EFFECTS OF AN INNOVATIVE TELEREHABILITATION INTERVENTION FOR PEOPLE WITH PARKINSON: THE HUMAN EMPOWERMENT AGING AND DISABILITY PROGRAM

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OBJECTIVES

Parkinson's disease (PD) often leads to multi-factorial motor and cognitive disabilities with resultant social restrictions. The aim of this multicenter study was to test the efficacy of the Human Empowerment Aging and Disability (HEAD) program, in a sample of patients with PD.

METHOD

HEAD program is a multidimensional rehabilitation approach (motor, cognitive and dual-task activities hosted in a virtual reality environment incorporated in short video clips), managed through a digital-health platform (see Fig. 1), and administered in two consecutive phases:

(1) ClinicHEAD (12 sessions, 3 sessions/w, 1 h), a hospital-based rehabilitation program;

(2) HomeHEAD (60 sessions, 5 sessions/w, 45 minutes), a home-based telerehabilitation program after hospital discharge.

31 outpatients with PD were enrolled [mean age (SD)= 66.84 (9.13)]. All patients performed ClinicHEAD, and after allocation (ratio 1:3) PD patients were assigned to either a HomeHEAD or to a Usual Care group (UC). Motor, cognitive and behavioral outcome measures were assessed at enrollment (T0), at hospital discharge (T1), at 4 (T2) and 7 (T3) months after baseline (see Fig.2).

(see: ClinicalTrials.gov: NCT03025126)

