

## Cerebrovascular disease associated with Parkinson's disease in Moldovan cohort study: preliminary results

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### Abstract

**Background:** Parkinson's disease (PD) is frequently associated with brain vascular lesions (BVLs). Studies suggest that the latter may influence the severity of the disease.

**Material and methods:** BVLs on MRI were determined in 78.4% of 111 consecutive PD patients (mean age  $64.87 \pm 7.69$  y.o.; disease duration  $50.21 \pm 38.61$  mo.; 48 women (43.2%), 63 men (56.8%)).

**Results:** White matter lesions were present in 73 patients (pts.) (65.77%): 61 pts. (54.95%) – deep white matter, 46 pts. (41.44%) – periventricular white matter, and 41 pts. (36.94%) – both locations. Lacunes were determined in 19 pts. (17.12%), cerebral fissures deepening – 52 pts. (46.85) %, perivascular spaces dilation – 34 pts. (30.63%), ventricular system dilation – 29 pts. (26.13%). Patients with and without BVLs had similar ages ( $65.43 \pm 7.64$  vs  $61.01 \pm 7.64$ ), ages at PD onset ( $60.95 \pm 8.09$  vs  $56.01 \pm 8.59$ ) and disease duration ( $49.98 \pm 36.76$  vs  $60.01 \pm 52.31$ ). They had insignificantly higher Beck ( $7.26 \pm 5.62$  vs  $6.86 \pm 4.34$ ), PDQ3<sub>(Parkinson's Disease Questionnaire)</sub> ( $59.71 \pm 20.38$  vs  $51.94 \pm 27.69$ ) and NMS<sub>(Non Motor Symptoms)</sub> ( $75.06 \pm 45.21$  vs  $71.67 \pm 26.35$ ) scores; and lower MoCA<sub>(Montreal Cognitive Assessment)</sub> scores ( $21.92 \pm 4.25$  vs  $22.38 \pm 4.57$ ). QRISK3 scores ( $19.68 \pm 16.16$  vs  $12.90 \pm 6.58$ ) and levodopa equivalent daily dose ( $639.98 \pm 223.05$  vs  $439.69 \pm 404.87$ ) were significantly higher in patients with BVLs.

**Conclusions:** Brain vascular lesions were common in our PD patients, and were associated with higher QRISK3 scores, as well as with higher levodopa equivalent daily dose, suggesting more disease severity.

**Key words:** Parkinson's disease, brain vascular lesions, magnetic resonance imaging.

## Vascular risk factors in patients with Parkinson's disease. Motor and cognitive aspects

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### Abstract

**Background:** Vascular risk factors (VRFs) are common in Parkinson's disease (PD) patients. Studies suggest the association of VRFs with motor severity and cognitive decline in PD.

**Material and methods:** In 111 consecutive PD patients (mean age  $64.87 \pm 7.69$  y.o.; disease duration  $50.21 \pm 38.61$  mo.; 48 women (43.2%), 63 men (56.8%)) VRFs were assessed by QRISK3<sub>scale</sub>.

**Results:** VRFs were present in 106 (95.5%) patients: HBP<sub>(High Blood Pressure)</sub> – 74 pts. (66.7%), dyslipidemia – 36 pts. (32.4%), DM<sub>(Diabetes Mellitus)</sub> – 20 pts. (18.0%), previous stroke – 14 pts. (12.6%), atrial fibrillation – 12 pts. (10.8%), smoking – 32 pts. (28.8%). Mean VRFs number per patient was  $2.62 \pm 1.39$ . PD onset age ( $60.44 \pm 8.11$  vs  $60.80 \pm 12.79$ ) and disease duration ( $50.54 \pm 38.74$  vs  $43.20 \pm 39.44$ ) were similar in groups. PD+VRFs patients had higher UPDRS<sub>on</sub> ( $36.11 \pm 12.19$  vs  $20.00 \pm 6.98$ ,  $p = 0.011$ ) and akinesia-rigidity scores ( $0.75 \pm 0.61$  vs  $0.38 \pm 0.13$ ,  $p = 0.001$ ). PDQ39<sub>(Parkinson's Disease Questionnaire)</sub> ( $54.41 \pm 27.67$  vs  $41.25 \pm 20.16$ ,  $p > 0.05$ ) were higher, and MoCA<sub>(Montreal Cognitive Assessment)</sub> scores ( $21.64 \pm 4.32$  vs  $22.60 \pm 3.29$ ) lower. Significant differences were found for MoCA<sub>naming</sub> ( $2.79 \pm 0.41$  vs  $3.00 \pm 0.00$ ,  $p = 0.001$ ), MoCA<sub>abstracting</sub> ( $1.46 \pm 0.67$  vs  $2.0 \pm 0.01$ ,  $p = 0.001$ ) and MoCA<sub>orientation</sub> ( $5.58 \pm 0.99$  vs  $6.00 \pm 0.01$ ,  $p = 0.004$ ) subscores.

**Conclusions:** The frequency of vascular risk factors was high in our PD patients, the most common being HBP. Their presence was associated with motor severity and changes in specific cognitive subscores.

**Key words:** Parkinson's disease, vascular risk factors, MoCA test.