

Adapted motor activity with pleasant music in Parkinson's disease: a longitudinal study.

S. Tugnoli, G. Brugnoli, A. Abbasciano, G. Turatti, I. Casetta, S. Caracciolo, E. Granieri

Section of Neurological Psychiatric and Psychological Sciences, School of Medicine
University of Ferrara, Ferrara, Italy

INTRODUCTION

Previous studies suggest the relevance of the Adapted Motor Activity with Pleasant Music (AMAPM) in improving motor activities, in triggering positive emotions and in enhancing quality of life of patients suffering from Parkinson's disease (PD) (Fazio P. et al., 2005; Gastaldo et al., 2006; Granieri et al., 2011; Tugnoli et al., 2015). AMAPM may contribute to contain the degree of disability and may have a positive influence on cognitive functioning, promoting socialization and improving quality of patient's relationships, with significant positive outcomes on psychological wellness (Clair et al., 2012).

The goal of this study is to evaluate the evolution of cognitive functioning, functional integrity, psychological condition and quality of life in patients with idiopathic PD who followed a program of AMAPM for 12 months. The follow-up includes also the evaluation of the primary caregiver burden.

METHODS

Sixteen patients were assessed with specific rating scales in two subsequent sessions (t-zero, in January 2015, and t-12, in January 2016) in the following domains: cognitive functioning (MMSE), activities of daily living (UPDRS 2), motor activities (UPDRS 3), stage of disease (Hoehn and Yahr scale), patient ability to function (Schwab & England activities of daily living scale), psychiatric symptomatology (GHQ-28), depression (GDS), sleep disorders (PDSS-2), quality of life (PDQ-39) and caregiver burden (CBI).

