

INTRAVESICAL ONABOTULINUMTOXINA INJECTIONS DO NOT BENEFIT PATIENTS WITH ULCER TYPE INTERSTITIAL CYSTITIS

Hypothesis / aims of study

Ulcer type and non-ulcer type interstitial cystitis/bladder pain syndromes (IC/BPS) are considered different disease entities. In clinical experience, patients with ulcer type IC/BPS often suffer from intractable lower abdominal pain, and the pain usually does not respond to medical treatment. Previous study suggested botulinum toxin A (BoNT-A) injections seemed promising for treating symptoms of IC/BPS, including reducing bladder pain and increasing bladder capacity. This study evaluated and compared the treatment outcomes of BoNT-A injections for treatment of ulcer and non-ulcer type IC/BPS.

Study design, materials and methods

Forty consecutive patients with IC/BPS for whom conventional treatments failed were prospectively enrolled in this study. Patients were classified as having ulcer (n=10) or non-ulcer (n=30) IC/BPS by cystoscopic findings. All patients received four sets of intravesical BoNT-A 100U injections every six months for two years regardless of whether or not symptoms improved. The primary end-point was the global response assessment (GRA) 6 months after the fourth set of injections. Patients with GRA scores ≥ 2 after treatment were considered to have successful treatment outcomes. Secondary end-points included the O'Leary-Sant score (OSS) including symptom indexes (ICSI) and problem indexes (ICPI), visual analog scale (VAS) pain score, voiding diary, and urodynamics variables.

Results

After four sets of BoNT-A injections, 15 patients with non-ulcer IC/BPS had GRA scores ≥ 2 , while the other 15 had GRA scores < 2 . All 10 patients with ulcer IC/BPS had GRA scores < 2 at the study end-point (treatment failure). At baseline, patients with ulcer type IC/BPS had significantly higher daytime frequency, nocturia, smaller functional bladder capacity, smaller voided volume, greater VAS, smaller maximal bladder capacity, and greater glomerulation grade than did patients with non-ulcer IC/BPS. After four sets of BoNT-A injections, patients with non-ulcer IC/BPS had significantly decreased symptoms, improved urodynamic variables and increased functional bladder capacity (Table 1, Table2). Even in patients with non-ulcer IC/BPS and GRA < 2 after treatment, improvement of frequency and MBC were also noted. However, patients with ulcer IC/BPS showed no significant change in any clinical or urodynamic variable. Symptoms scores including OSS, ICSI and ICPI improved in patients with non-ulcer IC/BPS but not in patients with ulcer type IC/BPS (Fig. 1).

Interpretation of results

The result of our study showed patients with ulcer IC/BPS had smaller bladder capacity and more severe symptoms at baseline. The repeated intravesical BoNT-A injections improved IC/BPS symptoms scores, increased FBC and cystometric bladder capacity, and relieved pain in patients with non-ulcer IC/BPS. But repeat BoNT-A injections did not benefit patients with ulcer IC/BPS. These results implied patients with ulcer IC/BPS have more severe and localized inflammation which could not be relieved after intravesical BoNT-A injections.

Concluding message

Repeated intravesical BoNT-A injections did not benefit any patient with ulcer type IC/BPS. Ulcer type IC/BPS should be treated as a different disease than non-ulcer IC/BPS.

Table 1. The changes of voiding diary and cystoscopic findings after repeated BoNT-A injections among ulcer and non-ulcer IC/BPS subgroups

	(A) Ulcer (N=10)	(B) Non-ulcer (GRA ≥ 2) (N=15)	(C) Non-ulcer (GRA < 2) (N=15)	P values
Frequency				
BL	22.4 \pm 11.7	13.4 \pm 3.60	13.2 \pm 4.81	A v B P=0.358
Post-Tx	19.1 \pm 8.97	7.27 \pm 1.53	9.8 \pm 3.97	A v C P=0.965
Change	3.25 \pm 10.9	6.13 \pm 3.68 *	3.4 \pm 5.25 *	B v C P=0.110
FBC				
BL	73.8 \pm 44.7	167.3 \pm 76.5	140 \pm 81.24	A v B P=0.022
Post-Tx	82.5 \pm 63.6	301 \pm 95.0	228.7 \pm 90.1	A v C P=0.021
Change	-8.75 \pm 47.6	-134 \pm 137.6*	-88.7 \pm 83.1	B v C P=0.284
MBC				
BL	558 \pm 237.5	740 \pm 208.9	723 \pm 207.5	A v B P=0.330
Post-Tx	550 \pm 232.4	766 \pm 167.5	828 \pm 154.6	A v C P=0.137
Change	75.0 \pm 286.6	-26.0 \pm 197.8	-104.7 \pm 174.6 *	B v C P=0.258
Glomerulations				
BL	3.00 \pm 1.10	1.53 \pm 0.99	1.53 \pm 0.83	A v B P=0.547
Post-Tx	2.67 \pm 1.63	0.87 \pm 0.74	1.20 \pm 0.77	A v C P=0.884
Change	0.25 \pm 1.98	0.67 \pm 1.29 *	0.33 \pm 0.72	B v C P=0.390
GRA				
BL	0	0	0	A v B P=0.000
Post-Tx	0.13 \pm 1.64	2.67 \pm 0.49	0.87 \pm 0.62	A v C P=0.284
Change	-0.13 \pm 1.64	-2.67 \pm 0.49 *	-0.87 \pm 0.62 *	B v C P=0.000

