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BOTULINUM TOXIN A (BOTOX) IN THE TREATMENT OF NEUROGENIC DETRUSOR OVERACTIVITY AND INCONTINENCE IN SPINAL CORD INJURED PERSONS

Aims of Study

Spinal cord injured (SCI) persons suffer a significant risk for developing urinary tract complications due to neurogenic detrusor overactivity (NDO), and furthermore they are frequently troubled by considerable urinary leakage. During recent years botulinum toxin A (Botox) (BTA) has been introduced in treatment of NDO in these persons, and results have been promising [1]. The aim of the present study was to evaluate the efficacy of intravesical BTA treatment in a series of SCI persons suffering from NDO and incontinence.

Methods

Fifteen SCI persons (12 men and 3 women) aged 24 to 67 years (median, 32 years) were included. Time from SCI ranged from 2 to 23 years (median, 9 years). All suffered from NDO and incontinence even though they were treated with high dose tolterodine. The amount of urine lost during incontinence episodes was quantified within a week before treatment by means of 24-hours pad test (women) or measuring the amount of urine leaked into a condom-catheter (men). Filling cystometry was performed less than 3 months before treatment and maximum bladder capacity, maximum detrusor pressure during filling, and maximum volume at detrusor pressure below 40 cm H_2O were determined. Estimation of urine loss and cystometry were repeated 6 weeks after treatment, and again after 6 months unless the treatment had been repeated because of incontinence.
At treatment a total of 300 IU of Botox was injected cystoscopically into the detrusor muscle at 30 locations excluding the trigone.

Results

Thirteen of 15 patients (87%), including the 3 women, reported to be fully continent within 2 weeks after treatment, and the volume leaked in the 2 incontinent patients was significantly reduced. All had stopped anticholinergic medication. The maximum detrusor pressure during filling was significantly reduced, and maximum volume at detrusor pressure below 40 cm H_2O was significantly increased in all patients (Table 1). The maximum bladder capacity was increased, although not significantly (Table 1). The period the patients remained continent following treatment ranged from 4 to 8 months (median, 5 months). In seven patients who had a cystometry performed after 6 months, the parameters measured were still markedly improved as compared to before treatment. No side effects were observed.

Table 1

	Before BTA injection	After BTA injection
Incontinence (n)	15 (100%)	2 (13%) **
Leaked volume (ml/d)	700 (200-1800)	0 (0-250) ***
P_{det}-max (cm H_2O)	86 (65-192)	35 (5-73) ***
$Vol_{Pdet<40\ cm\ H2O}$ (ml)	185 (65-487)	434 (188-722) ***
Vol_{max} (ml)	350 (79-719)	457 (345-722) ^{ns}

^{ns}) not significant; **) p<0.01, McNemar; ***) p<0,0005, Wilcoxon

Conclusions

The present study confirms that BTA is highly effective in the treatment of NDO and incontinence in SCI persons. The duration of the BTA effect as evaluated by cystometry has previously been reported to be up to approximately 12 months [2], however when looking at continence/incontinence – which is highly important for the patients' quality of life – the present results indicate that more frequent therapy is probably necessary in order to retain total continence.

References

1. Reitz A, Stöhrer M, Kramer G et al. European experience of 200 cases treated with Botulinum-A toxin injections into the detrusor muscle for neurogenic incontinence. Eur Urol 2003;suppl. 2:140.
2. Staehler M, Sauter T, Miller K. Long term results proof Botulinum toxin A injection in the m. detrusor vesicae to be an alternative to surgery in children with myelomeningocele. Eur Urol 2003;suppl. 2:140.