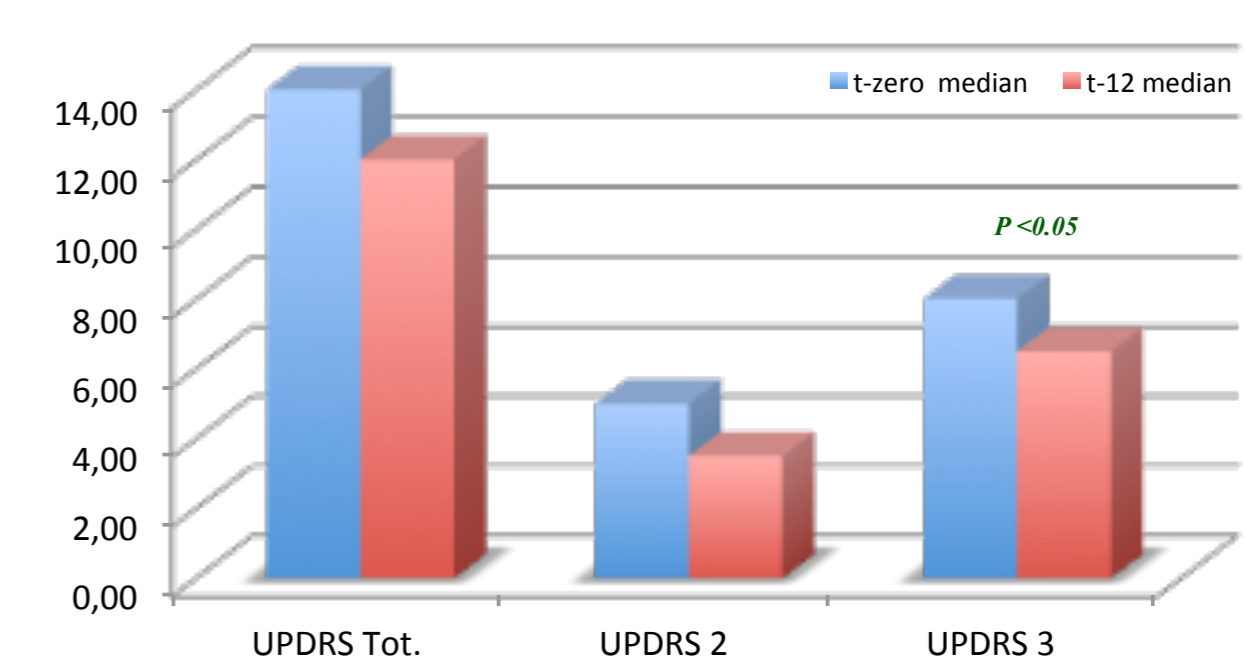
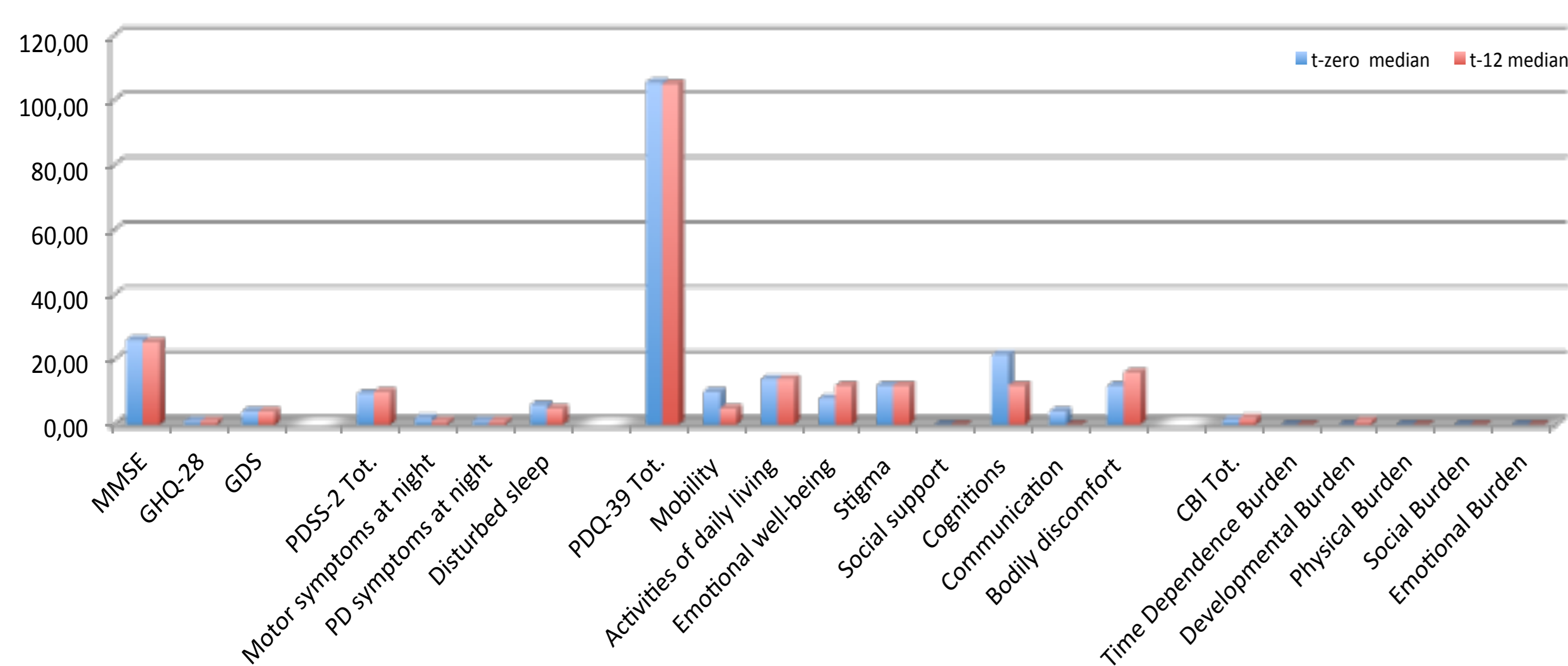
All the subjects were recruited among patients with diagnosis of Idiopathic PD with mild to moderate motor impairment, without significant cognitive impairment (MMSE \geq 21/30) and not very dependent (Schwab & England > 50%), evaluated in "ON" condition, not treated with Apomorphine or PEG. All parkinsonian syndromes were excluded.

