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COMBINED INTRAVESICAL TRIGONAL AND URETHRAL INJECTIONS OF ONABOTULINUMTOXINA IN THE TREATMENT OF PATIENTS WITH HYPERSENSITIVE BLADDER AND VOIDING DYSFUNCTION – A PILOT STUDY

Hypothesis / aims of study

Hypersensitive bladder (HSB) is characterized as urinary frequency and small voided volume without urgency or urgency urinary incontinence. Voiding diary recording usually confirms decrease of voided volume and small functional bladder capacity (FBC). In urodynamic studies, reduced cystometric bladder capacity and an early first sensation to void were noted in patients with HSB. However, patients with HSB will not develop Glomerulation after cystoscopic hydrodistention, which is different from that of interstitial cystitis. Because of small voided volume, HSB patients usually complain of difficult urination. Recently, HSB has been implicated with overexpression of TRPV1 mRNA. There is still no consensus of the treatment of HSB, and it is usually managed like IC/PBS or overactive bladder. Combined hypersensitive bladder and voiding dysfunction is a complicated condition which greatly affects QoL. This study was designed to investigate the therapeutic efficacy of onabotulinumtoxin A (BoNT-A) in the treatment of patient with combined HSB and voiding dysfunction.

Study design, materials and methods

Patients presented with HSB and voiding dysfunction proved by videourodynamic study (VUDS) were enrolled from July, 2013 to January 2014. Inclusion criteria included mean micturitions >8 per day, and functional bladder capacity (FBC) <200 mL, first sensation to void <100ml. Patients with detrusor overactivity, bladder outlet obstruction due to benign prostate hyperplasia and bladder neck dysfunction detected in VUDS were excluded. The patients received 50 U intravesical trigonal at 10 sites and 50U urethral sphincter BoNT-A injections at 10 sites. We compared micturition frequency per day, FBC, American Urological Association Symptom Index (AUASI), quality of life index (QOL-I), Overactive Bladder Symptom Score (OABSS), Urgency severity score (USS), maximum flow rate (Qmax), post void residual (PVR) at baseline and one month after BoNT-A injection.

Results

A total of 15 patients (including 8 men, 17 women) with mean age of 53.3±11.17 years were enrolled. At baseline, the micturition frequency per day was 15.67±8.80, and FBC was 151.11±93.16 ml. When comparing to 1 month after BoNT-A injection, the micturition frequency per day was 13.56±6.30 (P= 0.348) and FBC was 194.44±108.76 mL (P=0.169). Comparison of other parameters between the baseline and 1 month, included the AUASI, OABSS, USS, Qmax, PVR all showed no significant difference. However, the QoL-I was significantly improved from baseline (5.33±0.5) to one month (2.78±0.44). (P=0.000) (Table 1) Difficult urination developed in 6 patients, but no patient had urinary retention that needed catheterization.

Interpretation of results

This pilot study showed the frequency of micturition was not significantly decreased at 1 month after combined trigonal and urethral BoNT-A injections in patients with combined HSB and voiding dysfunction. However, QoL-I was improved, and storage items of the IPSS showed borderline improvement. Increased sample size might improve the assessed outcome.

Concluding message

In this pilot study, we did not prove that intravesical trigonal and urethral BoNT-A injections can effectively improve voiding symptoms and uroflow parameters in patients with combined hypersensitive bladder and voiding dysfunction, only the quality of life index was significantly improved in this small pilot study series. The advantages and disadvantages of BoNT-A injections should be carefully weighed in the patients with complicated low urinary tract dysfunction.

Table 1. Parameters of lower urinary tract dysfunction in patients with hypersensitive bladder combined with voiding dysfunction at baseline and one month after BoNT-A treatment

	Baseline	**1 month**	**P value**
Micturition frequency per day	15.67±8.80	13.56±6.30	0.348
AUASI	21±6.34	18.3±6.51	0.335
Storage items of AUASI	7.44±3.36	6.56±3.61	0.086
Emptying items of AUASI	13.56±5.41	11.78±4.71	0.514
Functional bladder capacity (mL)	151.11±93.16	194.44±108.76	0.169
Maximum flow rate (mL/s)	10.17±4.70	10.5±7.53	0.896
Voided volume (mL)	173.17±85.43	128±111.33	0.360
Post-void residual (mL)	21.67±40.21	118.17±132.49	0.146
OABSS	8.22±5.76	5.33±4.12	0.197
USS	2.44±0.72	2.00±1.32	0.225
Quality of life index	5.33±0.5	2.78±0.44	0.000

* AUASI: American Urological Association Symptom Index

OABSS: Overactive Bladder Symptom Score, USS: Urgency severity score

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