

Three Cases of Impulse Control Disorder in Parkinson's Disease Patients Receiving Dopamine Replacement Therapy

Abstract:

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Abstract

Impulse control disorders (ICDs) are a known side effect of dopamine replacement therapy in patients with Parkinson's disease (PD). They can have devastating consequences for patients and their families.

Introduction

According to the Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) (DSM-IV) impulse control disorders are characterised by the failure to resist an impulse, drive or temptation to perform an act that is harmful to the person or others. Impulse control disorders are becoming an increasingly recognised side effect of dopamine replacement therapy in patients with PD with a prevalence of between 3.5% and 13.6%. There is reasonable evidence to support that a causal relationship exists between dopaminergic medications and ICDs: they occur at a higher rate in an otherwise low-risk population of adults, begin after initiation of treatment and cease upon its discontinuation. It is thought that dopamine agonists may enhance an unconscious bias towards risk in susceptible individuals. The most common types of behaviours include pathological gambling (5.0%), hypersexuality (3.5%), compulsive shopping (5.7%) and binge-eating disorder (4.3%). Two or more ICDs are found in 3.9% of patients. Risk factors for developing an ICD may include male sex, earlier age of onset of PD, a history of ICD symptoms prior to PD, personal or family history of substance abuse or bipolar disorder, and a personality style characterised by impulsiveness.

Case 1

A 53 year old lady, first diagnosed with idiopathic PD 24 years previously was referred to neuropsychiatry for assessment of her mood and management of an impulse control disorder. She was receiving dopamine replacement therapy with a number of medications including ropinirole 8mg OD, amantadine 100mg TDS, Stalevo 75mg TDS and rasagiline 1mg OD. A deep brain stimulator had also been implanted in 2006. With the commencement of a dopamine agonist some ten years ago, impulsive behaviours began to emerge of which hypersexuality has been the most problematic. She describes accessing pornography on the Internet, using chat rooms and phone services, and meeting strangers for sexual intercourse. She has also experienced compulsive shopping with excessive purchasing of unnecessary household items e.g. cleaning products, tinned foods and stationary. The patient confessed her sexual indiscretions to her husband two years ago which has caused significant marital difficulties and psychological morbidity. Since this time she has developed feelings of profound guilt and self-loathing, accompanied by an intermittent passive death wish. Despite continuing the marriage the patient's husband has had difficulty coming to terms with his wife's behaviour. They now sleep in separate bedrooms and he refuses to attend marriage counselling despite his wife's repeated requests.

In an effort to ameliorate the symptoms of her ICD, ropinirole was tapered and discontinued, whilst the dosage of Stalevo was increased to 75mg five times daily. This resulted in a marked reduction in her symptoms of hypersexuality. Her compulsive shopping remained unchanged. As her Parkinsonian symptoms became intolerable in the absence of ropinirole, this was restarted; however she has noted an immediate concomitant increase in her libido. At present, the severity of her Parkinsonian symptoms has limited her ability to follow through with any hypersexual impulses. In terms of her mood, she is currently being managed on citalopram and appears to be responding well. However, the poor state of her marriage continues to remain a source of distress.

Case 2

The second case is of a 52 year old lady with an eight year history of idiopathic PD. She had a deep brain stimulator implanted four years ago. On presentation to the neuropsychiatry service, she was taking Stalevo 100mg six times daily, amantadine 100mg tds, selegiline 5mg OD, pramipexole 0.18mg midi, alprazolam 0.5mg OD, and escitalopram 10mg OD. She was referred to the neuropsychiatry service with an 8 month history of impulse control disorder manifesting as an increase in libido and sexual disinhibition. She admitted to feeling preoccupied with her appearance and was spending uncharacteristically large quantities of money on beauty treatments and cosmetics. She also began browsing pornography websites and using Internet chat rooms which culminated in a sexual liaison with a man whom she met online. Her husband was furious on discovering her indiscretion. This was complicated by the fact that he had conducted an extramarital affair two years previously and attributed her infidelity to an act of revenge. The patient described the onset of a pervasive low mood, accompanied by episodes of crying, loss of appetite and anhedonia. On two occasions she attempted deliberate self-poisoning with her anti-parkinsonian medications.

