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Brief report

Pathological gambling secondary to dopaminergic therapy in Parkinson's disease

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Abstract

We describe six patients with Parkinson's disease (PD) and pathological gambling. All patients started gambling after the onset of PD and initiation or increase of treatment with dopaminergic therapy. The fact that pathological behaviour disappeared as medication was ended or decreased suggests that an elaborate behavioural manifestation could be related to dopamine tone in patients with Parkinson's disease.

Keywords: Psychiatric disorders; Dopamine agonist

1. Introduction

According to DSM-IV (American Psychiatric Association, 1994), pathological gambling (PG) is characterized by inadequate, repetitive and persistent gambling with repercussions on family, personal or professional life. No data are currently available on the prevalence of this disorder in Parkinson's disease (PD) (De Caria et al., 1996). The psychiatric disorders routinely reported during dopamine use in PD commonly involve delusions or hallucinations, i.e., symptoms or syndromes rather than planned and structured behaviours. Some authors have suggested that those symptoms could result from high-dose dopamine therapy, especially in subjects whose behaviours reflect some degree of addiction to their treatment (Gschwandtner et al., 2001; Seedat, 2000; Driver-Dunckley et al., 2003; Molina et al., 2000). We describe here six cases of parkinsonian patients who developed compulsive pathological gambling behaviour secondary to the administration of various dopamine agonists (pergolide, bromocriptine and ropinirole) in five cases, and secondary to an monoamine oxydase-B inhibitor (MAO I-selegiline) in one case, which is the first case report in the literature. These cases raise the possibility that complex behavioral disturbances such as pathological gambling could be related to dopamine tone.

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2. Patients and methods

Six patients with idiopathic Parkinson's disease from the Universitary Hospitals of Rennes and Nantes, France, were included in this descriptive multicase study. The inclusion criteria were to suffer from Parkinson's disease and to have exhibited pathological gambling (following DSM-IV criteria) secondary to the initiation or increase of dopaminergic treatment. All the patients were drawn from the classical clinical practise of neurologists. Clinical characteristics are summarised in Table 1. There were four men and two women. Mean±S.D. values for age and Parkinson's disease duration were 52.6±6.6 years and 7.5±2.8, respectively. They were assessed using the Unified Parkinson's Disease Rating Scale (Fahn and Elton, 1987) and according to Hoehn and Yahr's (1967) criterion status. All were interviewed about their pathological gambling episodes (age of onset, socio-economic consequences, ascribability to prescribed treatments) and also their individual psychiatric history according to the Mini International Neuropsychiatric Interview (MINI) (Lecrubier et al., 1998). Concomitant psychiatric and neurologic treatments were reported. Total levodopa-equivalent dose was calculated on the bases of the conversion factors adapted from Lozano et al. (1995).

All patients began to behave as pathological gamblers after Parkinson's disease onset. None of them played such games before the beginning of this disorder. None of them exhibited any psychiatric disorder as elicited by the MINI, except for one subject who was depressed. The disorders began after the initiation of, or increase in, their dopamine agonist dosage (bromocriptine, pergolide, ropinirole) for five patients, and secondary to an MAOI-B (selegiline) prescription associated with the L-dopa already prescribed for all patients (Table 1). Five directly went to the casino and one was doing casino games on the Internet. All experienced the disappearance of their pathological behaviour when previous treatment dosages were restored or once the dopamine agonist was stopped. All had to resort to guardianship or requested to be on the casino-banned list. Social consequences were catastrophic for all of them, and family relationships were particularly difficult. One patient committed a suicidal act subsequent to his pathological gambling behaviour, and another patient presented with paranoid reaction including delusions of persecution. These two patients were not excluded because those psychiatric disorders occurred after the gambling.

3. Discussion

Studies on pathological gambling (PG) neurobiology suggest that several neurotransmitters may be involved (Blanco et al., 1996; Potenza, 2001; Ibañez et al., 2002). Based on the fact that there is a close correlation between impulsiveness and pathological gambling (Alessi and Petry, 2003), the serotonergic hypothesis was initially explored in relation to other impulsiveness pathologies. Two pharmacological studies found a decrease in

Table 1
Clinical characteristics of patients

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Sex (M/F)	M	F	M	M	M	M
Age (years)	42	54	50	50	60	59
Hoehn & Yahr (1967)	1.5	1.5	2	2.5	1.5	2
UPDRS	23/108	21/108	34/108	41/108	22/108	35/108
Beginning after compound prescription	Yes	Yes	Yes	Yes	Yes	Yes
Compound	Pergolide 5 mg	Bromocriptine 12.5 mg	Ropinirole 15 mg	Bromocriptine 40 mg	Seleginine 10 mg	Pergolide 6 mg
Concomitant psychiatric treatment	Paroxetine 20 mg	No	No	No	No	No
Concomitant neurologic treatment (Eq Dopa dose)	500 mg	950 mg	300 mg	900 mg	500 mg	1800 mg
Disorders correction after stop or diminution of dose	Yes	Yes	Yes	Yes	Yes	Yes
Gambling duration	10 months	6 months	12 months	8 months	9 months	10 months
Previous psychiatric history	No	Depression	No	No	No	Depression
Psychiatric symptoms of the disease	Depression	No	No	No	No	No

UPDRS: United Parkinson's Disease Rating Scale.