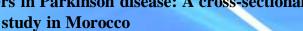# Impulse control disorders in Parkinson disease: A cross-sectional study in Morocco

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MOUVEMENTS ANORMAUX

Introduction:

Despite a variety of treatments, the management of Parkinson's disease (PD) remains only symptomatic. Beyond motor complications, new disorders termed impulse control disorders (ICDs) have been linked to dopaminergic therapy. These disorders represent an inability to control certain impulses, leading to problematic behaviors that are potentially influenced by medications.

➡ *Objectif :* We studied the epidemiological, clinical aspects and the possible influence of drugs . We also highlighted some specific aspects of ICDs in our population, which relate to Arab and Muslim culture

Matériels et méthodes:

➡ This cross-sectional study investigated *the prevalence and characteristics* of impulse control disorders (ICDs) in *125 Parkinson's disease (PD) patients* in *Morocco,* using a diagnostic questionnaire administered in Moroccan dialect.

➡ The study excluded patients with Parkinson's dementia, those naive to treatment, and those who had undergone deep brain stimulation.

➡ This study categorized patients into two groups based on *the presence (ICDs +)* or *absence (ICDs)* of impulse control disorders (ICDs). It assessed motor functions using *the UPDRS scale* and cognitive functions with the *MMSE and Frontal Assessment Battery,* during both OFF and ON medication periods. Medication dosages were calculated, and the results were analyzed using statistical tests, with significance set at $P < 0.05$

Résultats :

➡ Among the patients (54 men and 71 women), *the average age* was 57 years. *The prevalence of ICDs* was 28%, with 14% exhibiting multiple types of ICDs, particularly in younger patients. Distinct types of ICDs varied by gender, with a predominance of pathological buying and compulsive sexual behavior in men, and eating disorders in women. The equivalent daily doses of L-dopa *were significantly higher* in the ICD (+) group.

Table 1 – Demographic and clinical characteristics of the ICD (+) and ICD (-) groups.

	Demographic characteristics				Clinical characteristics			
	Number (%)	Sex-ratio M/F (and number)	Mean-age (years)	Mean disease course (years)	Mean UPDRS Off	Mean UPDRS On	Mean % Improvement	MMSE
Total Number	125 (100%)	0.76	57	7	28	13	53	26
ICD (+)	35 (28%)	1.33 20 M .15F)	52	7	30	14	53	26
ICD (–)	90 (72%)	0.62 (35 M. 55 F)	59	8	27	13	51	25
P-value (significance < 0.05)		0.031	0.042	0.61	0.22	0.086	0.6	0.33

The P-value is defined as the probability, under the null hypothesis. UPDRS: Unified Parkinson Disease Rating Scale, MMSE: mini-mental state examination.

Table 2 – Main ICDs and ICD-mimics found in our series.

	All (%)	Men	Women
Pathological gambling	4 (3.2%)	4	0
Compulsive sexual behavior	10 (8%)	8	2
Pathological buying	12 (9.6%)	5	7
Eating behavior disorder	9 (7.2%)	2	7
Punding-hobbyism	14 (11.1%)	7	7
Two or more ICD	18 (14%)	12	6
Excessive charity	23 (18.4%)	10	13
Excessive reading of Qur'an	12 (9.6%)	6	6

Table 3 – Dopamine agonist equivalent daily dose (DAEDD) and total L-dopa equivalent daily dose (LEDD).

	LEDD (mg)	DAEDD (mg)
Total Number	650	90
ICDs (+) group	670	149
ICDs (–) group	644	53
P (significance)	0.81	0.01

Discussion :

➡ The prevalence of ICDs varies significantly in studies, ranging from 3.53% to 28%. In our study, the prevalence was 28% (half of whom had at least two ICDs), identical to the rate found in some other countries. The pathogenesis remains poorly understood but is often attributed to excessive stimulation of the mesolimbic dopaminergic pathways by replacement therapies. Early recognition of ICDs is crucial for effective management.

Table 4 – The prevalence of impulsive control disorders in our study and literature.

	PG (%)	CSB (%)	EBD (%)	PB (%)	P-H (%)	Addiction to Levodopa (%)	All (%)
Fan et al. (Chinese Study) 2009	1.03	6.19	1.03	–	1.03	2.06	3.53
Lee et al. (Korean Study) 2010	1.3	2.8	3.4	2.5	4.2	–	10.1
Dominion American-Canadian 2012	5	3.5	4.3	5.7	–	–	13.6
Callesen et al. (Danish study) 2014	7.1	9	8.6	7.3	10.8	6.9	35.9
Rodriguez-Violante et al. (Mexican study) 2014	1.3	–	8.6	–	14.3	–	25.6
Ashish Sharma et al. (Indian study) 2015	3.3	11.04	5.35	8.4	12.4	7.7	42.8
ALTHEA study (Italian study) 2017	9.9				13.4		23.3
Our study 2018	3.2	8	7.2	9.6	11.2	10.4	28

PG: pathological gambling; CSB: compulsive sexual behavior, EBD: eating behavior disorder, PB: pathological buying, P-H: punding-hobbyism.

Conclusion :

➡ ICDs are frequent and problematic in many cases but yet underdiagnosed in PD, making their early detection essential. While screening protocols are necessary, there is a lack of well-established guidelines for the comprehensive management of ICDs.

Références:

1. Goetz CG, Poewe W, Rascol O, Sampaio C. Evidence-based medical review update: pharmacological and surgical treatments of Parkinson's disease: 2001 to 2004. Mov Disord 2005;20(5):523–39.
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association; 2000.
3. Phu AL, Xu Z, Brakoulias V, Mahant N, Fung VS, Moore GD,et al. Effect of impulse control disorders on disability and quality of life in Parkinson's disease patients. J Clin Neurosci 2014;2.1(1):63–6