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Strategies to prevent or delay Alzheimer's disease

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Despite the lack of newly approved medications for Alzheimer's disease over the past 15 years, significant advances have been made leading to optimism that delaying AD by 5-10 years is an achievable goal in the coming decade. Delaying AD by 10 years would eliminate the majority of cases. This presentation will describe current research efforts and the work to be done. Alzheimer's disease is characterized by pathological amyloid plaques and tau tangles. Several Amyloid PET tracers are already approved by the Food and Drug Administration and multiple tau tracers are currently being tested. Amyloid, tau, and other markers of neuronal injury can be measured in cerebrospinal fluid. A blood test is likely to be approved in the near future. Clinical drug trials routinely incorporate biomarkers. Multiple agents have shown target engagement, several require higher doses that are now understood to be safe with hints of greater efficacy in clinical outcomes. Biomarkers have allowed confirmation of prodromal cases and identification of presymptomatic cases. Earlier detection and intervention are more likely to preserve cognitive function and delay onset of dementia. Disease modifying strategies being tested include anti-amyloid, anti-tau, anti-inflammatory and metabolic agents. Most clinical trials target mild cognitive impairment and early AD, but a few target early symptomatic "subjective cognitive complaint", secondary prevention (biomarker positive presymptomatic), or even primary prevention (pre-amyloid deposition). This presentation will detail modifications in definition and staging of AD (presymptomatic, prodromal, and dementia), incorporation of biomarkers in clinical trials, progress towards biological diagnosis, and novel therapeutic targets.

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