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Shen J[1], Yune J J[1], Hardesty J[2], Kim J[3], Siddighi S[2]
1. *Department of Urology, Loma Linda University Medical Center,* ***2.*** *Female Pelvic Medicine and Reconstructive Surgery, Department of Gynecology and Obstetrics, Loma Linda University Medical Center,* ***3.*** *School of Public Health, Loma Linda University*

INTRAVESICAL ELECTRICAL STIMULATION TREATMENT FOR OVERACTIVE BLADDER SYNDROME: A PILOT STUDY

Hypothesis / aims of study

There is evidence suggesting that intravesical electrical stimulation (IVES) may increase urodynamic bladder capacity and improve detrusor overactivity in pediatric patients with spinal dysraphism and neurogenic bladder [1]. While this treatment modality has been used in this population, there has been limited study in the neurologically intact adult population. This pilot study aims to assess the safety and efficacy of IVES in women with urinary urgency and/or urgency urinary incontinence (UUI).

Study design, materials and methods

IVES was performed in women with OAB-wet (≥3 episodes of urgency incontinence in 3-day voiding diary) or OAB-dry (frequency ≥8/day or nocturia ≥2/night) who failed prior medical therapy. Women with neurogenic bladder, stress-predominant incontinence, or other recent OAB therapies were excluded. Subjects underwent twice-weekly treatments for 4 weeks with an 8-Fr Detruset™ IVES catheter (EMED, El Dorado Hills, CA). Primary outcome was PGI-I (Patient Global Impression of Improvement) at 3 months post-treatment. Secondary outcomes included Visual Analog Scale (VAS) for symptom severity, Short Form OAB Questionnaire (OAB-q SF), Pelvic Floor Distress Inventory (PFDI), Pelvic Floor Impact Questionnaire (PFIQ), reduction in frequency and UUI on 3-day voiding diary, and adverse effects. Analysis was done with paired t-tests and non-parametric Wilcoxon signed rank tests with p-value of <0.05 considered significant.

Results

16 subjects completed the study and were followed for ≥3 months after treatment. Mean age was 60.8 years (range 29-74). 14 (88%) subjects improved on PGI-I (11 subjects: “a little better”, 2: “much better”, 1: “very much better”). There were statistically significant improvements in OAB-q SF in both symptom bother scale and health-related quality of life (HRQL). PFDI score improved significantly in both the pelvic organ prolapse and urinary distress domains. Frequency decreased from 10.7±4.2 at baseline to 8.6±2.6 (p=0.01) at 3 months. No pain was reported during treatment. There was one UTI during the study period. No other adverse events were reported.

	Baseline*	After treatment*	Change from baseline*	P value
Overall bother scale (0-10)	7.6 ± 2.5	6 ± 2.9	-1.7 ± 2.3	0.01
OAB-q SF (HRQL)	49.3 ± 13.7	35.4 ± 16.6	-13.8 ± 14.2	0.001
OAB-q SF (symptom bother)	24.8 ± 4.9	18.8 ± 7.9	-6.0 ±7.2	0.004
POPDI-6	4.1 ± 3.9	1.6 ± 2.3	-2.4 ± 3.7	0.02
CRAD-8	3.6 ±4.3	2.3 ± 4.3	-1.3 ± 3.1	0.11
UDI-6	7.8 ± 4.1	4.8 ± 4.5	-3.0 ± 4.3	0.01
PFIQ-Bladder	48.6 ± 22.8	35.1 ± 25.5	-17.8 ± 14.5	<0.001
PFIQ-Bowel	4.4 ± 8.5	10.8 ± 29.9	0.4 ± 16.6	0.3
PFIQ-Vagina	1.9 ± 7.3	3.8 ± 12.1	2.2 ±5.9	0.5
Urinary frequency**	10.7 ± 4.2	8.6 ± 2.6	-2.1 ± 3.1	0.01
Urgency UI**	3.0 ± 3.7	2.1 ± 2.7	-0.8 ± 4.3	0.1
Pad change**	2.9 ± 3.3	1.8 ± 1.8	-1.1 ± 2.3	0.08

* Mean ± SD

** Average number of occurrences per day during 3-day voiding diary

Interpretation of results

Following completion of IVES therapy, there seems to be early improvement of OAB symptoms as measured both by patient perception and by validated questionnaire. Symptom bother and quality of life both improved as well. IVES seems to be well-tolerated.

Concluding message

IVES is a safe and effective novel treatment for OAB. Larger comparative studies with longer follow-up are needed to investigate its potential for long-term treatment.

References

1. Choi EK, Hong CH, Kim MJ, Im YJ, Jung HJ, Han SW. Effects of intravesical electrical stimulation therapy on urodynamic patterns for children with spina bifida: a 10-year experience. Journal of pediatric urology. 2013;9(6 Pt A):798-803.

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