Rapido - one device two goals: rehabilitation and monitoring in patients with Parkinson's disease

Nicoló Baldini[1], E. Andrenelli[1], L. Pepa[2], L. Spalazzi[2], G. Bonardi[3], M. Tinazzi[3], M. Gandolfi[3], M. Capecci[1], M.G. Ceravolo[1], A. Antoniello[1], S. Valenti[1]

[1]Dipartimento di Medicina Sperimentale e Clinica, Università Politecnica delle Marche, Ancona, Italy
[2]Dipartimento di Ingegneria dell'Informazione, Università Politecnica delle Marche, Ancona, Italy
[3]Dipartimento di Neuroscienze, Biomedicina e Scienze del Movimento, Università di Verona, Verona, Italy

Introduction: Parkinson's disease (PD) is a chronic neurodegenerative disease resulting in progressive disability in activities of daily living (ADL) and social participation restrictions due to the evolution of both motor and non-motor symptoms. Rehabilitation has been demonstrated to reduce the progression of disability, but the access to specialized care is difficult. Remote continuous monitoring and tele-rehabilitation are viable options for the management of patients who require an ongoing, long-term approach, but few studies have investigated its effects [1-2]

Objectives: We aim to evaluate the acceptability and feasibility of an integrated telerehabilitation and telemonitoring system in patients with PD at any stage and further investigate the impact of the telerehabilitation and telemonitoring system on motor and non-motor function as well as on the quality of life and caregivers' burden.

Methods: This multicentre prospective interventional study tests the feasibility of continuous monitoring via smartwatch (24h/at least 5 days per week) and home-based training (3 times per week 45min/die) for 3 consecutive months by connecting via tablet to a web app. Aggregated information on daily motor activities, heart rate, stress levels and sleep details are recorded by the smartwatch. Outcome assessment is conducted at the beginning, at the end of the training (12-week) and after 6 months.

Results: The pilot testing on 5 patients showed that most subjects used the tablet correctly and efficiently, and the interaction with the healthcare professionals was satisfactory. In the long term, the physical activity level and the motor and non-motor symptoms remained stable.

Conclusions: We propose a system based on low-cost and widespread consumer devices that can improve the effectiveness, regularity, frequency and adherence to rehabilitation treatment in a monitored home environment.

References:
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