

## Incidence of vascular brain damage in a population with Parkinson Disease: a clinical statistic study in comparison with a control group of patients afferent to neurological movement disorder outpatients clinic

*Flora Zarola*

(ASL) district H2, clinic for the diagnosis and treatment of Parkinson's Disease and Related Disorders, Albano Laziale (Rome), Italy

A group of 54 defined Parkinson's disease diagnosed patients was taken in charge in a movement disorder outpatients clinic among a population of others affected by different degenerative or developed diseases. The Parkinson's disease (PD) patients came both already previously diagnosed in other clinical centers, or firstly diagnosed. The age range was 52-94 yrs, mean 73.1, 27 males and 27 females; the population included people defined as 'young' PD. All of them performed, in the whole diagnostic tests, vascular investigation, including brain TC and/or RM. Particularly, 75.92% showed signs of brain vascular damage, ranging from small spots or leukoharaiosis, to more severe diffuse vascular infarcts. The aim was to exactly evaluate if there was some linkage between these findings, i.e. to exclude that these observations were to ascribe to random and extensive incidence of vascular brain suffering in a certain population; in fact, it was remarkable that even in 'young' idiopathic PD these signs were observed. Therefore, in order to perform a statistic analysis, the author decided to compare with  $X^2$  test the PD group to the population affected by other diseases, which underwent for other reasons to brain TC or RM investigation. This population was composed by 101 individuals, age range of 17-90 yrs, mean 73.1, males 46, females 55. Note that this reference group was mainly composed by people comparable in age to the PD group, being only one subject aged 17 (postural tremor), and being most of them in the senior age range of other movement disorders. The main age frequency

of PD patients was 69 (7), the one of comparison group was 70/71 (14). The  $X^2$  test showed a significant difference in the incidence of brain cerebrovascular damage between the PD group and the control designed group, with a  $p=0.028523$  ( $X^2=4.7962$ ). Thereafter a  $X^2$  comparison was performed between the idiopathic PD group and a group of diagnosed 'vascular parkinsonism', composed by 17 individuals, age range 54 to 88, mean 75.64, major frequency age 83 and 87; the percentage of brain vascular damage is obviously assumed 100%, as compelled by disease definition. The  $p$  was =  $0.020465$  ( $X^2 = 5.3718$ ). We think that these results are of great interest. In fact, the clinical observation that there is a high incidence of slight or even more severe signs of brain vascular damage in patients diagnosed as idiopathic or 'sporadic' PD disease, in the greater part of cases clinically negligible and/or unaware, took us to explore the possible correlation between vascular, mostly 'silent' brain suffering and CNS degenerative disorders such as PD; this hypothesis is supported in addition by the increasing population incidence of PD in time, which is commonly attributed to increased mean age of life (but we know that increased mean age corresponds to increased vascular atherosclerosis). On the other hand, the idea was also suggested by the frequent finding of serious signs of cerebral vascular insults even in 'young', not genetic PD patients. In effect statistic evaluation lead us to see a positive linkage between these multiform signs of brain damage and PD in this group of patients. More investigations are

running with the aim to speculate about the role of brain vascular system in degenerative PD, and eventually understand if it is correct to clear cut distinguish some disease categories (i.e. PDI vs VP).

## References

1. Peters S, Elsin EG, Pruzuntek H, Muller T. Vascular Parkinsonism: a case report and review of the literature. *Journal of Clinical Neuroscience* 2001; 8(3): 268-27.
2. Critchley M, Arteriosclerotic parkinsonism. *Brain* 1929; 52: 23-83.
3. Reider-Groswasser I, Bornstein NM, Korczyn AD. Parkinsonian in patients with lacunar infarcts of the basal ganglia. *Eur Neurol* 1995; 35: 36-45.
4. Van Zagten M, Lodder J, Kessels F. Gait Disorder and Parkinsonian Signs in Patients with Stroke related to small deep infarcts and white matter lesions. *Movement Disorder* 1998; 13: 89-95.
5. Mark MH, Sage JI, Walters AS, Duvoisin RC, Miller DC. Biswanger's Disease presenting as Levodopa responsive Parkinsonism: clinical pathologic study of tricas. *Movement Disorder* 1995; 10: 450-4.
6. Castri P, Busceti C, Battaglia G, Girardi F, Cavallari M, Orzi F, Fornai F. Protection by apomorphine in two independent models of acute inhibition of oxidative metabolism in rodents. *Clinical and experimental hypertension* 2006; 28: 387-94.

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Received: 2 December 2015

Accepted: 7 January 2016

Correspondance:

Flora Zarola MD, PhD

(ASL) district H2, clinic for the diagnosis and treatment of Parkinson's Disease and Related Disorders

Via Gallerie di Sotto, 6

0004 - Albano Laziale (Rome), Italy

Tel. +393358290151

Fax +390693275362

E-mail: [florazarola@libero.it](mailto:florazarola@libero.it); [florazarola@hotmail.it](mailto:florazarola@hotmail.it)