ELSEVIER

Parkinsonism and Related Disorders 11 (2005) 381–386

Parkinsonism & Related Disorders

www.elsevier.com/locate/parkreldis

Pathological hypersexuality predominantly linked to adjuvant dopamine agonist therapy in Parkinson's disease and multiple system atrophy

Kevin J. Klos*, James H. Bower, Keith A. Josephs, Joseph Y. Matsumoto, J. Eric Ahlskog

Department of Neurology, Division of Movement Disorders, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA

Received 16 June 2005; accepted 16 June 2005

Abstract

Pathological hypersexuality developed in 13 patients with PD and two patients ultimately diagnosed clinically with MSA. Hypersexuality began within 8 months after starting dopamine agonist therapy in 14 of 15 cases, including four on agonist monotherapy. It resolved in the four cases where the agonist was stopped, despite continued levodopa therapy. This was not an isolated behavioral problem in most, with additional compulsive or addictive behaviors coinciding in nine patients (60%). A systematic literature review of pathological hypersexuality in PD revealed similar medication histories; combining these cases with our series, 26 of 29 patients (90%) were on adjuvant dopamine agonists.

Keywords: Hypersexuality; Parkinson's disease; Parkinsonism; Multiple system atrophy

1. Introduction

Pathologic hypersexuality has occasionally been reported in patients with Parkinson's disease (PD), linked to medications [1–4]. Pathologic hypersexuality has been defined: 'The need for sexual behavior consumes so much money, time, concentration, and energy that the patient describes himself as out of control; intrusive unwanted paraphiliac thoughts prevent concentration on other life demands and are the source of anxiety; and orgasm does not produce satiety in the way it typically does for age mates' [5].

Pathological hypersexuality has rarely surfaced in our routine PD practice and we sought to identify possible risk or provocative factors in the collective experience at our institution. We identified 15 PD patients via medical records search who developed pathologic hypersexuality commencing after PD diagnosis. Two of the patients were later diagnosed with clinically probable multiple system atrophy (MSA), which to our knowledge has not been previously reported.

* Corresponding author. Tel.: +1 918-488-0990; fax: +1 918-728-8036.
E-mail address: kklos@tulsacoxmail.com (K.J. Klos).

1353-8020/$ - see front matter © 2005 Elsevier Ltd. All rights reserved.
doi:10.1016/j.parkreldis.2005.06.005

2. Methods

The Mayo Clinic Health Sciences computer database was utilized to identify all patients where the search terms, 'Parkinson's disease' and 'hypersexuality' were listed anywhere in their medical record between 1996 and 2003. The database contains all medical records of all patients seen at the Mayo Clinic. The inclusion criteria consisted of patients and/or families reporting pathological hypersexual behavior to the examining physician, as defined in the introduction [5]. We excluded patients with: (a) hypersexuality predating the onset of parkinsonism; (b) coexisting dementia as determined by clinical history and mental status testing; (c) secondary causes of parkinsonism. Mayo staff movement disorder specialists evaluated all of the patients. All data was obtained from review of the clinical record.

3. Results

We initially identified 43 patients, cross-referenced in the database for 'Parkinson's disease' and 'hypersexuality'. After applying the above exclusion criteria, we were left with 15 cases; their demographic data are shown in Table 1. All of the cases were originally diagnosed with idiopathic PD by their primary physicians and thus multiple

Table 1
Demographic data for patients with parkinsonism and hypersexuality

Cases	Clinical diagnosis	Gender	Age of onset-Parkinsonism	Hoehn and Yahr Stage at time of behavior	Motor Fluctuations	Dyskinesias	Age at Hyper-sexuality	Pre-morbid psychiatric diagnosis	Prior addictions
1	PD	M	45	2	Y	N	52	None	Tobacco
2	PD	M	41	2	Y	N	50	None	None
3	PD	M	46	2	Y	Y	55	None	None
4	PD	M	46	2	Y	Y	51	Depression	None
5	MSA	M	49	–	–	–	59	None	Tobacco, alcohol
6	PD	M	40	2	Y	Y	48	ADHD	Poly-substance, alcohol
7	PD	M	65	1	Y	Y	68	Depression	None
8	PD	M	48	2	Y	N	56	None	None
9	PD	M	68	2	N	N	72	None	Tobacco
10	PD	M	54	2	N	N	64	None	Tobacco
11	MSA	M	70	–	–	–	75	Depression	Tobacco, alcohol
12	PD	M	51	3	Y	Y	59	None	Tobacco
13	PD	M	57	2	Y	Y	61	None	None
14	PD	M	47	1.5	Y	Y	54	None	None
15	PD	M	44	1.5	N	N	44	None	None

medications were employed. Two patients (cases 5 and 11) fulfilled the clinical diagnostic criteria for MSA [6] when evaluated at the Mayo Clinic while the rest of the cases were confirmed as having PD. The clinical diagnosis of MSA was supported by abnormalities on autonomic reflex screen and thermoregulatory sweat testing [7]. The median age of onset of parkinsonism was 51 years (range 40–70). The median age at onset of pathological hypersexuality was 58 years (range 44–75). The median interval from parkinsonism onset to pathological hypersexuality was 6.5 years (range 0.5–14). All were men and the majority married. None had a previous history of hypersexuality or other compulsive behaviors. The prior psychiatric history was negative except for three patients with depression and one with a history of attention-deficit hyperactivity disorder. Levodopa related motor fluctuations were present in 10 patients at the time of their hypersexuality.

Table 2 lists the behaviors, treatment and outcome in these 15 patients. Notably, 14 were taking a dopamine agonist, with the agonist dosage therapeutic or high therapeutic in all. This included four on dopamine agonist monotherapy; the other 10 developed pathological hypersexuality only after the agonist was added to pre-existing levodopa therapy. In these 14 cases, pathological hypersexuality began within 8 months after initiating a dopamine agonist (range 1 month to 1 year). The median duration of levodopa therapy before hypersexuality was 2 years (range $<$1–11). One patient was treated with levodopa monotherapy.

The hypersexual behavior resolved after stopping the dopamine agonist in three cases and improved in a fourth case. Resolution also occurred in four other patients treated with olanzapine or quetiapine, which was coupled with agonist reduction in two (and levodopa reduction in one). Sertraline led to improvement in one other. Two others resolved spontaneously and four had inadequate follow-up.

Other compulsive or addictive behaviors also surfaced around the same time as the pathological hypersexuality. This included pathologic gambling in five patients, as well as new or increased other addictions in three (tobacco, alcohol, or other recreational drugs). In addition, three became hyperphagic with weight gain up to 50 lb; one developed hypomania, and four displayed more general obsessive-compulsive behavior. These behaviors seemed to parallel the hypersexuality.

Some of these cases were tightly linked to medication changes. We describe four representative cases in order to highlight the pathological hypersexual behaviors.

4. Case reports

4.1. Case 1

A 52-year-old man had an 8-year history of levodopa responsive idiopathic PD. Pramipexole was added to treat motor fluctuations, titrated to a dose of 2 mg three times daily, under physician supervision. Recognizing only partial improvement, the patient unilaterally elected to raise the dose higher, eventually reaching a maintenance dose of 13.5 mg per day. Within 6 months, his wife phoned his neurologist, reporting that he recently began buying pornography tapes and admitted to recent extramarital affairs. He denied having any prior interest in pornography. In addition to the pathological hypersexuality, he started