

# STUDY ON THE CORRELATION AMONG TOTAL BURDEN OF NON-MOTOR SYMPTOMS AND CARDIOVASCULAR DYSMODULATION IN PARKINSON'S DISEASE PATIENTS

G. Coni<sup>1</sup>, P. Solla<sup>1</sup>, C. Cadeddu<sup>2</sup>, A. Cannas<sup>1</sup>, M. Meloni<sup>1</sup>, G. Orofino<sup>1</sup>, R. Farris<sup>1</sup>, C. Masala<sup>3</sup>, I. Cugusi<sup>4</sup>, G. Mercurio<sup>4</sup>, F. Marrosu<sup>1</sup>.

1. Department of Neurology, University of Cagliari

2. Department of Cardiology, University of Cagliari

3. Department of Biomedical Sciences, University of Cagliari

4. Department of Medical Sciences and Public Health, University of Cagliari

## Objective

The main objective of our study was directed to investigate the possible correlation among total burden of non-motor symptoms and cardiovascular dysmodulation in patients affected by Parkinson's disease (PD). In this regard, we performed a study of heart rate variability (HRV) and a systematic evaluation of non motor symptoms with the aim to investigate a possible correlation among these variables.

## Background

Although PD is usually considered as a movement disorder, non-motor symptoms, and among them cardiovascular dysautonomia, represent a frequent cause of disability in PD patients. To date, specific investigations aimed to correlate total burden of non-motor symptoms and cardiovascular dysmodulation have not been extensively carried-out.

## Methods

An HRV study was performed in 22 PD patients (11 male and 11 female patients) using a 24-hour ambulatory ECG recording which was performed in all the patients. Among the HRV spectral parameters in the frequency domain, the values of low frequency (LF) and high frequency (HF), were evaluated and expressed as normalised units (nu). The ratio of LF/HF power was also assessed. Motor impairment and disability were assessed using the UPDRS part-III and the Hoehn & Yahr staging. Total burden of non-motor symptoms was evaluated with the Non-motor symptoms scale (NMSS). Also specific non motor symptoms were investigated (Fatigue using the PFS, depression using the BDI scale).

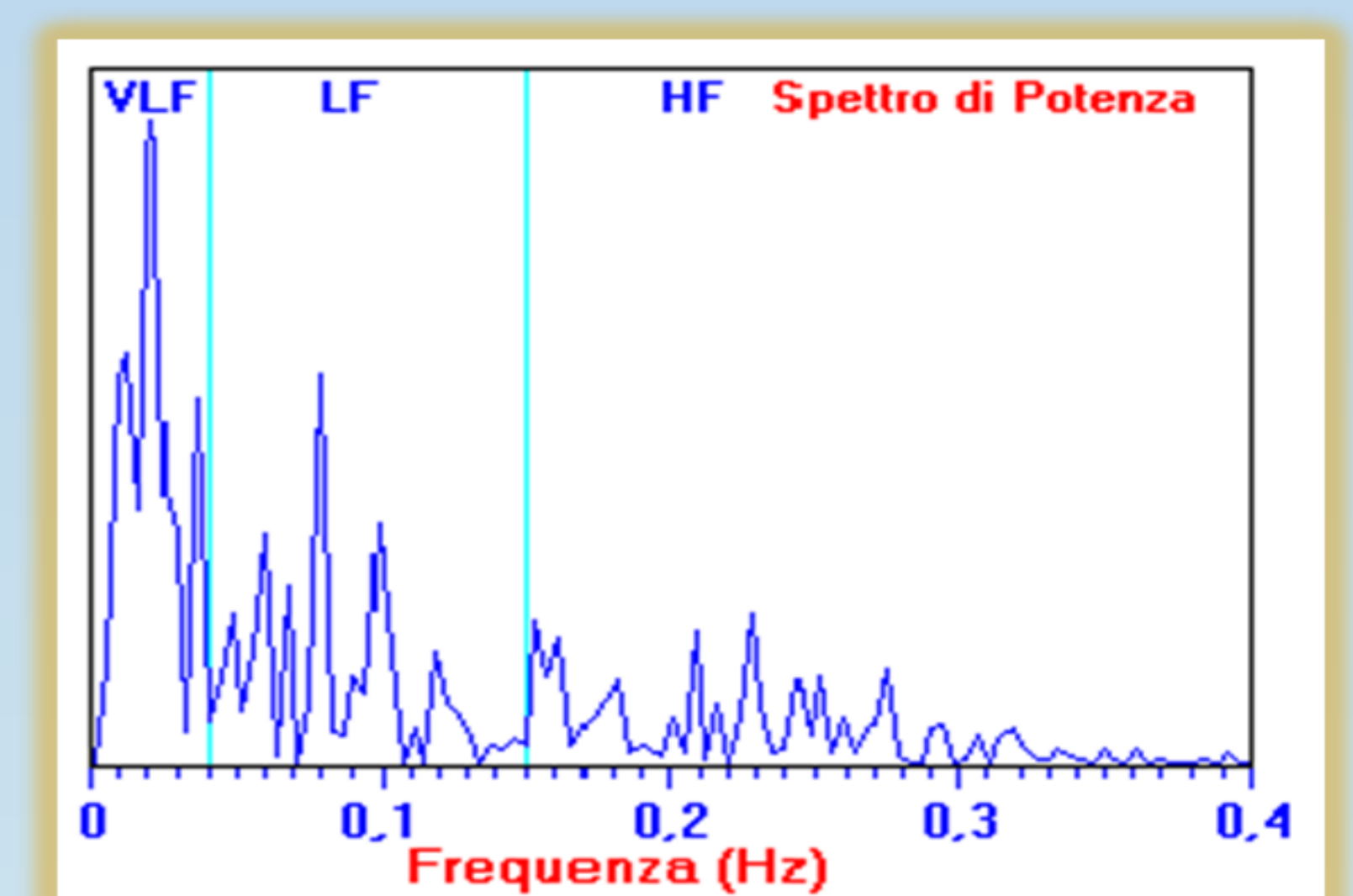


## Results

While LF and LF/HF ratio were not significantly correlated with total burden of non-motor burden, a significant correlation was found between HF values and total non-motor scores at NMSS ( $r: 0,20$ ;  $p: 0,03$ ). No significant differences were detected among studied specific non motor symptoms scales and HRV parameters in the 24 hours.

## Conclusions

We have identified the presence of a mild but significant correlation between HF values at HRV assessment and total burden of non-motor symptoms as registered at NMSS. This result might suggest a possible correlation among the involvement of parasympathetic dysmodulation and the total burden of non-motor symptoms in PD patients. However, no specific motor symptoms were correlated to cardiovascular dysmodulation.



## Bibliografia

- Haapaniemi TH, Pursiainen V, Korpelainen JT. Ambulatory ECG and analysis of heart rate variability in Parkinson's disease. J Neuro Neurosurg Psychiatry. 2001; 70(3):305-10.
- Jost WH. Autonomic dysfunctions in idiopathic Parkinson's disease. J Neurol. 2003; 1:I28-30.
- Mastrocola C, Vanacore N, Giovani A. Twenty-four-hour heart rate variability to assess autonomic function in Parkinson's disease. Acta Neurol Scand. 1999; 99(4):245-7.