650

Liao C[1], Hung S[2], Jiang Y[3], Kuo H[3]

1. *Department of Urology, Cardinal Tien Hospital and School of Medicine, Fu-Jen Catolic University, New Taipei,* ***2.*** *Department of Urology, Far Eastern Memorial Hospital, New Taipei, Taiwan,* ***3.*** *Department of Urology, Buddhist Tzu Chi General Hospital and Tzu Chi University, Hualien, Taiwan*

THERAPEUTIC EFFICACY AND SAFETY OF INTRAVESICAL ONABOTULINUMTOXINA 100 UNITS INJECTION ON ELDERLY PATIENTS WITH CHRONIC CENTRAL NERVOUS SYSTEM LESIONS AND OVERACTIVE BLADDER REFRACTORY TO ANTIMUSCARINIC THERAPY

Hypothesis / aims of study

Intravesical injection of botulinum toxin A (BoNT-A) has been demonstrated effective treatment for overactive bladder (OAB). Data on BoNT-A treatment for patients with central nervous system (CNS) lesions due to cerebrovascular accident (CVA), Pakinson's disease (PD) and dementia are rare. Because CNS lesions usually occur in the elderly patients and the bladder symptoms are more complicated to manage than OAB patients in general, intravesical BoNT-A treatment might not as effective and safe as that in OAB patients. This study aimed to evaluate the efficacy and safety of intravesical BoNT-A treatment on patients with chronic CNS lesions and OAB due to CVA, PD and dementia.

Study design, materials and methods

Patients with chronic CVA, PD, dementia and OAB refractory to antimuscarinic therapy were consecutively enrolled in the study group during 2005 through 2012. OAB patients without CNS lesion treated at the same time period were selected as control group. The OAB patients included in this study were aged >60 years and selected from our previous clinical trials at the authors' hospital. Patients were treated with suburothelial injection of 100 U onabotulinumtoxinA at 20 sites. All patients were closely monitored every month after BoNT-A injection until the response to BoNT-A had disappeared. The occurrence of urgency episodes and urgency urinary incontinence (UUI) were verified using a 3-day voiding diary. A validated urgency severity scale (USS) questionnaire was used to grade the severity of urgency, which was linguistic translated from the validated Patients Perception of Intensity of Urgency Scale. Any AE considered as possibly related to the BoNT-A treatment was recorded. These AEs included AUR, hematuria and general weakness, and large PVR, straining to void, and UTI during the follow-up period.

Results

A total of 36 patients with OAB due to CNS lesions (21 with CVA, 9 with PD, 6 with dementia) and 166 OAB patients without CNS lesion were included in this retrospective analysis. The mean age was comparable among three subgroups with CNS lesion. The mean duration of CNS lesion from diagnosis was 3.3 ± 3.1 years. The voiding diary, USS and urodynamic parameters at baseline showed no significant difference of between the patient groups with and without CNS lesion. Significant improvement of USS and UUI episodes per 3 days were noted in patients with CNS lesion at 3 months. Urodynamic parameters also showed significant increase of bladder capacity and increased PVR in both groups with and without CNS lesion. The Pdet.Qmax and Qmax did not change in patients with CNS lesion. However, there was no significant difference between groups. Significant improvement of USS was noted in PD and control groups. Urgency and UUI episodes were noted to improve only in CVA patients. CBC significantly increased in CVA, dementia and control patients. Compared with baseline, PVR volume increased significantly 3 months after therapy in patients with CVA, PD and control group, however, the change of PVR did not significantly different from the control group (p= 0.428). The incidence of straining to void was significantly greater in CVA subgroup. The other adverse events such as AUR, large PVR and UTI did not significantly differ among groups with and without CNS lesion.

Interpretation of results

The results of this study revealed that intravesical injection using 100 U onabotulinumtoxinA provided similar effects on OAB symptom, voiding diary and urodynamic parameters without increasing the risks of adverse events. The long-term therapeutic effects of OAB patients with CNS lesion were also similar with that in the OAB patients in general. These results confirm that intravesical injection of 100 U of onabotulinumtoxinA is an effective and safe treatment option for patients with OAB due to CVA, PD and dementia. However, higher incidence of straining to void in CVA patients deserves attention.

