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Case report

Hypersexuality and paraphilia induced by selegiline in Parkinson's disease: Report of 2 cases

Michael A. Shapiro[a], Yu Ling Chang[b], Sarah K. Munson[a], Michael S. Okun[a], Hubert H. Fernandez[a,*]

[a] *Department of Neurology, McKnight Brain Institute, University of Florida College of Medicine, P.O. Box 100236, Gainesville, FL 32610, USA*
[b] *Department of Clinical and Health Psychology, University of Florida, Gainesville, FL, USA*

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Abstract

While hypersexuality and paraphilia are known side effects of anti-Parkinson medications, it is seldom reported. Furthermore, selegiline is rarely implicated in such behaviors. We report two cases of early onset PD who experienced paraphilia and hypersexuality when selegiline was initiated, and later developing obsessive–compulsive and punding behavior with the addition of dopamine agonists. Social repercussions may prohibit patients and/or their families from volunteering such information.

Keywords: Parkinson; Paraphilia; Selegiline; Hypersexuality; Punding; Dopamine agonists

1. Introduction

An increase in sexual interest and/or libido related to antiparkinsonian therapy has been well described [1–3]. Less frequent and less well-reported are occurrences of sexual deviancy in conjunction with antiparkinsonian medications. Such incidences include states of hypersexuality [1], transvestic fetishism [4], zoophilia [5,6] and internet pornography [7]. Marital infidelity has also been reported [7]. Reported cases indicate that a reduction or change in antiparkinsonian medication may result in diminished or at least partial improvement in abnormal sexual behavior [2,4–6]. We report two cases of aberrant sexual behavior which appears to have arisen de novo in conjunction with selegiline therapy.

2. Case reports

2.1. Case 1

A 29-year-old man began having cramping of his right hand at the age of 26. He later noticed increased slowness, stiffness, and tremor of his right hand. He was diagnosed with young-onset Parkinson's disease (PD) and was treated initially with selegiline. Within 2 months of initiation of his medication, he began engaging in cross-dressing behavior. His wife had been aware of this behavior (but no one else), and it strained their marriage. He expressed shame and embarrassment, but claimed to not be able to control himself, and could not provide a reason for the behavior. He had no premorbid history of cross-dressing.

Although not admitting to a cross-dressing behavior on regular follow-up visits, he discussed personality changes and mood swings. As a result, selegiline was discontinued after 3 months and replaced with ropinirole up to 3 mg 4 times per day. His cross-dressing fetish persisted while on ropinirole. At 12 mg/day of ropinirole, he experienced

*Corresponding author. Tel.: +1 352 273 5550; fax: +1 352 273 5575.
E-mail address: fernandez@neurology.ufl.edu (H.H. Fernandez).

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persistent nausea and vomiting, and a year ago was switched to pramipexole 0.75 mg 4 times per day. Six months ago, levodopa was added to the regimen.

A few months after starting pramipexole, the patient first noted obsessive–compulsive behavior, beginning with excessive weeding in the yard. Subsequently, he engaged in excessive viewing of internet pornography, and increased his frequency of trips to adult movie stores. He also reported excessive obsessions with playing video games and weeding the yard. He reported an increase in his gambling behavior—whereas he had rarely gambled before his diagnosis, he had begun gambling monthly. He stated his gambling was not as much a concern to him as were his other compulsive tendencies. He reported spending 4–6 h/day on Playstation, and at least 2 h each day browsing internet pornography. He reported that these behaviors "consumed his life." He retained insight, realizing these behaviors were "unhealthy." In addition, the cross-dressing behavior persisted when the patient switched from selegiline to ropinirole and then to pramipexole, while at the same time developing other obsessive–compulsive tendencies. It was at this point that the patient agreed to an interview and consented to a Mini-Mental State Exam and neuropsychological evaluation.

His past medical history is significant only for depression. After his initial PD diagnosis, the patient had felt depressed with decreased energy, excessive daytime sleepiness, and with markedly decreased motivation. However, the patient consistently denied depression at subsequent doctor visits.

On examination, he was alert, fully oriented and exhibited appropriate affect. He scored a 30/30 on the Mini Mental State Examination. The Unified Parkinson Disease Rating Scale (UPDRS) motor scale score in the "on" state was 11. He exhibited mild hypomimia, with a slight resting tremor of the right hand. He also had mild rigidity and bradykinesia of the right upper and lower extremities. No dyskinesias were noted.

