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INCREASED RISK OF LARGE POSTVOID RESIDUAL URINE AND LOWER LONG-TERM SUCCESS RATE IN FRAIL PATIENTS 70 YEARS AND OLDER AFTER INTRAVESICAL ONABOTULINUMTOXIN A INJECTION FOR REFRACTORY IDIOPATHIC DETRUSOR OVERACTIVITY

Hypothesis / aims of study

Intravesical injection of onabotulinumtoxin A (BoNT-A) is effective for idiopathic detrusor overactivity (IDO) refractory to antimuscarinics. However, safety is a major concern, especially for the elderly or frail patients. We investigated the efficacy and safety of intravesical BoNT-A injections for refractory IDO in frail patients 70 years and older

Study design, materials and methods

From 2004–2009, 157 patients with urodynamic IDO refractory to previous antimuscarinics for more than 3 months received one intravesical 100 U BoNT-A injection. Patients were requested to record a 3-day voiding diary prior to treatment. Routine videourodynamic study (VUDS) was performed at baseline for the diagnosis of IDO and detection of bladder outlet obstruction (BOO). Exclusion criteria were urinary tract infection (UTI), BOO, intrinsic sphincter deficiency (ISD), neurogenic bladder, or >150 ml post-void residual (PVR) urine at enrolment. “Frailty” was defined as those with 3 or more of the following criteria: unintentional weight loss (4.54 kg in the past year), self-reported exhaustion, weakness (grip strength), slow walking speed, and low physical activity. Treatment results were assessed using patients’ perception of bladder condition (PPBC), voiding diary, urodynamic parameters, and Kaplan–Meier estimates of survival plots.

Results

These patients included 52 frail patients 70 years and older, 47 older patients without frailty, and 58 subjects younger than 70 years. The frail older patients had a higher rate of OAB-wet (96.2%) than the other groups (74.2% and 75.9%, p = 0.005). Patients younger than 70 years had higher maximum flow rate (Qmax), lower PVR, and higher voiding efficiency (VE) than elderly patients (Table 1). The average number of UUI episodes decreased from 23.1 to 6.7 in the 3-day voiding diary (p = 0.018) 3 months after intravesical 100 U BoNT-A treatment in the frail older patients. The average bladder capacity increased from 244 to 300 mL (p = 0.004), but the PVR also increased from 43.7 to 123 ml (p = <0.001). The success rate among the groups 3 and 6 months after intravesical BoNT-A treatment was similar. However, the success rate 12 months after treatment was significantly lower (14.4%) in the frail older patients than in the other groups (59.1% and 49.2%). In addition, the cumulative success rate was significantly lower in the frail older patients than in the other 2 groups individually (p = 0.0049) or combined (p = 0.0027). When we compared the different AEs among groups, large PVR (>150 mL) after BoNT-A injection was significantly more common in the frail older patients (59.6%) than in the other groups (42.6% and 34.5%, respectively) (p = 0.028). Urinary retention developed in 6 (11.5%) frail older patients, 3 (6.4%) older patients without frailty, and 2 (3.4%) patients in the younger group (Table 2). The difference in AUR among groups was not significant (p = 0.247), but the recovery period (from AUR to spontaneous voiding without catheterization) was significantly longer in the frail older patients (median 3.5 months) than in the older patients without frailty (1 months) and younger groups (0.5 months) (p = 0.01). Four frail older patients (7.7%) reported experiencing general weakness after treatment, while no other events occurred in the younger or older patients without frailty.

Interpretation of results

Our results show that the frail older patients can attain the same treatment results such as significant improvement of UUI and QoL as younger and older patients without frailty. However, an increased risk of large PVR and lower long-term success rate were noted in the frail older patients. Around 60% of the frail older patients had PVR > 150 ml; 11% had AUR after treatment.

Concluding message

Although the safety and efficacy between older patients without frailty and younger patients were similar, an increased risk of large PVR and lower long-term success rate were noted in the frail older patients after intravesical 100 U BoNT-A injection for refractory IDO. Frail older patients who developed AUR had longer recovery times. Patients and their families should be informed of the risks of intravesical BoNT-A injection for refractory OAB/DO in the frail older patients before initiation of treatment.

Table 1. Baseline parameters

	Frail older patients (N=52)	Older patients without frailty (N=47)	Younger than 70 years (N=58)	P value
Age (years)	78.8 ± 5.0	77.3 ± 4.2	52.1 ± 14.0	<0.001
Male gender	30 (57.7%)	37 (78.7%)	15 (25.9%)	<0.001
OAB wet	50 (96.2%)	35 (74.5%)	44 (75.9%)	0.005
3-day urinary Frequency	70.0 ± 16.1	74.0 ± 14.4	84.1 ± 26.0	0.526
Urgency/UUI episode	38.6 ± 27.3	47.3 ± 25.8	64.1 ± 35.5	0.005

UUI episodes	23.1 ± 29.7	16.4 ± 17.6	13.5 ± 22.4	0.031
CBC (ml)	244 ± 110	276 ± 115	249 ± 124	0.605
Pdet (cm2O)	25.9 ± 14.3	26.2 ± 16.3	24.2 ± 13.3	0.648
Qmax (ml/s)	12.7 ± 6.3	10.6 ± 5.03	14.1 ± 6.59	0.003
PVR (ml)	43.7 ± 49.8	37.8 ± 49.3	15.7 ± 28.0	0.001
VE (%)	83.3 ± 19.1	82.8 ± 24.3	92.6 ± 13.2	0.012
QoL-index	5.3 ± 0.8	5.0 ± 1.2	5.4 ± 0.7	0.144

OAB: overactive bladder; UUI: urgency urinary incontinence; CBC: cystometric bladder capacity; Pdet: voiding detrusor pressure; Qmax: maximum flow rate; PVR: postvoid residual; VE: voiding efficiency; QoL: quality of life
*comparisons using ANOVA test

Table 2. Adverse events after intravesical BoNT-A injection

	Frail older patients (N=52)	Older patients without frailty (N=47)	Younger than 70 years (N=58)	P value
AUR	6 (11.5%)	3 (6.4%)	2 (3.4%)	0.247
Large PVR	31 (59.6%)	20 (42.6%)	20 (34.5%)	0.028
Straining to void	22 (42.3%)	22 (46.8%)	20 (34.5%)	0.425
Hematuria	8 (15.4%)	5 (10.6%)	4 (6.9%)	0.359
UTI	8 (15.4%)	2 (4.3%)	16 (27.6%)	0.006
General weakness	4 (7.7%)	0 (0%)	0 (0%)	0.016

AUR: acute urinary retention; PVR: postvoid residual, UTI: urinary tract infection
*comparisons using ANOVA test

Disclosures
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