**Exploring the relationship between motor and non-motor fluctuations in Parkinson’s disease: patient’s perspective, clinician’ s assessment and objective measures from a wearable device.**

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**Objectives:** We aimed: 1) To evaluate the relationship between motor (MF) and non-motor (NMF) fluctuations in Parkinson’s disease measured with patient’s self-assessment, clinician’s evaluation and objective measurement using a wearable device. 2) To explore the relationship between MF, NMF and quality of life.

**Introduction:** MF and NMF fluctuations are difficult to recognize and might have a severe impact on quality of life.

**Methods:** We enrolled consecutive PD patients who presented at least motor fluctuations. Levodopa equivalent daily dose (LEDD) and LEDD dopamine-agonist (D-Ag LEDD) were calculated. MF and NMF assessment included: Wearing-Off Questionnaire (WOQ-19), Unified PD Rating Scale (UPDRS I-IV), Rusk Dyskinesia Rating Scale (RDRS). The Parkinson’s KinetiGraph™ (PKG®), an accelerometry-based system for automated assessment of dyskinesia and bradykinesia was employed. Non-motor symptoms scale (NMSS) and 39-item PD Questionnaire (PDQ-39) were administered.

**Results:** Fifty-six patients were included (37 males, age 60.4±6.5, disease duration 10.5±4.9), 100% self-reported MF, 83% had NMF as per WOQ-19. WOQ-19 motor and non-motor sub-scores were significantly associated (β-coef=0.4, 95%CI (0.2,0.6), p<0.0001). Multivariable regression analyses showed that D-Ag LEDD, UPDRS-III-OFF, UPDRS-IV and ‘percent time with fluctuation’ as per PKG were significantly associated with WOQ-19 motor sub-score. WOQ-19 non-motor sub-score was associated to UPDRS-III-OFF and NMSS. When classifying our patients according to ‘percent time with fluctuation’ PKG outcome, 50% had no MF, 25% had mild/moderate and 25% had severe MF. Patients without fluctuations had lower D-Ag LEDD, lower score at RDRS and WOQ-motor sub-scale (p<0.05). According to ‘percent time with dyskinesia’ PKG outcome, 55% of patients had no dyskinesia, 23% had mild and 22% had severe dyskinesia. Patients with no dyskinesia had lower D-Ag LEDD and RDRS score (p<0.05). Only WOQ-19 psychiatric fluctuation was significantly associated to PDQ-39.

**Discussion**

Our findings suggest that MF and NMF are related to each other but independently associated to specific clinical variables. NMF and specifically, psychiatric fluctuations, impact patient’s quality of life.