

**The role of impulse control disorders in predicting dimensions of cardiac interoception in Parkinson's disease**

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*Introduction:* So far, research underlined alterations of insular related networks, and of internal signals perception (i.e. interoception) in Parkinson's disease (PD). However, how emotional, and behavioral symptoms, as compulsive conducts, are related to multidimensional levels of interoceptive processing is still opaque.

*Objective:* The present study aimed at exploring the possible role of impulse control behaviours, anxiety, depression and demographic and clinical aspects (i.e. age, gender, disease duration, Levodopa Equivalent Daily Dose, (LEDD), severity of motor symptoms) on multiple dimensions of interoception in PD.

*Methods:* Fifty non-demented PD patients completed tasks assessing multiple dimensions of cardiac interoception (i.e. cardiac interoceptive accuracy, subjective sensibility, and metacognitive awareness). The Montreal Cognitive Assessment assessing global functioning and questionnaires assessing impulse control disorders (ICDs, by the Questionnaire for Impulsive-Compulsive Disorders in Parkinson's Disease- Rating Scales, QUIP-RS), anxiety (by the Hamilton Anxiety Rating Scale, HAM-A), and depression (by the Hamilton Depression Rating Scale, HDRS) were administered.

*Results:* Results of the multiple linear regressions showed that ICD severity positively predicted both cardiac interoceptive accuracy ( $\beta = .43$ ;  $t = 2.77$ ;  $p = .009$ ), and sensibility ( $\beta = .521$ ;  $t = 3.05$ ;  $p = .005$ ). However, interoceptive awareness was negatively predicted by LEDD ( $\beta = -.498$ ;  $t = -2.87$ ;  $p = .008$ ). Moreover, anxiety symptoms significantly correlated with severity of ICD ( $r = .331$ ;  $p = .023$ ).

*Conclusions:* In the present study subjective and objective, but not metacognitive dimensions of interoception were predicted by ICD levels. These results are in line with neurocognitive models of addictive impulsive behaviours, explaining compulsive disorders as the result of a dysfunctional activity of interoceptive system. Moreover, further investigation on the possible role of anxiety levels on the link between ICD and interoceptive abilities is required.