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WFN15-1120

Movement Disorders 1**Prevalence, recognition and treatment of parkinsonism, dementia and depression in the assisted living population of Slovakia**

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Background: Cognitive decline, Parkinsonism and depression are frequent accompaniments of aging. Prevalence of these disorders rises together with age. Among residents of assisted living facilities there is presumption of higher occurrence of these disorders.

Objective: To obtain a direct estimate of the prevalence of dementia, Parkinsonism and depression among residents of assisted living facilities in Slovakia and their rates of recognition and treatment, we carried out this study.

Patients and methods: 821 people living in assisted living facilities (mean age 75.9 years) were examined in order to review the occurrence of parkinsonism, cognitive deficit and depression. Patients were evaluated by neurologists professionally focused on movement disorders and dementias. We have obtained patient and/or Institutional Review Board (IRB) approval, as necessary.

Results: Out of the total there were 113 residents (13%) with Parkinsonism. 73.5% of Parkinsonian patients (83) suffered from dementia and 59% of these patients suffered from depression. The most frequent cause of Parkinsonism was Parkinson disease, (67 patients, 59.2%), followed by vascular Parkinsonism, (46 patients, 40.7%), Lewy body disease, drug induced Parkinsonism, frontotemporal dementia with Parkinsonism and Fahr disease. Only 51% of these patients were admitted in the assisted living facility with the diagnosis of Parkinsonism. Only 55% of Parkinsonian patients were treated with anti-Parkinson medications.

Conclusion: Parkinsonism is significantly under-diagnosed and under-treated in assisted living facilities setting. This finding emphasizes the need for accurate detection and treatment of movement disorders also in assisted living facilities and nursing homes.

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Movement Disorders 1**Dysfunctional motor and cognitive networks in Parkinson's disease detected by resting state fMRI**

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Objective: The impact of dopaminergic treatment on motor and cognitive networks in Parkinson's Disease (PD) is not fully understood. In our study we focused on brain connectivity change derived from low frequency fluctuations of the blood oxygenation level-dependent signal. We used eigenvector centrality (EC) mapping which automatically detects all brain areas serving as strong communication hubs.

Participants and methods: Twenty-nine PD patients (aged 64.7 ± (SD) 8.0 years, PD duration 11.0 ± 3.6 years) were assessed with the Unified Parkinson's disease rating scale motor score (UPDRS-III) and the Montreal Cognitive Assessment (MoCA). Patients were instructed to watch a cross while lying motionless in the supine position for 10 min during 3 T-fMRI acquisition in off and on medication states. The EC analysis was conducted with Lipsia software (Leipzig,

Germany). The 2nd level analysis of general connectivity was based on voxel-wise correlations of the EC maps with the UPDRS-III and MoCA, respectively ($P < 0.05$ corrected).

Results: The UPDRS-III score positively correlated with the EC values in the premotor, primary sensorimotor and associative parietal cortices bilaterally regardless of medication state ($r = 0.83$, $P < 0.001$). In addition, the EC value correlated positively with the MoCA score in the right prefrontal cortex ($r = 0.66$, $P < 0.001$) only in the off medication state.

Conclusions: Our data driven approach enabled an automatic separation of resting state networks of PD patients into motor and cognitive domains. While the motor network showed increased global connectivity with the worsening of motor symptoms, the lower global connectivity of the frontal cognitive network potentially limited cognitive performance. Supported by IGA-NT12282-5-2011; PRVOUK-P26/LF1/4.

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Movement Disorders 1**Anxiety and salivary cortisol changes in Parkinson's disease are related to global connectivity of the ventromedial prefrontal network**

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Objective: Anxiety and chronic stress are common symptoms of Parkinson's disease (PD) influencing the quality of life. To identify brain regions associated with these symptoms we compared resting brain connectivity to actual anxiety and to the cortisol awakening response.

Participants and methods: Using the resting state-fMRI (3 T, TR = 2 s, 300 scans) we analyzed spontaneous low frequency blood oxygenation-level dependent signal fluctuations in 25 PD patients ($66.7 \pm (SD) 7.4$ years) in their OFF and ON medication states. The State-Trait Anxiety Inventory (STAI) was used to assess the severity of anxiety immediately before each fMRI session. Cortisol salivary levels were measured at awakening and 30, 60 and 90 min later. We calculated the area under the curve with respect to the ground (AUC_G). To evaluate brain connectivity we used Eigenvector centrality (EC) mapping, which automatically detects all brain areas serving as strong communication hubs.

Results: The STAI state anxiety increased during OFF compared to ON condition ($p < 0.01$) and positively correlated with the EC values in the dorsal part of the right ventromedial prefrontal cortex (VMPFC) and in both caudates ($P < 0.05$ corrected). Cortisol salivary levels did not change significantly between the sessions, however, the AUC_G showed a negative correlation with EC values in the ventral part of the VMPFC.

Conclusions: The state anxiety and the cortisol awakening response during OFF and ON sessions are accompanied by inverse changes of the functional connectivity in the distinct regions of the VMPFC network. Supported by IGA-NT12282-5-2011; PRVOUK-P26/LF1/4.

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