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ABSTRACTS

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ABSTRACTS

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HEART RATE VARIABILITY SHOWS DIFFERENT PROFILE OF CARDIOVASCULAR DYSAUTONOMIA IN PARKINSON'S DISEASE PATIENTS WITH TREMOR DOMINANT COMPARED TO AKINETIC RIGID DOMINANT SUBTYPE

P. Solla[1], C. Cadeddu[2], A. Cannas[1], C. S. Mulas[1], M. Deidda[2], P. Bussareo[2], G. Mercuro[2], F. Marrosu[1]

[1]Department of Neurology, University of Cagliari (Cagliari); [2]Department of Medical Sciences "Mario Aresu", University of Cagliari (Cagliari)

Background: Parkinson's disease (PD) can present with different subtypes of motor impairment according to the predominant symptoms (tremor or rigidity/bradykinesia) which often evolved with a different clinical course. Tremor-dominant patients show a slower progress of the disease and less cognitive decline, while neuroimaging and pathologic findings describe a more favorable outcome in tremor-dominant patients than in akinetic-rigid subjects. Autonomic cardiovascular disorders have been associated with variable manifestations in patients affected by PD, although it is not clear the definite correlations with differents subtypes of PD. In this context, analysis of Heart Rate Variability (HRV) represents a not invasive and established tool in assessing cardiovascular autonomic dysfunction.

Objective: To investigate cardiovascular autonomic function in PD patients with tremor dominant subtype in comparison to akinetic rigid dominant subtype, and compared with normal subjects using HRV analysis.

Methods: Twenty-eight consecutive PD patients (17 with tremor dominant subtype and 11 with akinetic rigid dominant subtype) were enrolled and compared to seventeen age and sex-matched healthy controls. ECG 24-h recordings were performed in all subjects at the same time with a digital three-channel recorder. An autoregressive model was used to estimate the power-spectrum densities of HR variability. The following parameters were assessed: standard deviation of RR intervals (SDNN), root mean square of the successive differences of RR intervals (RMSSD), total power (TP), low frequency power (LF), high frequency power (HF).

Results: We found that LF values were significantly lower in the akinetic rigid dominant subtype than in the control tremor dominant group [LF 41.4 ± 13.6 versus 55.5 ± 11.6 ($p< 0.007$)], indicating a more evident impairment of the baroreflex modulation of the autonomic outflow mediated by both sympathetic and parasympathetic systems in the first class of patients.

Discussion: In PD patients two different clinical phenotypes are commonly described a tremor dominant subtype and an akinetic-rigid subtype. Our findings showed a significant alteration in autonomic parameters in PD patients with akinetic rigid dominant compared to tremor dominant subtype.

Conclusions: These findings support the biological relevance of clinical subtypes supporting the idea of a different stage of progression between these entities. These alterations are not only important for a better classification between PD patients, but also suggest that different subtypes may also result in different responses to therapy with the possible development of distinct cardiovascular side effects of dopaminergic drugs in these different populations.

HIGH-DOSE THIAMINE AND PARKINSON DISEASE

R. Fancellu[1], C. Serrati[1], F. Salvatore[2], F. Ercoli[2], E. Sega[2], S. Tonetti[2], D. Amuto[2], G. Graziotti[2], M. Pala[2], A. Costantini[2]

[1]Unit of Neurology, IRCCS AOU San Martino IST (Genova); [2]Department of Neurological Rehabilitation, Villa Immacolata Hospital (Viterbo)

Objectives: Thiamine is a cofactor of fundamental enzymes of energetic cellular metabolism; its deficiency causes disorders in peripheral and central nervous system. The role of thiamine has been described in Parkinson disease (PD): low thiamine levels in cerebrospinal fluid and reduced activity of thiamine-regulated enzymes in substantia nigra have been reported in PD patients. In a previous paper, we described improvement of fatigue and motor symptoms after intramuscular injection of thiamine in 3 PD patients not treated with antiparkinsonian drugs. The aim of our present study was to analyze the potential symptomatic effect of long-term treatment with thiamine in PD.