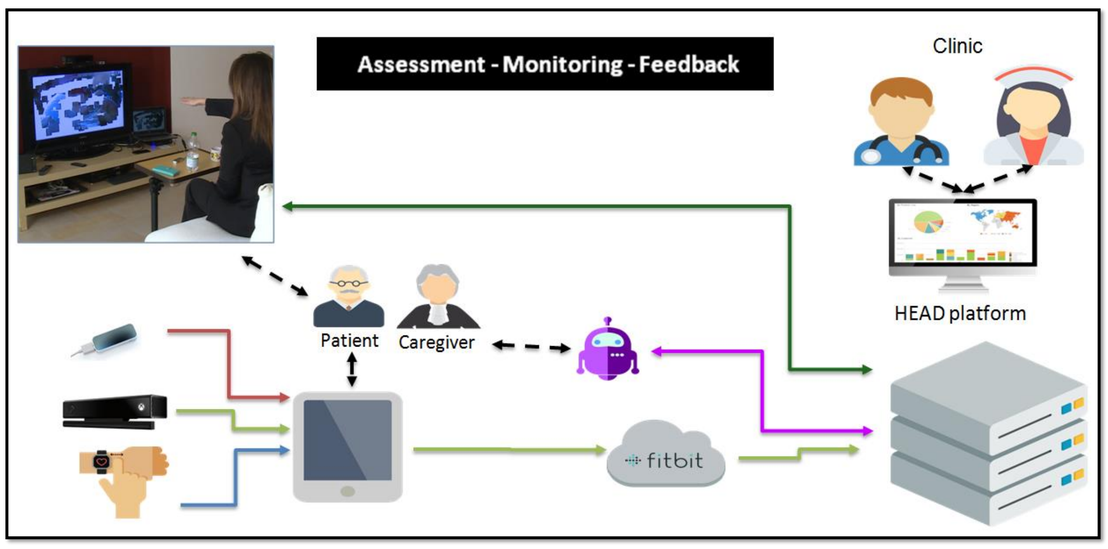

Figure 1. HEAD digital-health platform

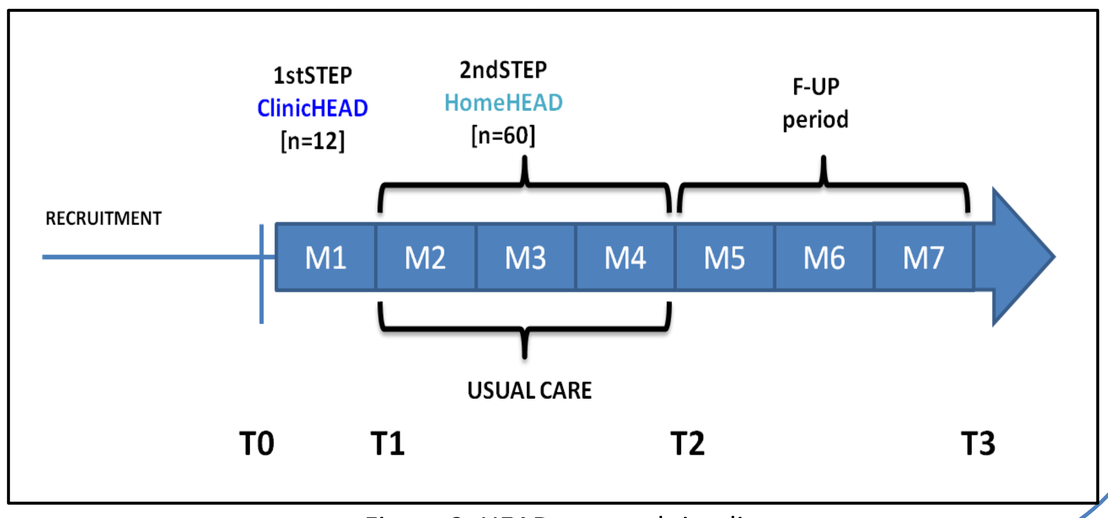

Figure 2. HEAD protocol timeline

RESULTS

(1) ClinicHEAD significantly improves motor, cognitive and mood domain (see Tab 1).

	BERG	MOTRICITY INDEX (RIGHT)	MOTRICITY INDEX (LEFT)	BOX and BLOCKS (RIGHT)	BOX and BLOCKS (LEFT)	2 MINUTES WALK	MoCA	RBMT	PANAS POSITIVE
Mean T0	48.667	91.274	91.210	41.484	41.742	131.233	21.943	84.483	33.484
Mean T1	50.433	93.807	94.113	46.387	44.807	140.300	22.878	92.103	36.323
t	2.027	2.032	2.440	4.680	2.836	2.261	2.139	2.868	3.648
p	.043	.042	.015	.000	.005	.024	.032	.000	.019

Table 1. Outcome measures changes after T1.

(2) HomeHEAD enhances functionality in upper limb (Box and Block – non-dominant: p=0.004).

At the follow-up UC group showed a worsening with respect to the HomeHEAD group in the balance (Berg Balance Scale, T3 *vs* T1: p=0.016) and in functional mobility (2 Minute Walk Test, T3 *vs* T1: p=0.006) (see Fig. 3).

A positive correlation between the treatment adherence and the Mental Health Score of the SF-12 Health Survey (r=0.709, p=0.019) was observed.

HEAD technology kit was judged as usable in clinic and at home.

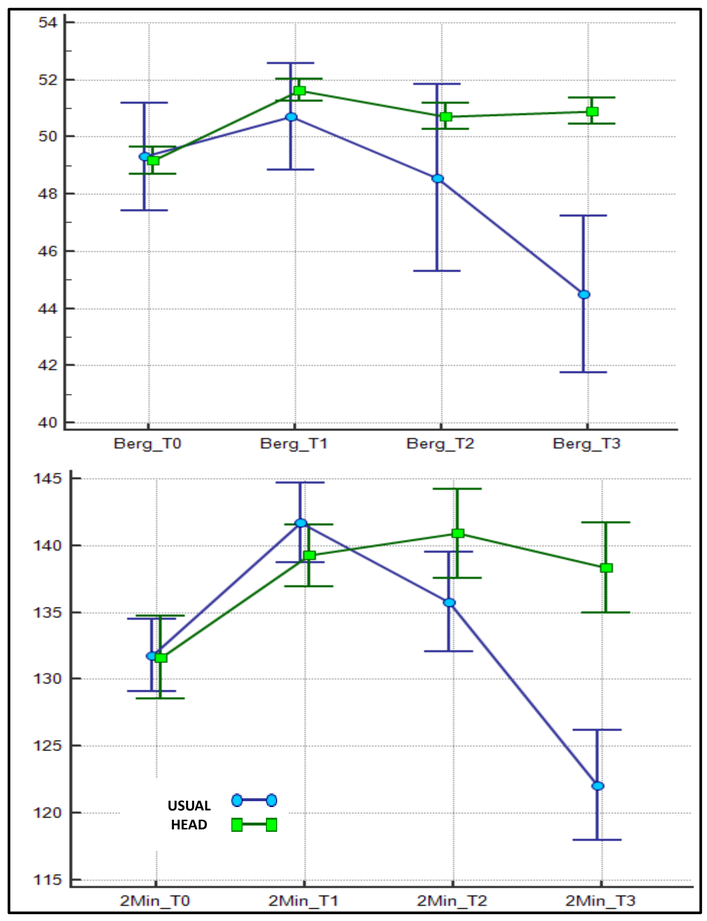

Figure 3. Berg and 2MWT results

CONCLUSIONS

ClinicHEAD program is effective in improving motor and cognitive symptoms in PD patients and contributes to enhance the positive affective state. **HomeHEAD** additionally increases motor functioning. The effects were substantially maintained at follow-up.