On neuropsychological assessments, he scored: 12 (out of a possible 54) on the Hamilton Depression Scale; 15 (out of a possible 56) on the Hamilton Anxiety Scale; 8 (out of a possible 20) on the Obsession Subtotal and 12 (out of a possible 20) on the Compulsion Subtotal of the Yale-Brown Obsessive Compulsive Scale; 11 (out of a possible 40) on the Mania Rating Scale. These suggest that he had mild depression and anxiety, and moderate obsessive compulsive symptoms. Cognitively, his attention, executive function, language, memory, and visual-spatial orientation were within normal limits for his age.

2.2. Case 2

A 51-year-old man presented with tremor in the right upper extremity in 1997. Six months later, he was seen by a movement disorders specialist and diagnosed with PD. Slight rigidity and bradykinesia were identified and selegiline at 5 mg twice a day was initiated. A year following diagnosis, he was initiated onto Mirapex (1.25 mg three times a day), later increased to and maintained at 1.5 mg three times per day.

Shortly after initiating selegiline, but prior to the initiation of pramipexole, he developed an unhealthy obsession with internet pornography. He admitted to looking at pornographic websites for 1 h/day, 4–5 days a week. He also reported increased sex drive and to having multiple affairs with colleagues at work. The patient and his wife have received counseling for the issue. He could not "explain where these behaviors came from." He claimed "the thought of going outside his marriage never occurred to him" before he began taking anti-PD medications. The patient has not tried to taper or discontinue the use of any of his anti-PD medications. In addition, he reported other compulsive behaviors since initiating pramipexole. He noted that he has picked up playing a woodwind instrument for the last 4 years, and has been playing golf for the past three. He noted that playing golf has become "like an addiction," and he usually practices playing the instrument for 2 h each night. He did not report an increased urge to gamble. His increased sexual urges and preoccupation with internet pornography have persisted with the addition of pramipexole. Other medications included: buproprion 100 mg twice a day and trazadone 200 mg at bedtime.

The patient was contacted at random to participate in a study on compulsive behaviors in PD. It was while participating in this study that the patient admitted to the aforementioned behaviors and consented to a Mini-Mental State Exam and neuropsychological examination.

On examination, he was alert, fully oriented with appropriate affect. He scored a 30/30 on the Mini Mental State Exam. He scored an 8 on the UPDRS motor scale in the "on" state. He exhibited mild hypomimia, no resting tremor, but moderate rigidity and bradykinesia in the right and mild rigidity and bradykinesia in the left upper extremity. No dyskinesia or dystonia was noted.

On neuropsychological assessments, he scored: 7 (out of a possible 54) on the Hamilton Depression Scale; 6 (out of a possible 56) on the Hamilton Anxiety Scale; 9 (out of a possible 20) on the Obsession Subtotal and 6 (out of a possible 20) on the Compulsion Subtotal of the Yale-Brown Obsessive Compulsive Scale; 8 (out of a possible 40) on the Mania Rating Scale. These suggest that he had mild anxiety and depression, and mild obsessive compulsive symptoms. Cognitively, his scores were within normal range for his age in attention, executive function, memory, language, and visual-spatial skills.

3. Discussion

Hypersexuality and aberrant sexual behavior in PD have previously been reported [1–6]. The actual incidence of pharmacologically induced paraphilias or sexual compulsions in PD patients is difficult to ascertain. Social repercussions may prohibit patients and/or their families from volunteering such information. The patient in the first case, for example, had been experiencing transvestic fetishism for 2 years before disclosing such information voluntarily to anyone other than his spouse. It was only after being shown an article describing a man with a similar problem that he did finally verbalize his problem to treating physicians. The patient in the second case also failed to discuss the behaviors with his treating physicians, and only he and his spouse were aware of his problems.

