P54

Assessment of cardiovascular dysautonomia in GBA-associated Parkinson's disease

Tiziana De Santis[1], L. Bresciani[2], A. Cocco[1], P. Amami[1], A. Albanese [1,2]

[1]IRCCS Humanitas Research Hospital, Rozzano, Milano, Italy
[2]Humanitas University, Pieve Emanuele, Milano, Italy

We aimed to assess whether the prevalence of cardiovascular dysautonomia is higher in Parkinson's disease (PD) patients carrying heterozygous β-glucocerebrosidase (GBA) mutations compared to non-mutated PD (NM-PD) patients and to establish the relative involvement of the sympathetic or parasympathetic cardiac autonomic branches. GBA mutations are the most common genetic risk factor predisposing to PD. PD patients carrying GBA mutations (GBA-PD) present with several non-motor features, including cognitive decline, depression, anxiety, hallucinations, REM sleep behavior disorder (RBD) and dysautonomia [1, 2]. Cardiovascular dysautonomia is one of the most disabling manifestations of autonomic dysfunction. An increased prevalence of cardiovascular dysautonomia in GBA-PD patients has been suggested by studies based on clinical questionnaires or clinical rating scales. These data need to be confirmed via clinical laboratory testing.
Thirty-four patients with clinically definite PD were included in the study: one group encompassed 17 GBA-PD patients, the other one 17 non-mutated PD patients (NM-PD). The two groups were matched for sex, age at onset, disease duration and total levodopa equivalent daily dose (LEDD). All patients underwent a standard laboratory assessment to evaluate the cardiovascular autonomic function: head-up tilt test, isometric hand grip and the Valsalva overshoot allowed to assess cardiac sympathetic function; the cold test, deep breathing and the Valsalva ratio were used to evaluate cardiac parasympathetic function. Between group comparisons were performed by the Fisher's exact test for categorical variables and by the Mann Whitney test for continuous variables. The statistical level was set at $p < 0.05$.
There were no between-group statistical differences either in tests of sympathetic or of parasympathetic function. GBA-PD patients presented a tendency to higher prevalence of pathological responses compared to NM-PD patients in all tests assessing cardiac sympathetic function. These data are considered preliminary, as we are continuing to recruit patients. They do not suggest a difference between the GBA-PD group and the wild-type NM-PD group.

References

[1] K Brockmann, K Srulijes, AK Hauser *et al.* GBA-associated PD presents with nonmotor characteristics. *Neurology*. 2011 77: 276-280.
[2] S Jesus, I Huertas, I Bernal-Bernal *et al.* GBA Variants Influence Motor and Non-Motor Features of Parkinson's Disease. *PLoS One*. 2016 11: e0167749.