

## Home-based education and rehabilitation program and caregiver support on motor and nonmotor symptoms and quality of life in patients with Parkinson's disease

Marialuisa Gandolfi<sup>1,2,3</sup>, M. Tinazzi<sup>1</sup>, C. Geroin<sup>4</sup>, I.A. Di Vico<sup>1</sup>, M. Riello<sup>1</sup>, N. Smania<sup>1,2,3</sup>

<sup>1</sup>Department of Neurosciences, Biomedicine and Movement Sciences, University of Verona, Verona, Italy

<sup>2</sup>Neuromotor and Cognitive Rehabilitation Research Centre (CRRNC), University of Verona, Verona, Italy

<sup>3</sup>Neurorehabilitation Unit, AOUI Verona, Verona, Italy

<sup>4</sup>Department of Surgery, Dentistry, Pediatrics, and Gynecology, University of Verona, Verona, Italy

*Introduction:* Parkinson's disease (PD) is a progressive disabling condition affecting independence in activities of daily living with increased caregiver demands. Approximately 70% of patients suffer from severe gait and balance disturbances [1], and patients and family members are unprepared to cope with PD disability and progressive motor complications. Indeed, 65% of caregivers have a reduced level of knowledge about the disease and are unprepared for its management [2].

*Objective:* This observational study aimed to explore the effects of a home-based rehabilitation program and caregiver support on motor and nonmotor symptoms and quality of life in patients with Parkinson's Disease.

*Methods:* 200 patients with a clinical diagnosis of PD [3] attending the neurology unit's movement disorder outpatient service were consecutively enrolled ( $H\&Y \leq 4$ ). Patients underwent ten individualized home-based treatment sessions (60 minutes, two days/week, five weeks) in the presence of the caregiver in collaboration with the Unione Parkinsoniani (Verona) and the Cooperativa Sociale di Solidarietà Promozione Lavoro (Verona). Twelve frontal lectures were performed on the disabling symptoms of PD. At the enrollment, we collected demographics and clinical data. Before (T0) and at the end of rehabilitation (T1), validated outcomes were collected to evaluate motor and nonmotor symptoms, gait and balance, and quality of life.

*Results:* A total of 190 patients (mean age  $75.3 \pm 8.1$ ); male (60%); mean disease duration:  $8.7 \pm 6.6$ ;  $H\&Y = 2.4 \pm 0.8$ ) completed the study. 23.3% had camptocormia, 41.6% Pisa syndrome, and 21.1% anterocollo. After rehabilitation, there was a significant improvement in the freezing of gait, in the subitems of the UPDRS ADL and Motor scale, and in quality of life (for all,  $p < 0.001$ ). Gait and posturographic assessment ( $n=36$ ) showed no significant improvements in gait speed and stride length. All patients enjoyed the rehabilitation activities and reported improvements in mobility.

*Conclusions:* Empowering the patient (and the caregiver) about their illness can contribute to the self-management of symptoms by administering exercises that the patient can perform independently at home. The Fondazione Cariverona supports this study (Rif. 2018.0209).

### References:

[1] Ashburn, Stack, Ballinger, Fazakarley, & Fitton, 2008.

[2] Gultekin, Sarilar, Ekinici, Erturk, & Mirza, 2017.

[3] Postuma et al. 2015.