

EFFICACY OF BOTULINUM-A TOXIN IN THE TREATMENT OF REFRACTORY OVERACTIVE BLADDER SYNDROME: PRELIMINARY RESULTS OF A PROSPECTIVE NON-RANDOMIZED STUDY

Hypothesis / aims of study

Botulinum-A toxin (BTX-A) injection into the detrusor muscle in spinal cord injured patients with detrusor hyperreflexia has recently gained worldwide acceptance (1). It was the aim of this study to evaluate the efficacy of this treatment in patients suffering from refractory overactive bladder syndrome (OAB).

Study design, materials and methods

Since February 2003 31 patients (female, mean age 68; 48-86) entered this ongoing open label prospective non-randomized study done at two clinics. All patients gave informed consent before entering the treatment program and the local ethics committees approved the project. Inclusion criteria were an urodynamically proven idiopathic detrusor overactivity not effectively treatable by different and high dose of anticholinergic medication (ACH) and a high impact on quality of life (QoL). Pretreatment evaluation consisted of history, urodynamic evaluation, bladder diaries, urinalysis and urine culture. Special attention was given to maximal bladder capacity (MBC), compliance (C), residual volume (RV), volume during first desire to void and urgency, daytime frequency, nocturia and urge incontinence episodes. Under cystoscopic control a total amount of 100 units of BTX-A (Botox[®], Allergan) were injected into the detrusor muscle at 30 different sites, sparing the trigone. Clinical and urodynamic controls were performed at 4, 12 and 36 weeks after BTX-A treatment. QoL assessment was performed by the King's Health Questionnaire (KHQ) validated in German language.

Results

BTX-A treatment was completed in all 31 patients without any major immediate or late complication. Presently 26/31 patients have been fully evaluated after 4 weeks, 20/31 after 12 weeks and 5/31 after 36 weeks. At 4, 12 and 36 week follow-up urodynamic evaluation revealed a significant increase of MBC and C and a significant decrease of daytime frequency. RV significantly increased 4 weeks after BTX-A treatment (all urodynamic data are shown in Table 1).

| Parameter | Before BTX-A (n=26) | After BTX-A | | |
|--------------------------------|------------------------|-------------------|--------------------|-------------------|
| | | 4 weeks (n=26) | 12 weeks (n=20) | 36 weeks (n=5) |
| MBC (ml) | 216 ± 104 | 346 ± 98* | 352 ± 85* | 340 ± 134* |
| C (ml/cmH ₂ O) | 14 ± 10 | 38 ± 19* | 42 ± 26* | 40 ± 23* |
| RV (ml) | 18 ± 22 | 63 ± 64* | 41 ± 57 | 11 ± 12 |
| Vol. first desire to void (ml) | 117 ± 70 | 169 ± 86 | 192 ± 79* | 171 ± 108 |
| Vol. urgency (ml) | 177 ± 79 | 230 ± 89 | 251 ± 76* | 209 ± 92 |
| Daytime frequency | 12 ± 3 | 7 ± 3* | 7 ± 2* | 8 ± 2* |
| Nocturia | 3 ± 1 | 1 ± 1* | 1 ± 1* | 2 ± 3 |

* Statistically significant differences (p<0.05) between before and after BTX-A treatment (ANOVA for repeated measures with subsequent Bonferroni correction)

2 patients with RV 100 and 230ml respectively at first control visit were on self-catheterization for 1 week until RV decreased to <100ml. After 4 weeks 18/26, after 12 weeks 16/20 and after 36 weeks 1/5 patients were subjectively without any urge related incontinence episodes. Within the 15 control visits so far 8 patients had to be treated for an urinary tract infection. There was 1 drop-out after first control visit due to inefficiency of BTX-A treatment. Evaluation of bother and necessity of wearing pads by the KHQ for 26/31 patients before and after BTX-A treatment is shown in Table 2.

| Table 2: Evaluation of bother and necessity of wearing pads by the KHQ before and after BTX-A treatment | | | | |
|---|---------------------|--------------------|-----------------|-----------------|
| KHQ | Before BTX-A | After BTX-A | | |
| | | 4 weeks | 12 weeks | 36 weeks |
| Bother | n=26 | n=26 | n=20 | n=5 |
| not at all | | 6 | 7 | 1 |
| a little | 1 | 10 | 9 | 2 |
| moderately | 7 | 10 | 4 | 1 |
| a lot | 18 | | | 1 |
| Necessity of wearing pads | n= 24 | n=24 | n=20 | n=5 |
| never | | 4 | 4 | |
| sometimes | 4 | 5 | 4 | 3 |
| often | 3 | 2 | | |
| all the time | 17 | 13 | 12 | 2 |

So far 2 patients were reinjected after the effect of BTX-A treatment had diminished 5 and 10 months after initial injection. All successfully treated patients would be willing to undergo a second BTX-A injection if efficacy diminishes. Data analysis of urodynamic parameters and QoL assessment for the remaining patients is ongoing.

Interpretation of results

Based on sequential urodynamic and subjective evaluation (KHQ) this is one of the first pilot-studies indicating that BTX-A injection into the detrusor muscle is a safe and effective treatment option for patients with idiopathic detrusor overactivity refractory to conventional treatment. Patients` acceptance and satisfaction are high and recruitment of patients is ongoing.

Concluding message

BTX-A treatment is a promising new approach for effective treatment of OAB.

References

1. Botulinum-A toxin for treating detrusor hyperreflexia in spinal cord injured patients: a new alternative to anticholinergic drugs? Preliminary results. J Urol 2000, 164: 692-697.