Debate: is alpha-synuclein a useful biomarker in pd?
No

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Parkinson's disease (PD) is the second most frequent neurodegenerative disease, after Alzheimer's. As all neurodegenerative disorders, PD is characterized by aggregation of abnormal proteins, such as alpha-synuclein, in the form of Lewy bodies and Lewy neurites, which are also the pathological hallmarks of PD. Due to the long time course of pathological PD evolution before clinical symptoms onset, identification of biomarkers with high sensibility and specificity might allow earlier diagnosis and rethinking of neuroprotection clinical trials. Since according to Braak neuropathological staging alpha-synuclein aggregation is the first abnormality in CNS of PD patients, it makes sense to develop a method sensitive enough to detect alpha-synuclein early in disease progression. However, so far, in different studies exploring alpha-synuclein levels in blood, CSF, saliva and urine yielded interesting results, especially for the hyperphosphorylated form and extracellular vesicles species, but without clear specificity for PD. Alpha-synuclein was also found in skin and sympathetic nerve terminals in PD patients, but only a small number of patients were tested. An alpha-synuclein ligand for brain PET is not available yet and different research projects targeted such a development. In brief, alpha-synuclein cannot be used as a biomarker for early PD yet, but there is reasonable hope that further research will develop a method to help an earlier PD diagnosis.