Selegiline is an MAO-B inhibitor and prevents the breakdown of dopamine. It is often prescribed early in the course of PD. Selegiline has previously been linked to the development of psychiatric symptoms in patients with other movement disorders, and several studies have already shown selegiline to improve sexual activity in animals [8]. In addition, selegiline has been promoted on internet websites as a potential sexual invigorator/aphrodisiac. The mechanism explaining the behavior in these cases is likely related to increased dopaminergic stimulation of non-motor basal ganglia loops including the nucleus accumbens, mesolimbic/mesocortical circuits, and the anterior cingulated loop [9]. The patients with this constellation of symptoms tend to be younger, have no or little cognitive dysfunction, and relatively mild PD symptoms. An important consideration in these cases is that younger subjects may have higher baseline libido, and selegiline may be more often prescribed in younger patients.

Both patients had been taking selegiline when the aberrant sexual behavior started. To our knowledge, selegiline has been described to possibly cause transvestic fetishism in PD in only one case report, and the behavior subsided within 6 months of discontinuation of the medication [4]. In our first case, the aberrant sexual behavior was not extinguished with discontinuation of the medication and persisted when switched to dopamine agonists. However, the case reported in the literature was not switched to another anti-Parkinson medication and remained only on levodopa while the transvestic behavior subsided [4]. After discontinuation of selegiline, our first case was subsequently initiated on two dopamine agonist medications which have previously been linked to compulsive behaviors [7]. This may have contributed to the persistence of the behavior. In the second case, the patient continued taking selegiline and symptoms of hypersexuality progressed with the addition of pramipexole. Recently, the patient was put on 4 mg three times per day of ropinirole and the urges have improved significantly.

It is important that dopamine agonists have been linked to a number of compulsive behaviors in the PD [7]. Both patients were also on pramipexole. A similar case presenting with an extramarital affair and obsession with pornography possibly brought on by pramipexole has been reported [7]. Dopamine agonists enhance the functioning of endogenous dopamine, and non-specific action of the agonists may also influence non-motor basal ganglia loops. The dopamine agonists and selegiline may have a synergistic effect and result in increased sexual urges and repetitive, obsessive–compulsive tendencies. Another study reporting hypersexuality in PD seemingly as a sequela of dopamine agonist medication reported either resolution or marked improvement following complete discontinuation of dopamine agonist therapy [2]. In our cases, switching the patients from selegiline to a dopamine agonist may not be sufficient to eliminate the behavior.

Yet another study has reported hypersexuality in PD that was mostly unresponsive to lowering of dopaminergic medications, but was successfully eliminated with the addition of an acetylcholinesterase inhibitor [3]. As the patient in this case had also experienced mild cognitive impairment, the authors conjecture that hypersexual behavior in such cases may result from lack of behavioral inhibition in the setting of cognitive impairment in PD, rather than a side effect of dopaminergic medication. Being that neither of our patients experienced cognitive decline, it seems unlikely this theory would explain the onset of the behavior in our cases.

In addition, both patients in this report may have exhibited ‘‘punding’’ behavior. The first case volunteered excessive weeding in the yard while the second case played a newly learned musical instrument for hours every night. ‘‘Punding’’ is a stereotyped motor behavior in which there is an intense fascination with repetitive movements, such as ‘‘picking’’ or taking apart mechanical objects as if they were new and entertaining first described in amphetamine abusers and recently described in PD, perhaps as a medication side effect [10].

Educating the patient and/or spouse of these possible side effects of anti-Parkinson medication is essential. Due to shame and embarrassment, neither patients nor spouses may willingly discuss this aberrant behavior. Indeed, our first case made no mention of his cross-dressing behavior to anyone other than his wife before he consented to this interview and evaluation. Another obstacle for the patient and/or spouse is connecting the onset of unusual or hypersexual behavior with the addition or adjustment of a medication. Neither of our cases made linked their behavior to medications until

the possibility of this scenario was discussed in the interview. Rather, our second case sought psychological counseling for a condition which may be relieved by discontinuing a medication.

We feel, without a known pre-morbid personality disorder, it is unlikely that these sexual behaviors would have presented spontaneously independent of PD or anti-PD medications. Because patients do not routinely volunteer sexually aberrant behavior to their clinicians, it may occur more commonly than realized and is most likely underreported. These reports are a reminder that perhaps many anti-PD medications, including selegiline, can be associated with this behavior. Future research will need to examine an accurate prevalence of such behavior in conjunction with dopaminergic therapy, as well as the molecular causes for such behavior.

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