Oral Communication

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Telerehabilitation and Telemonitoring: Feasibility Study and Impact on Daily Physical Activity of the RAPIDO Project for People With Parkinson's Disease At Any Stage

Topic: Telerehabilitation

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BACKGROUND

Parkinson's disease (PD) is a progressive neurodegenerative disorder affecting millions of people worldwide, significantly impairing motor and non-motor functions. Effective disease management requires continuous monitoring, self-care, and targeted interventions to enhance patients' quality of life and functional independence. Telerehabilitation and continuous home monitoring seems a key factor on managing the complexity of PD.

The aim of our study was to investigate the feasibility and acceptability of an integrated telerehabilitation and telemonitoring system (RAPIDO) in individuals with PD at any disease stage. Secondarily, we assessed the impact of the proposed platform on motor and non-motor functions, quality of life and caregivers' burden.

METHODS

A multicenter prospective interventional study with six-month follow-up was performed. Subjects enrolled were monitored for three months through an integrated platform combining home-based physical exercises (3 times weekly, 45 minutes/session) and real-time data collection via smartwatch technology (24 hours/day, at least 5 days/week). The training program, adapted to patients' abilities, focused on postural alignment, strategies to overcome freezing, speech articulation, and compensatory postures for swallowing.

RESULTS

Ninety-nine people with PD were enrolled: 36 females and 59 males with a mean age of (67.7 ± 8.2) years completed the study. The mean adherence rate to the intervention was 75.6% with 68.4% of participants achieved ≥ 70% adherence. No significant sex- or disease-severity-related differences were found. Participants with higher education levels, greater perceived competence in technology use, and lower disability burden demonstrated greater engagement with the system. Key findings highlight high usability (SUS mean score: 76/100) and higher MoCA scores and greater perceived effort were associated with better perceived usability. Moreover, the compliance with smartwatch monitoring was excellent (81% usage rate), with advanced-stage patients being less likely to adhere. Over the three-month intervention, motor and motor symptoms as well as disability burden remained stable in most of the sample. Older age and lower perceived competence in technology-guided training were associated with functional decline (MDS-UPDRS II) and lower BMI and less overall mobility were significantly associated with a worsening of motor symptoms (MDS-UPDRS part III). Lastly, perceived health status significantly improved and was maintained up to six months post-intervention.

CONCLUSION

The RAPIDO system demonstrated high feasibility, safety, and effectiveness in promoting self-management, sustained physical activity, and improved quality of life in PD patients, emphasizing the importance of therapeutic patient education and remote monitoring technologies.

Statement of Disclosures

None

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