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Neural correlates of hypersexuality in Parkinson's disease

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Objective: We hypothesized that exposure to common erotic cues would trigger an increased sexual desire in Parkinson's disease (PD) patients with hypersexuality (HS) and will correspond to changes in brain activity in regions linked to sexual motivation.

Background: HS is a significant source of morbidity for PD patients receiving dopamine (DA) drugs while the mainstream mass media provide increasingly explicit portrayals of sexuality. We know relatively little about the pathophysiology of HS in PD and it is unknown how common erotic cues affect the brain and the behavior in such susceptible individuals.

Methods: Here, we studied a group of 12 PD patients with HS using a functional magnetic resonance imaging (fMRI) block design exposing participants to both rewarding and neutral visual cues. PD HS patients were compared with a group of 12 PD controls without HS or other impulse control disorders.

Results: Exposure to common erotic cues significantly increased sexual desire and liking of the sexual content in the PD HS compared to PD controls. These behavioural changes corresponded to significant blood-oxygen-level dependence (BOLD) signal increases and decreases in regions laying within limbic, paralimbic, temporal, occipital, somatosensory and prefrontal cortices that correspond to emotional, cognitive, autonomic, visual and motivational processes. Enhanced activations in cingulate and orbitofrontal cortices strongly correlated with increased sexual desire.

Conclusions: The findings of this study have direct implications on how mass media could influence HS in PD. Stimulation through exposure to common erotic cues on PD patients with HS provides a motivational force for seeking this reward behavior through activations and deactivations of cerebral cortex, consequently leading to devastating individual consequences. The imposition of governmental restrictions could help to reduce the onset of pathological sexual behavior particularly in vulnerable populations such as the people receiving DA drugs.