



VO117 / #1084

VIRTUAL ORAL: THEME C: A-SYNUCLEINOPATHIES / C04.I. IMAGING, BIOMARKERS, DIAGNOSTICS: OTHER

SLOWER PROGRESSION OF DIGITAL ACOUSTIC SPEECH MEASURES IN EARLY PARKINSON'S DISEASE UNDER PRASINEZUMAB DURING THE FIRST 52 WEEKS OF THE PASADENA STUDY

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Aims: To evaluate the effect of prasinezumab on the progression of digital acoustic speech measures extracted from remotely collected speech data of early Parkinson's Disease (PD) patients in the PASADENA study.

Methods: 316 early-stage, drug-naive PD participants of the PASADENA Phase II study (NCT03100149) were remotely monitored with the Roche PD Mobile Application v2, including a speech test every other day. 18 uncorrelated acoustic features measuring speech duration, volume, prosody, articulation as well as voice quality were considered. Test-retest reliability was evaluated by intra-class correlations (ICC). In an exploratory analysis, treatment effect was assessed using linear mixed effects models fitted to each feature's change from baseline to week 52, censored for any symptomatic treatment, at significance level of $\alpha=5\%$. No correction for multiple comparisons was applied.

Results: All selected features evidenced good-to-excellent test-retest reliability (ICCs from 0.75-0.94). 5/18 features showed reduced progression slopes in the prasinezumab arm compared to placebo at nominal significance. Treated patients evidenced slower deterioration of speech duration ($p=.02$), peak speech harmonicity ($p=.04$), variability of speech harmonicity ($p=.03$), volume modulation in voiced speech ($p=.05$) and MFCC 1 variability ($p=.03$).

Conclusions: These preliminary findings suggest that prasinezumab might have a beneficial effect on acoustic properties of speech, which may not be captured by single MDS-UPDRS items. Further work is warranted to evaluate meaningful changes in digital speech features with and without pharmacological intervention. These results support the feasibility of digital measures to track progression of Parkinson's Disease in clinical trials in a sensitive and ecologically valid manner, providing unique insights into the progression of the disease and efficacy of interventions.