Impulsive-Compulsive Behaviours (ICBs) in Parkinson’s Disease following Dopamine Agonist Therapy

Growing evidence suggests that ICBs are significantly more prevalent in patients with Parkinson’s disease who are receiving dopamine agonist treatment. Specifically, dopaminergic medication-related disorders such as pathological gambling, hyper-sexuality, and to a minor extent over-eating and shopping have been reported in Parkinson’s disease. While such treatments may have significant implications for the affected individual, the issue has not been comprehensively investigated. One major hurdle has been the clear lack of instruments to measure and characterize ICBs. We have now developed a testing battery that is able index inter-individual variations to ICBs (see Methods for details). The role of the PhD candidate will be to apply this battery of tests and conduct neuroimaging to investigate the neural and psychological bases of these ICBs in patients with Parkinson’s disease undergoing dopamine therapy. These measured would be acquired several times through the different stages of illness and therapy. The findings will likely have implications for understanding the fundamental neurobiology of ICBs, as well as clinical implications (i.e., help predict vulnerable individuals most at-risk of going on to develop ICBs). The PhD candidate will address the following:

**General objectives**

- Does dopaminergic treatment in Parkinson’s disease lead to an increased prevalence of Impulse Control Disorders (ICDs)? Is there a greater prevalence of ICBs that are not case-level?
- Is this association the same for all dopamine treatments (e.g., l-dopa versus other dopamine agonists)? Is the association dose-dependent? Does the severity decrease when treatment is ceased? What role do drugs of abuse (also dopamine agonists) play in this association?
- Can we prospectively predict ICBs in Parkinson’s disease using brain imaging, cognitive and affective neuroscience techniques?
- Does a family history of ICBs and ICDs lead to an increased vulnerability? Are these direct vulnerabilities (i.e., family history of problem gambling leads to a vulnerability to the same) or more diffuse (i.e., family history of problem gambling leads to a vulnerability to other ICBs)?
- Are ICBs dependent on socio-cultural factors? For example, are males are more likely to develop gambling and sexual problems while females develop eating and buying disorders?
- How do other demographic (e.g., age), and mental health variables (e.g., anxiety, depression) influence the manifestation of ICBs?
- How do other stereotypes behaviours such as punding and compulsive behaviours such as dopamine dependency syndrome for into the picture of ICBs?

Applicants must hold an APA or similar award.

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