130

M. Stöhrer[1], B. Schurch[2], G. Kramer[1], D. Schmid[2], G. Gaul[1], D. Haun[3]

[1]Department of Urology, BG Unfallklinik Murnau; [2]Swiss Paraplegic Centre, Balgrist; [3]Department of Urology, University Hospital Zürich

BOTULINUM A-TOXIN IN THE TREATMENT OF DETRUSOR HYPERREFLEXIA IN SPINAL CORD INJURED PATIENTS: A NEW ALTERNATIVE TO MEDICAL AND SURGICAL PROCEDURES?

Aim of Study

The aim of the study was to evaluate the efficacy of Botulinum A-toxin injections into the detrusor muscle to treat major detrusor hyperreflexia resistant to high doses of anticholinergic drugs in patients with spinal cord injury.

Patients and methods

Nineteen patients with complete spinal cord injury (8 women and 11 men; 15 paraplegic, 4 tetraplegic) suffering from severe detrusor hyperreflexia and incontinence despite the administration of high doses of anticholinergics entered into the study. All patients gave informed consent before entering the treatment program and the local ethics committees approved the project. All patient emptied the bladder by intermittent self-catheterisation. Pre-treatment evaluation consisted of history, full urodynamics, and measurement of post-void residual. Special attention was given to maximal cystometric capacity, maximal detrusor pressure during voiding, detrusor compliance, and maximal bladder capacity. