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SEXUAL FUNCTIONS AND URODYNAMIC EFFECTS OF A MINIMALLY INVASIVE LASER PROCEDURE FOR FEMALE URODYNAMIC STRESS INCONTINENCE

Hypothesis / aims of study

The efficacy of the minimally invasive laser procedure (i.e., the IncontiLase™ procedure) for female urodynamic stress incontinence is not well demonstrated. The aim of this study is to evaluate the effects of the IncontiLase™ procedure for urodynamic stress incontinence (USI) on urodynamic values, pad weights, lower urinary tract symptoms and the sexual functions of both genders.

Study design, materials and methods

All consecutive women with USI prospectively underwent minimally invasive laser therapy (i.e., the IncontiLase™ procedure) in a teaching hospital. Urodynamic studies, 20-minute pad tests, lower urinary tract symptoms and questionnaires for both genders were assessed at baseline and at 3 and 6 months after treatment.

Results

Thirty-five women underwent the IncontiLase™ procedure. Among the 28 women with baseline pad weights >1 g, 11 (39.3%) were objectively cured (i.e., pad weights ≤1 g), and 11 (39.3%) improved (Table 1). Among the above women with mild USI at baseline (i.e., a baseline pad weight >1 g and <10 g, n=18), nine (50%) were cured, and five (27.8%) improved. Among the 32 women with complete follow-up questionnaire data at 6 months after therapy, 7 were subjectively cured (21.9%), and 4 (12.5%) improved. The lower urinary tract symptoms, the majority of the domains of the King's Health Questionnaire, and the desire domain of female sexual function exhibited significant improvements (Tables 2 and 3). Forty percent of the partners felt their sexual function had improved at 6 months after treatment (Table 3). Nonetheless, the urodynamic variables did not differ across the timeline (Table 1).

Interpretation of results

The IncontiLase™ procedure may be effective for female mild USI. Moreover, the procedure may improve lower urinary tract symptoms, the quality of life and the sexual functions of both genders.

Concluding message

The IncontiLase™ procedure may be a viable alternative for treating female mild USI.

Table 1. Baseline characteristics of the women with urodynamic stress incontinence and comparisons of the clinical outcomes, pad weights and urodynamic effects between the baseline and post-treatment time points

Variables	Baseline (n = 35, a)	3 months (n = 32, b)	6 months (n = 31, c)	†P	‡Post hoc analysis
Age (years)	43.3±7.2	-	-		
Parity	1.8±1.2	-	-		
Body mass index (kg/m2)	24.0±3.2	-	-		
Pad weight (g)	14.0±18.2	6.1±13.1	3.1±5.6	<0.001	a vs. b, c: all P <0.001
Baseline pad weight >1 g					
Cure	-	8	11	-	
Improved	-	12	11	-	
Failure	-	9	6	-	
Qmax (mL/s)	23.9±7.6	24.6±9.1	23.4±8.0	0.92	
Voided volume (mL)	334.6±156.2	291.8±111.0	312.5±196.3	0.95	
PVR (mL)	25.2±7.7	25.0±8.6	23.6±9.4	0.20	
Strong desire (mL)	267.0±50.4	278.9±52.7	278.9±55.6	0.74	
PdetQmax (cmH2O)	31.6±11.3	38.1±13.1	31.0±19.1	0.39	
MUP (cmH2O)	111.4±25.7	108.9±20.4	109.5±27.5	0.48	
MUCP (cmH2O)	74.0±24.8	66.1±20.5	67.8±29.9	0.50	
FPL (cm)	2.9±0.6	3.0±1.2	3.2±1.3	0.52	
PTR at MUP (%)	126.5±92.1	113.5±62.0	104.9±44.8	0.79	

The values are expressed as the means ± the standard deviations or as numbers. CA = continence area, FPL = functional profile length, MUCP = maximum urethral closure pressure, MUP = maximum urethral pressure, Qmax = maximum flow rate, PdetQmax = detrusor pressure at maximum flow rate, PTR at MUP = pressure transmission ratio at the MUP, PVR = post-void residual volume, UCPA = urethral closure profile area.

† The P values were calculated using the Skillings-Mack test.

‡ The P values for post hoc comparisons were calculated using the Wilcoxon signed-rank test.

Table 2. Comparisons of subjective outcomes and bladder diaries of the women with urodynamic stress incontinence between the baseline and post-treatment time points

Variables	Baseline (n = 35, a)	3 months (n = 32, b)	6 months (n = 31, c)	†P	‡Post hoc analysis
PPBC	2.7±1.0	2.0±1.2	2.0±1.1	0.01	a vs. b, c: all P <0.001
USS	1.3±0.8	0.6±0.8	0.8±0.7	0.004	a vs. b, c: all P <0.01
OABSS	4.1±2.8	3.1±2.9	2.7±2.6	<0.001	a vs. b, c: all P <0.001
UDI-6	4.1±2.9	2.8±3.0	3.1±3.1	0.001	a vs. b, c: all P <0.001
IIQ-7	3.2±4.2	2.2±4.2	2.7±4.9	0.02	a vs. b, c: all P <0.05
General health	36±20	30±20	30±24	0.046	a vs. b: P = 0.03
Incontinence impact	30±30	16±24	17±25	<0.001	a vs. b, c: all P <0.01
Role limitations	25±24	11±23	13±26	<0.001	a vs. b, c: all P <0.01
Physical limitations	27±26	14±23	12±22	<0.001	a vs. b, c: all P <0.01
Social limitations	12±17	9±21	11±21	0.56	
Personal relationships	11±24	10±25	14±28	0.29	
Emotions	23±25	14±25	16±25	0.002	a vs. b, c: all P <0.05
Sleep/energy	29±22	22±22	20±24	0.03	a vs. c: P = 0.02
Severity measures	30±18	20±24	20±24	<0.001	a vs. b, c: all P <0.01
Nocturia (72 hrs)	2.9±4.8	1.4±1.8	1.8±2.5	0.006	a vs. b, c: all P <0.05
Daytime frequency (72 hrs)	21.8±9.1	19.8±6.7	19.7±7.0	0.03	a vs. b, c: all P <0.05
Urgency episodes (72 hrs)	4.1±6.3	2.8±5.1	1.9±3.4	0.06	
Incontinence (72 hrs)	1.3±4.6	0.0±0.2	0.1±0.4	0.001	a vs. b, c: all P <0.05

The values are expressed as the means ± the standard deviations or as numbers. IIQ-7 = Incontinence Impact Questionnaire-7, OABSS = Overactive Bladder Symptoms Score Questionnaire, PPRC = Patient Perception of Bladder Condition Questionnaire, UDI-6 = Urinary Distress Inventory-6 Questionnaire, USS = Urgency Severity Scale Questionnaire.

† The P values were calculated using the Skillings-Mack test.

‡ The P values for post hoc comparisons were calculated using the Wilcoxon signed-rank test.

Table 3. Comparisons of the sexual functions of the women with urodynamic stress incontinence between the baseline and post-treatment time points

Variables	Baseline (n = 35, a)	3 months after treatment (n = 32, b)	6 months after treatment (n = 31, c)	†P	Post hoc analysis
Desire	2.5±0.7	2.5±0.9	2.7±1.0	0.03	a vs. c, P = 0.02
Arousal	3.0±1.2	3.0±1.3	3.0±1.4	0.64	
Lubrication	3.3±1.4	3.6±1.4	3.4±1.4	0.56	
Orgasm	3.3±1.4	3.6±1.3	3.6±1.4	0.28	
Satisfaction	3.7±1.0	3.8±1.2	3.9±1.2	0.11	
Pain	3.6±1.4	3.7±1.5	3.8±1.6	0.13	
Total score	19.4±6.3	20.2±6.8	20.5±7.3	0.052	
Male sexual activity	(n = 35)	(n = 30)	(n = 30)		
Better		16	12		
No difference		14	18		
Worse		0	0		

The values are expressed as the means ± the standard deviations or as numbers. FSFI = Female Sexual Function Index Questionnaire.

† The P values were calculated using the Skillings-Mack test or the McNemar test.

Disclosures

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