She was commenced on escitalopram, which has improved her symptoms of depression. With regard to treating her underlying ICD, the dopamine agonist pramipexole was discontinued, which resulted in some improvement in her hypersexuality; her use of Internet chat rooms has decreased somewhat. The marital strain also appears to have temporarily improved as they have decided to have an open marriage. Her husband has a girlfriend whom they openly discuss. She has a male friend but she claims the relationship is platonic.

Case 3

The third case is of a 32 year old gentleman diagnosed with PD three years ago. On presentation to the neuropsychiatry service, he was taking selegiline 5mg OD and ropinirole 8mg OD. He described a six month history of binge eating and compulsive gambling. Over this period he lost his life savings of over 40,000 on an online casino website. At this time, he was living overseas but was forced to return home and seek financial assistance from his parents to repay his debts. His ICD was accompanied by increased irritability and renewed frustration with his Parkinsonian symptoms, and he experienced fleeting suicidal thoughts.

This gentleman's ICD was treated through tapering and discontinuation of ropinirole. He continued to take selegiline. Since this change was made, his compulsions to gamble have completely abated. He reports that his Parkinsonian symptoms have worsened slightly, but that overall his quality of life has improved as a result of this decision, and he has begun to make repayments to his parents.

Discussion

These 3 cases illustrate the potentially devastating effects that ICDs can have on a patient's mental state, lifestyle and interpersonal relationships. Parkinson's patients with an ICD report a greater degree of functional impairment than those without an ICD. They have increased affective and anxiety symptoms, as well as elevated obsessiveness, novelty seeking, and impulsivity.⁷ Criminality, suicidality, and marital discord are all potential complications of ICDs. ICDs are associated with a reduced quality of life in Parkinson's patients. Carers of these patients are also under greater burden.¹⁰ Unfortunately, in many cases recognition and treatment of ICDs only occur after there have been substantial negative consequences. 11

Given the possible detrimental effects on patients and their families, early detection of the non-motor symptoms of PD should be of particular importance. One study found that only 25% of ICDs were identified clinically in a group of PD patients. Many patients are ashamed or embarrassed to disclose these stigmatising behaviours and often will not broach the subject without prompting or direct screening. The Questionnaire for Impulsive-Compulsive Disorders in Parkinson's Disease (QUIP) aids in the identification of at risk individuals for the development of ICDs and other compulsive behaviours in PD. It is validated as a self-administered screening instrument, so a clinical interview is needed for all patients who screen positive. Once diagnosed, treatment for this group of disorders involves a thorough review of the patient's medications. Previous studies strongly support the association between dopamine agonists and the development of ICDs,^{2-4,6,7,12,14} whereas the risk with Carbidopa/Levodopa appears to be much lower.^{2-4,6,12,14} However, the majority of patients considered in these studies were concurrently prescribed both medications so presumably there is a cumulative effect. At the time of referral to neuropsychiatry two of our patients were being prescribed both a dopamine agonist and Carbidopa/Levodopa. A recently completed cross-sectional study of 3,090 treated PD patients found that in patients taking a dopamine agonist, simultaneous levodopa use increased the odds of an ICD by approximately 50%.

Management of clinically significant ICD symptoms should consist of modifications to dopamine replacement therapy, particularly dopamine agonists. Typically, the impulsive behaviours resolve or improve when the dose is lowered or the dopamine agonist discontinued. Parkinsonism symptoms become intolerable levodopa treatment can be increased, as this medication is less likely to provoke an ICD. 3,11 However, if

The use of deep brain stimulation of the subthalamic nucleus has had varying results when considered in the management of patients with ICDs. Two of our patients reported no change in their ICD symptoms following DBS. All three patients developed symptoms of ICD with the initiation of dopamine replacement therapy. There was a significant improvement in symptoms when the medication was reduced or discontinued. This supports previous findings that dopamine agents are contributory to impulse control issues. ICDs could be considered a neglected dimension in PD. Physicians have an obligation to make their patients with PD aware that ICDs are a potential side effect of dopamine replacement therapy, and to monitor them clinically for the emergence of these complications. The QUIP is intended to assist in that routine monitoring and should be administered to all PD patients prior to initiation of treatment.

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