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Title: BOTULINUM TOXIN-A TO TREAT DETRUSOR HYPERREFLEXIA IN SPINAL CORD INJURED PATIENTS

Aim of the study:

Botulinum toxin-A (BTX-A) injection into the detrusor vesicae muscle is an effective treatment for major detrusor hyperreflexia resistant to high doses of anticholinergic drugs in spinal cord injured patients (SCI) [1, 2, 3]. The aim of this study was to assess the long-term efficacy and safety of this treatment.

Patients and Methods:

Since March 1998, 84 SCI and 3 spina-bifida patients suffering from severe detrusor hyperreflexia and incontinence, despite of taking high doses of anticholinergic drugs, entered the study. All patients emptied their bladder by intermittent self-catheterization. Pre-treatment evaluation consisted of history, full urodynamics and measurement of post-void residual volume. Special attention was given to maximal cystometric bladder capacity (MCBC), maximal detrusor pressure during voiding (MVP), compliance and reflex volume (RV). All patients gave informed consent before entering the treatment program. The local ethical committee gave approval for the project. Botulinum toxin-A (BTX-A) injections were performed under cystoscopic control on an outpatient basis, 20 minutes after intravesical instillation of 40 ml of xylocaine 2%. The injections into the detrusor muscle with 300 units of Botox or 500-750 units of Dysport (two different brands of botulinum toxin) were distributed over 30 different sites, sparing the trigonum. Continuous cardiovascular monitoring took place during the procedure in all patients. After completion of the treatment, patients returned home being asked to reduce anticholinergic drugs up to 1 week after BTX-A injections. Clinical and urodynamical controls were planned at 6 and 16 weeks after injection. Re-injections were planned at recurrence of reflex incontinence confirmed by urodynamic examination. Statistical analysis consisted of repeated measurement ANOVA. The level of significance was set at $p=0.05$.

Results:

Seventy-one patients were treated with intravesical Botox injections and 16 with intravesical Dysport injections. All but 5 patients showed improvement of the bladder function after treatment. At 6 and 16 weeks follow-up, there was a significant increase of the MCBC from mean 284 ml to mean 487ml, respectively 478 ml ($p<0.05$), a significant increase of the RV from mean 178 ml to mean 412 ml, respectively 366 ml ($p<0.01$) and a significant decrease of the MVP from mean 74 H_2O to mean 33 $cm H_2O$, respectively 24 $cm H_2O$ ($p<0.05$). Bladder compliance tended to increase but this was not significant. Overall, there was a poorer improvement of the bladder function in the Dysport group. Anyway, all responders could reduce or even stop anticholinergic drugs without recurrence of reflex incontinence. All were very satisfied with the treatment. We did not observe any side effects. The duration of the bladder paralysis ranges from 4 to 14 months. At the present time, 24 patients were re-injected 2 times, 7 patients 3 times and 3 patients 4 times. None of these patients showed resistance to the toxin.

Conclusions:

At long-term follow-up, botulinum toxin-A injections into the detrusor vesicae muscle proves to be a valuable and safe therapeutical management of neurogenic reflex incontinence. The less favourable results obtained in the Dysport group may be interpreted as the result of an inadequate dosage. Further study is needed to assess why some patients appear as non-responders.

References:

1. Neurol Urodyn 1999; 18 (4): 401
2. J Urol 2000; 164: 692-697.
3. N Engl J Med 2000; 342(9): 665.

This work was partially funded by the International Institute for Research in Paraplegia (P17/97-2000) and the Swiss National Science Foundation (32-52562.97)