Statistical analysis was performed with the comparison of medians using a non-parametric test (Wilcoxon-Mann-Whitney Test), given the small size of the sample studied.

RESULTS

The 16 patients (M/F: 10/6) had a mean age of 70 yrs (range: 60-79; s.d. 5,91), a mean education level of 9,94 yrs (range: 3-19; s.d. 5,61), and a mean duration of disease of 7,12 yrs (range: 2-18; s.d. 3,93).

At the first evaluation (t-zero) MMSE mean score was 25,94 (range: 22-29; s.d. 1,91), with a median of 26,00, a score that shows a good enough cognitive condition of the subjects studied. Also functional integrity is still quite well preserved (mean %: 90; median %: 90), and motor impairment, assessed with the Hoehn and Yahr scale, is not severe (mean: 1.2; median:1). Psychiatric symptoms and depression were not detected in the sample: only 1 subject (6,25% of the sample) scored 5 points at GHQ-28 (cut-off \geq 5) and no one reported a score over the GDS threshold (cut-off \geq 14).



No significant differences were observed, in the comparison of medians for all the variables considered, between the first evaluation (t-zero) and the follow-up assessment (t-12), except an improvement in motor activities (UPDRS III; $p < 0.05$).

CONCLUSIONS

Patients with Idiopathic PD show a substantial stability of their clinical condition after 12 months of AMAPM, with significant improvement in motor symptoms. There are no evidences of cognitive impairment, nor onset of psychiatric symptoms. Also the quality of sleep is satisfactory, without motor symptoms or PD symptoms at night. As a consequence, patients' quality of life doesn't get worse and caregivers' burden remains low. Taking into account that these findings should be confirmed in longitudinal studies with larger samples and with control groups, we may say that this study suggests two main considerations:

- 1) AMAPM might help to slow down the progression of PD and it might lead to an improvement of motor functions in not very severe patients with integrity of ADL.
- 2) AMAPM could contribute to preserve physical and psychological well-being, keeping an acceptable quality of life for the patient and for the primary caregivers.

References

- [1] Clair A.A., Lyons K.E., Hamburg J. A feasibility study of the effects of music and movement on physical function, quality of life, depression, and anxiety in patients with Parkinson disease. *Music and Medicine*. Vol.4(1), Jan 2012, pp. 49-55.
- [2] Fazio P., Brugnoli G., Iannuzziello M.G., Della Coletta E., De Vito A., Quatrale R., Da Ronch C., Gastaldo E., Granieri E. The efficacy of motor training with pleasant music in Parkinson's disease. *Neurol Sci* 2005; 26:S133.
- [3] Gastaldo E., Brugnoli G., Della Coletta E., Granieri G., Izzia G., Gregnagnin M., Fazio P., Da Ronch C., Sensi MC, Quatrale R., Tola MR, Granieri E. Music versus rhythmic stimulation in motor promotion in parkinson's disease. *Neurol Sci* 2006; 27:S17.
- [4] Granieri G., Fazio P., Groppo E., Simioni V., Brugnoli G., Nagliati C., Cesnik E., Casetta I., Granieri E. Adapted motor and emotional activity in parkinson's disease: effect on the motor performances and quality of life. XLII Congresso Società Italiana di Neurologia, Torino 22-25 ottobre 2011, [104] 124.
- [5] Tugnoli S., Abbasciano A., Marin S., Brugnoli G., Casetta I., Caracciolo S., Granieri E. Adapted motor activity with pleasant music in Parkinson's disease: a comparative study. *Neurol Sci* (2015) 36 (Suppl 2):S208.