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## Objective

To evaluate lower urinary tract symptoms between Parkinson's Disease (PD) patients with and without deep brain stimulation (DBS).

## Introduction

Parkinson's disease (PD) is well known for causing motor symptoms<sup>1</sup> and non-motor symptoms<sup>2</sup>. Lower urinary tract symptoms (LUTS) are extremely common in patients with Parkinson's Disease and can be irritative, obstructive or mixed; irritative being the most common in Parkinson's Disease<sup>3</sup>.

We present the preliminary results of an ongoing study about LUTS in patients with PD, utilizing specific gender scores for each sample. For male patients we used IPSS (International Prostate Symptom Score) and for female patients the ICIQ OAB (International Consultation on Incontinence Questionnaire Overactive Bladder).

## Methods

We included all patients with previous indication for DBS surgery. Patients with active urinary tract infection, diabetes, another neurologic condition or previous pelvic/prostate surgery were excluded. The questionnaires were filled before surgery and at least 03 months after the procedure, enough time to the patient adapt to new electrode parameters. Table 1.

Table 1 – Study Patients

Patient	Age	Sex
JCO	56	Male
MJSO	56	Female
JR	49	Female
IMBZ	73	Female

## Results

The only male (JCO), 56 years, preoperative had only scored in two irritative symptoms: frequency (2 points) and urgency (4 points). The IPSS post op was 0 in all questions. Since the patient did not score in any of the obstructive symptoms, we had one less possible confounding bias. See Table 2.

On the female spectrum, MJSO, 56 years, showed little improvement pre and post op. Only frequency and continence showed difference. Table 3.

The other two patients (JR, 49 years and IMBZ, 73 years) demonstrated a small worsening in all symptoms, except continence, which kept stable after the surgery.

Table 2 – JCO

IPSS	Before DBS	After DBS
Q2 (Frequency)	2 (0-5)	0 (0-5)
Q4 (Urgency)	4 (0-5)	0 (0-5)
<b>Total</b>	<b>6 (0-35)</b>	<b>0 (0-35)</b>

Table 3 – MJSO

ICIQ-OAB	Before DBS	After DBS
Q1 (Frequency)	0 (0-4)	1 (0-4)
Q2 (Nocturia)	4 (0-4)	1 (0-4)
Q3 (Urgency)	1 (0-4)	1 (0-4)
Q4 (Continence)	2 (0-4)	1 (0-4)
<b>Total</b>	<b>7 (0-16)</b>	<b>4 (0-16)</b>

Table 4 – JR

ICIQ-OAB	Before DBS	After DBS
Q1 (Frequency)	0 (0-4)	1 (0-4)
Q2 (Nocturia)	2 (0-4)	3 (0-4)
Q3 (Urgency)	2 (0-4)	2 (0-4)
Q4 (Continence)	2 (0-4)	2 (0-4)
<b>Total</b>	<b>6 (0-16)</b>	<b>8 (0-16)</b>

Table 5 – IMBZ

ICIQ-OAB	Before DBS	After DBS
Q1 (Frequency)	1 (0-4)	2 (0-4)
Q2 (Nocturia)	2 (0-4)	3 (0-4)
Q3 (Urgency)	3 (0-4)	4 (0-4)
Q4 (Continence)	3 (0-4)	3 (0-4)
<b>Total</b>	<b>9 (0-16)</b>	<b>12 (0-16)</b>

## Discussion

Although only 4 patients were analyzed in the study, this goes against the new studies trends<sup>5,6</sup>: We expected the female population benefiting more in the urologic aspect with DBS than the male ones.

What we observed so far, was mixed results in the female population. The small difference in response may be due different perception in the symptoms intensity (only one point separates before and after in all symptoms). In the other hand, the male patient showed significant improvement, especially in urgency.

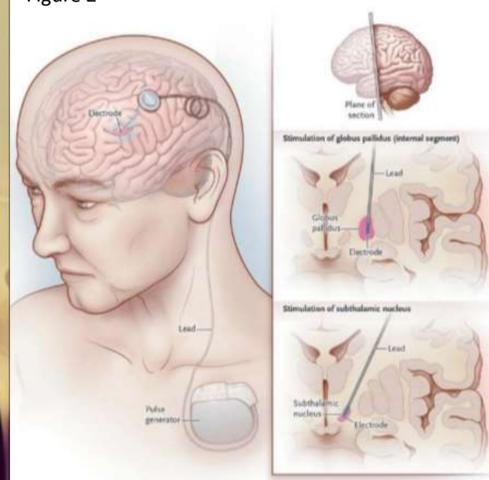
## Conclusion

This is only a preliminary study and we expect to show concrete results with a reasonable sample within a year, to confirm or deny the hypothesis that deep brain stimulation may benefit irritative symptoms in patients with Parkinson's Disease.

Figure 1



Figure 2



## Contact

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