The role of early diagnosis in Alzheimer's disease treatment

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Several potential Alzheimer's disease (AD)-modifying drugs are currently in the stage of full development. Besides the intrinsic biological properties of the substance, the chance the clinical trials have to show their effectiveness, if any, mainly depends on i) the accuracy of AD diagnosis; ii) the early AD stage when they are tested; iii) the length of study; iv) the measures used to assess drug effect. Points i), ii), and iv) have the use of specific and accurate tools to measure AD, the so called 'biomarkers', in common. To date, the most robust of them include cerebrospinal fluid (CSF) biomarkers, such as total Tau, phophorilated Tau, and Aβ1-42 proteins, and imaging biomarkers, such as several modalities on Magnetic Resonance Imaging, ^{18}F-Fluorodeoxyglucose Positron Emission Tomography (PET), and amyloid PET with the new fluorinated tracers. To date, clinical application and validation of these 'core' biomarkers are ongoing, already with some 'surprise', or unexpected data.