amyloid imaging isn't recommended for routine use in patients suspected of getting the disease.

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