E-Poster

EP-775

Posturographic Anomalies in Parkinson's Disease: A Case Series of 30 Patients

Topic: Health Conditions (Nervous System, Musculoskeletal System, Cardiopulmonary System)

Oumaima Boulenouar, Abir Lemkadem, Douae EL Ouazzani, Ryme El Beloui, Hasnaa Boutalja, Nada Kyal, Fatima Lmidmani, Abdellatif El Fatimi

Physical Medicine and Rehabilitation, CHU Ibn Rochd, Casablanca, Morocco

BACKGROUND

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor symptoms such as bradykinesia, rigidity, tremor, and postural instability. Postural instability, in particular, is a significant contributor to falls and reduced quality of life in PD patients. Posturography, a quantitative assessment of balance and postural control, has emerged as a valuable tool for evaluating postural anomalies in neurological disorders.This study aims to: Investigate posturographic anomalies in 30 patients with Parkinson's disease. Identify specific posturographic parameters that correlate with disease severity and progression.

METHODS

This was a cross-sectional, observational study involving 30 patients diagnosed with idiopathic Parkinson's.

Inclusion criteria: Patients aged 40-75 years with a confirmed diagnosis of PD, Hoehn and Yahr stages 2-4, and stable medication regimens for at least four weeks.

Exclusion criteria: Patients with other neurological or orthopedic conditions affecting balance, severe cognitive impairment, or those unable to stand independently for testing.

Posturographic evaluation was performed using a force platform to measure the following parameters: Center of Pressure (CoP) displacement: Total path length, sway area, and velocity. Sway variability: Anteroposterior (AP) and mediolateral (ML) sway amplitudes and Spectral analysis: Frequency distribution of postural sway.

Disease severity was assessed using the Unified Parkinson's Disease Rating Scale (UPDRS). Balance confidence was measured using the Activities-specific Balance Confidence (ABC) scale and data were analyzed using SPSS software.

RESULTS

Demographic and Clinical Characteristics The study included 30 PD patients (18 males, 12 females) with a mean age of 63.5 ± 7.2 years.

Posturographic findings

CoP displacement: Patients exhibited significantly increased CoP path length ($p < 0.01$) and sway area ($p < 0.05$) compared to normative data. CoP velocity was higher in advanced stages compared to earlier stages ($p < 0.01$).

Sway variability: AP sway amplitude was significantly greater than ML sway amplitude ($p < 0.05$). Sway variability correlated positively with UPDRS motor scores ($r = 0.72$, $p < 0.01$).

Spectral analysis: Higher frequency components of postural sway were observed in PD patients, indicating increased postural instability.

Correlation with clinical parameters: CoP parameters (path length, sway area) showed strong positive correlations with UPDRS scores ($r = 0.68$, $p < 0.01$) and negative correlations with ABC scores ($r = -0.54$, $p < 0.05$).

CONCLUSION

This study highlights significant posturographic anomalies in Parkinson's disease, characterized by increased CoP displacement, greater AP sway variability, and higher frequency components of postural sway. These findings correlate with disease severity and progression, suggesting that posturography can serve as a valuable tool for objectively assessing postural instability in PD.

Statement of Disclosures

None

Doi: 10.5606/archisprm.2026.EP-775

Corresponding Author:
Oumaima Boulenouar
Physical Medicine and Rehabilitation, CHU Ibn Rochd, Casablanca, Morocco
Email: oumaima.bln@gmail.com