FBC: functional bladder capacity; GRA: global response assessment; MBC: maximal bladder capacity; Post-Tx: post treatment,

Table 2. The changes of urodynamic variables after repeated BoNT-A injections among ulcer and non-ulcer IC/BPS subgroups

	(A) Ulcer (N=10)	(B) No Ulcer (GRA \geq 2) (N=15)	(C) No Ulcer (GRA<2) (N=15)	P values
FD	147 \pm 82.0	156.8 \pm 66.7	167.9 \pm 49.4	A v B P=0.017
Post-Tx	164.8 \pm 84.6	249.8 \pm 70.4	228.5 \pm 78.6	A v C P=0.194
Change	-17.8 \pm 44.6	-93.0 \pm 69.7 *	-79.5 \pm 105.6 *	B v C P=0.724
US	138 \pm 60.8	224 \pm 74.5	250.6 \pm 85.4	A v B P=0.913
Post-Tx	173 \pm 36.8	263 \pm 76.2	243.2 \pm 109.2	A v C P=0.337
Change	-35.0 \pm 24.0	-39.0 \pm 45.7	7.4 \pm 52.0	B v C P=0.149
CBC	139.1 \pm 50.2	325.2 \pm 73.8	302.4 \pm 97.4	A v B P=0.195
Post-Tx	167.6 \pm 109.6	416.2 \pm 113.2	382.5 \pm 145.8	A v C P=0.397
Change	-28.4 \pm 85.3	-108.6 \pm 144.8 *	-80.1 \pm 142.1	B v C P=0.619
Volume	135.9 \pm 51.8	320.6 \pm 71.5	267.8 \pm 104.9	A v B P=0.522
Post-Tx	137 \pm 78.2	340.9 \pm 174.8	314.9 \pm 112.3	A v C P=0.429
Change	-1.14 \pm 53.6	-37.1 \pm 191.2	-47.2 \pm 143.0	B v C P=0.883
PVR	3.29 \pm 7.45	5.0 \pm 7.60	32.0 \pm 58.2	A v B P=0.354
Post-Tx	30.6 \pm 38.7	75.7 \pm 119.2	62.4 \pm 90.9	A v C P=0.950
Change	-27.3 \pm 40.6	-70.7 \pm 116.3 *	-28.9 \pm 61.6	B v C P=0.245

FD: first desire, US: urge sensation, CBC: cystometric bladder capacity, PVR: postvoid residual

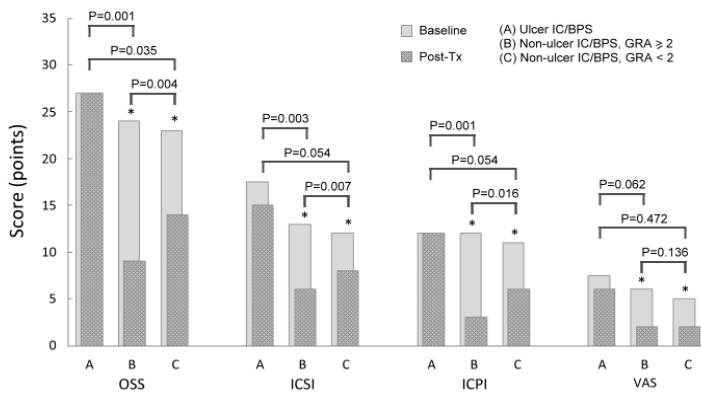


Fig. 1. Changes of O'Leary-Sant Score (OSS), interstitial cystitis symptom index (ICSI), problem index (ICPI), and pain visual analog score (VAS) among groups

Disclosures

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