

Salivary Alpha-synuclein proteins as potential biomarkers in
Parkinson's disease patients and their relation to disease severity
and progression

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Abstract

Parkinson's disease (PD) represents the second most common degenerative disease of the central nervous system (CNS). Due to the high level of misdiagnosis, there is strong need for a diagnostic biomarker for PD. Alpha-synuclein plays a critical role in the pathogenesis of PD. The close relation between the salivary glands and the CNS could render their secretions as a useful pool of biomarkers. **Aim of the work:** To investigate salivary total and oligomeric Alpha-synuclein proteins as potential biomarkers in PD patients and to correlate them with PD severity and cognitive functions. **Patients:** Twenty five patients with PD and fifteen age and sex matched healthy subjects, as a control group, were enrolled. **Methods:** A complete clinical examination and evaluation was performed using Unified Parkinson's Disease Rating Scale (UPDRS), Modified Hoehn and Yahr staging scale (MH&S) Beck Depression Inventory (BDI), Montreal Cognitive Assessment (MoCA) and Frontal Assessment Battery (FAB), Parkinson's Disease-Cognitive Rating Scale (PD-CRS). Samples of saliva were analyzed by specific antisyn and antioligomeric asyn ELISA kits. **Results:** There was a statistically significant difference in oligomer, total, and oligomer /total ratio of alpha synuclein level. There was a statistically significance difference in MOCA, FAB and PDCRS. There was a statistically significant positive correlation between oligomer-alpha synuclein level and disease duration and between years of education and PDCRS. **Conclusions:** Salivary alpha synuclein total and oligomer can be used as potential biomarkers for diagnosis of PD but have no role as biomarkers for disease severity or cognitive dysfunction in PD patients.

Keywords: Parkinson's disease, biomarkers, salivary alpha synuclein, PD severity, cognitive dysfunction.