Materials and Methods: From June 2012 we recruited 60 PD patients; 3 subjects were newly diagnosed and drug-naïve patients, while the other 57 patients were in treatment with dopaminergic drugs. The patients were assessed at baseline, after one month and then every three months with Unified Parkinson Disease Rating Scale (UPDRS) and Fatigue Severity Scale (FSS); they started to be continuously treated with i.m. 100 mg of thiamine twice a week, without any change to personal therapy.

Results: Basal levels of plasma thiamine were normal. Thirty-three patients were re-assessed after one and three months; the re-assessment of the remaining 27 patients is scheduled in the next months. Thiamine treatment led to significant improvement of motor symptoms of the 33 re-assessed patients: mean UPDRS scores (parts I-IV) improved from 40.8±15.7 to 18.9±16.9 ($p<0.000001$, t-test for paired data) within 3 months and remained stable during time. Also FSS scores improved from 53.0±8.2 to 23.6±7.8 ($p<0.0001$, t-test for paired data). None patient increased L-dopa daily dosage.

Discussion: Long-term and continuous administration of thiamine was effective in improving motor and non-motor symptomatology in PD patients. This clinical improvement was stable during follow-up in all the patients; the 3 drug-naïve patients had complete clinical recovery, without necessity of dopaminergic therapy. We hypothesize that a focal, severe thiamine deficiency due to a dysfunction of thiamine metabolism could cause a selective neuronal damage in the cerebral areas involved in PD and that high doses of thiamine improve the energetic metabolism of surviving dopaminergic cells, leading to increased synthesis of endogenous dopamine and better utilization of exogenous levodopa.

Conclusions: Thiamine could have restorative and neuroprotective action in PD. Further studies are necessary to investigate the role of thiamine in basal ganglia, in particular whether the dysfunction of thiamine-dependent processes might be a primary pathogenic pathway in PD.

LOW-PROTEINS DIET INFLUENCES ELECTROGASTROGRAPHIC ACTIVITY IN PARKINSON'S DISEASE

G. Albani[1], N. El Assawy[1], L. Cattani[2], M. Mallone[2], A. Mauro[3]

[1]Department of Neurosciences, Istituto Auxologico Italiano, IRCCS (Piancavallo-VB); [2]Departement of Nutritional Rehabilitation, Istituto Auxologico Italiano, IRCCS (Piancavallo-VB); [3]Department of Neurosciences, University of Turin (Torino)

Objective: The aim of our study is to evaluate the effect of a low-proteins diet on gastric myoelectrical activity in Parkinson's disease (PD).

Background: Prandial gastric motility is altered in PD, with a delayed time of gastric emptying in 55%-100% of patients (1) and associated postprandial bloating, abdominal discomfort, early satiety, and nausea. Electrogastrography (EGG) in PD is characterized by a pattern of gastric dysritmia with a stronger slow activity in the range 0.1-2 cpm (bradigastric activity) in the after- meal acquisitions (2), while with a dominant frequency in the range of normogastria (2-4 cpm), at rest(3).

Methods: Subjects: Fifteen PD patients and 10 healthy subjects were enrolled according to these exclusion criteria: 1) BMI <30 2) history of any pathologies of the esophagus or stomach 3) use of medications that may influence gastrointestinal motor function. EGG: Three surphace electrodes were placed on subject's abdomen according to the Brown model. The EGG signal were recorded using AD instrument Power Lab sampled at 200 Hz; low pass filter was 0.083 Hz; high pass filter was 1 Hz. The session includes a basal and a postprandial recording of 30 minutes duration each one. Spectral analysis were performed and data analyzed for dominant frequency, Ratio Total power/dominant frequency, EGG power distribution according to Koch technique com-