Concluding message

Intravesical BoNT-A 100 U injection is safe and can effectively decrease urgency symptoms and in patients with CNS lesion and OAB refractory to antimuscarinic therapy.

Table 1. Changes of voiding diary and urodynamic variables in patients with cerebrovascular disease, Parkinson's disease, dementia and patients without cerebral diseases

		N=	Baseline	3 months	P values #
USS	CVA	21	3.57 ± 0.79	3.00 ± 1.29	0.103
	PD	9	3.71 ± 0.76	2.43 ± 1.27	0.022
	Dementia	6	4.00 ± 0.00	3.25 ± 1.50	0.391
	Control	166	3.68 ± 2.70	2.70 ± 1.17	0.000
Urgency / 3 days	CVA	21	36.8 ± 24.0	28.5 ± 27.1	0.047
	PD	9	56.0 ± 26.4	43.0 ± 16.3	0.329
	Dementia	6	41.3 ± 23.3	30.5 ± 37.5	0.513
	Control	166	56.8 ± 28.7	50.5 ± 28.3	0.138
UUI / 3 days	CVA	21	13.5 ± 12.5	5.67 ± 1.21	0.050
	PD	9	10.8 ± 16.8	9.67 ± 15.0	0.749

	Dementia	6	13.3 ± 7.85	1.50 ± 3.00	0.087
	Control	166	19.3 ± 28.5	10.7 ± 25.5	0.075
Cystometric bladder capacity (mL)	CVA	21	198 ± 108	358 ± 162	0.002
	PD	9	266 ± 121	283 ± 181	0.780
	Dementia	6	202 ± 97.8	448 ± 89.0	0.001
	Control	166	248 ± 119	309 ± 147	0.000
Pdet.Qmax (cmH_2O)	CVA	21	31.0 ± 21.8	27.3 ± 18.2	0.334
	PD	9	26.3 ± 13.6	21.1 ± 7.34	0.409
	Dementia	6	18.0 ± 2.0	13.7 ± 1.53	0.006
	Control	166	26.8 ± 13.7	22.3 ± 12.6	0.000
Qmax (mL/s)	CVA	21	9.04 ± 4.567	12.2 ± 6.47	0.106
	PD	9	12.1 ± 4.81	11.6 ± 7.83	0.872
	Dementia	6	8.75 ± 2.50	7.33 ± 2.01	0.109
	Control	166	13.1 ± 7.56	11.4 ± 6.4	0.019
PVR (mL)	CVA	21	56.5 ± 53.7	169 ± 131	0.002
	PD	9	36.7 ± 32.4	114± 109	0.048
	Dementia	6	37.2 ± 35.6	194 ± 165	0.125
	Control	166	41.4 ± 66.4	120 ± 116	0.000

comparison of the changes of variables from baseline to 3 months within each group. CVA: cerebrovascular accident, OAB: overactive bladder, PD: Parkinson's disease, Pdet.Qmax: detrusor pressure at Qmax, PVR: Postvoid residual, Qmax: maximum flow rate, USS: urgency severity score, UUI: urgency urinary incontinence.

Table 2. Success rates and adverse events among 21 patients with CVA, 9 with Parkinson's disease, 6 with dementia, and 166 without medical disease

	Age (years)	AUR	PVR >150 mL	Straining to void	Hematuria	UTI	General weakness
CVA (n=21)	73.6±7.5	4(19.4%)	12(57.1%)	16(76.5%)	2(9.5%)	1(4.8%)	1(4.8%)
PD (n=9)	73.6±11.2	1(11.1%)	3(33.3%)	1(11.3%)	1(11.1%)	2(22.2%)	1(11.1%)
Dementia (n=6)	76.2±9.7	0	1(16.7%)	2(33.3%)	0	0	0
Control (n=166)	74.6±7.5	16(9.6%)	63(38.0%)	81(48.6%)	16(9.6%)	22(13.3%)	6(3.6%)
P values	0.864	0.682	0.224	0.021	0.886	0.247	0.464

AUR: acute urinary retention, CVA: cerebrovascular accident, OAB: overactive bladder, PD: Parkinson's disease, UTI: urinary tract infection.

Disclosures
Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Research Ethics Committee of Buddhist Tzu Chi General Hospital **Helsinki:** Yes **Informed Consent:** Yes