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URODYNAMIC FINDINGS IN PATIENTS WITH URINARY SYMPTOMS AND PARKINSON´S DISEASE

Hypothesis / aims of study:
urinary dysfunction is common in Parkinson's disease and other parkinsonisms and affects the quality of life. The aim of this study was to define the urodynamic abnormalities of these patients.

Study design, materials and methods
A retrospective and descriptive analysis was made from urodynamic studies performed between 2001 and 2012. We obtained 51 urodynamic studies of patients with Parkinson´s disease (PD) and other parkinsonisms. Urodynamic consisted of filling cystometry at rate of 30 mL/min and voiding cystometry with surface electromyography. Urodynamic parameters measured included: first desire to void (FDV), normal desire (ND), maximum cystometric capacity (MCC), compliance, volume at first involuntary detrusor contraction (VFIC), maximum involuntary detrusor contraction (MIC), Qmax, PdetQmax, postvoid residual (PVR), Abrams-Griffiths number (AG) only in men, bladder contraction index (BCI), presence of low compliance, increased bladder sensation (IBS) when first desire to void <100 mL, involuntary detrusor contractions (IC), urinary incontinence, detrusor-external-sphincter dyssinergya (DSD) and obstruction, in men according to the ICS nomogram, in women if PdetQmax>30 cmH20 and Qmax<10 mL/s and detrusor underactivity (DU) if BCI<100

Results:
Demographics are listed in Table 1. Findings from the Urodynamic studies are listed in Table 2 and 3.

Table 1. Gender and neurologic diagnosis

	Number (%)	
Gender	Male	Female
	32 (62,7%)	19 (37,3%)
Diagnosis	Parkinson´s disease	Other parkinsonisms
	45 (88,2%)	6 (11,8%)

Table 2. Age and urodynamic parameters

Urodynamic parameters	Mean (SD)
Age	68,8 (9,1)
FDV	108 (63,1)
ND	151 (89,2)
MCC	233 (114,2)
Compliance	29 (26,2)
VFIC	141 (102,7)
MIC	61 (37)
Qmax	11 (7,2)
PdetQmax	56 (41,9)
PVR	49 (89,8)
AG	52 (43,7)
BCI	133 (100,3)

Table 3. Urodynamic findings

Urodynamic findings	Number (%)
Low compliance	20 (41,7%)
IBS	27 (55,1%)
IC	41 (82%)
Incontinence	17 (45,9%)
DSD	6 (33,3%)
Obstruction	22 (53,6%)
DU	14 (38,9%)

The most common abnormal urodynamic finding was detrusor overactivity in 41 patients (82%), 27 patients (55,1%) had increased bladder sensation. During the voiding phase the most common abnormal urodynamic finding was obstruction in 22 patients (53,6%). Table 3
The results of urodynamic parameters showed that male had a significantly higher PdetQmax than female (p=0,007). The results of urodynamic parameters showed no difference between the PD patients and other parkinsonisms.
Table 4.The results of urodynamic findings showed that other parkinsonisms patients had a significantly increased incontinence rate than PD patients (100% vs 37,2%) (p=0,014). Male and female had the same obstruction rate (58,6% vs 41,6%) (p=0,322). Table 5.

Urodynamic parameters	Gender	Mean (SD)	p	Diagnosis	Mean (SD)	p
FD	Male	74 (55,1)	0,377	Parkinson´s disease	85 (53,7)	0,373
	Female	97 (46,2)		other parkinsonisms	81 (52,3)	
ND	Male	88 (58,6)	0,251	Parkinson´s disease	96,2 (53,9)	0,627
	Female	105,7 (43,9)		other parkinsonisms	94 (55,1)	
MCC	Male	189,7 (37,7)	0,707	Parkinson´s disease	177,8 (42,2)	0,336
	Female	150,3 (82,4)		other parkinsonisms	160,5 (113,8)	
Compliance	Male	39 (43,5)	0,068	Parkinson´s disease	39,2 (3,7)	0,277

	Female	26,3 (14,6)		other parkinsonisms	19,5 (12)	
VFIC	Male	122 (77,7)	0,988	Parkinson´s disease	123,6 (67,4)	0,271
	Female	121,7 (62,9)		other parkinsonisms	117,5 (88,4)	
MIC	Male	31,7 (19,1)	0,301	Parkinson´s disease	51,6 (47,4)	0,699
	Female	69,3 (53,5)		other parkinsonisms	38,5 (3,5)	
Qmax	Male	9,5 (2,9)	0,085	Parkinson´s disease	9 (2,7)	0,760
	Female	6,7 (1,5)		other parkinsonisms	6,5 (2,1)	
PdetQmax	Male	51 (19,6)	0,007	Parkinson´s disease	52,2 (17,2)	0,449
	Female	39 (15,6)		other parkinsonisms	36 (10,4)	
PVR	Male	7,5 (15,1)	0,742	Parkinson´s disease	6 (13,4)	0,814
	Female	28 (48,5)		other parkinsonisms	42 (59,4)	
AG				Parkinson´s disease	43,7 (12,1)	0,083
				other parkinsonisms	17 (4,2)	
BCI	Male	98,7 (31,6)	0,704	Parkinson´s disease	97,4 (27,5)	0,242
	Female	72,3 (18,6)		other parkinsonisms	62,5 (10,6)	

Table 4. U Mann-Whitney test

Urodynamic findings	Gender	Nº (%)	p	Diagnosis	Nº (%)	p
IBS	Male	15 (48,4%)	0,215	Parkinson´s disease	25 (56,8%)	0,646
	Female	12 (66,7%)		other parkinsonisms	1 (40%)	
Low	Male	13 (44,8%)	0,583	Parkinson´s disease	18 (41,9%)	1
compliance	Female	7 (36,8%)		other parkinsonisms	2 (40%)	
Incontinence	Male	8 (36,4%)	0,157	Parkinson´s disease	12 (37,5%)	0,014
	Female	9 (60%)		other parkinsonisms	5 (100%)	
DSD	Male	3 (27,3%)	0,627	Parkinson´s disease	3 (21,4%)	0,083
	Female	3 (42,8%)		other parkinsonisms	3 (75%)	
Obstruction	Male	17 (58,6%)	0,322	Parkinson´s disease	19 (56,8%)	0,610
	Female	5 (41,6%)		other parkinsonisms	3 (75%)	

Table 5. X^2-square test

Interpretation of results

Our findings reported here show that the most common abnormal urodynamic findings are during the storage phase, being an overactive detrusor the most frequent finding, with a rate of 82%, similar to those reported in other studies [1]. Another common disorders are low compliance (41,7%) and increased bladder sensation (55,1%).

In this study the percentage of obstruction (53,6%) was higher than that reported in other studies [2]. However detrusor-sphincter dyssinergya rate was 33,3% that is lower than the obstruction rate. Therefore, the exact reason for an obstructive pattern is uncertain. Some reports have suggested that the reason might be contraction of the bladder neck [3]. As described in previous reports on PD and other parkinsonisms, our patients with parkinsonisms had higher DSD rate than those with PD (75% vs 21,4%), although the differences were not statistically significant (p=0,083).

Concluding message:

The most common abnormal urodynamic finding in these patients is detrusor overactivity. We have found no differences between gender regarding obstruction. Urinary dysfunction in patients with PD shows differences from other parkinsonisms patients, the latter showing more incontinence rate and more DSD rate than the PD patients. Further studies are needed.

References

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Disclosures

Funding: no **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** The study is based in normal urodynamic procedures in Parkinson´s disease patients. We collect and compare information from urodynamic **Helsinki:** Yes **Informed Consent:** Yes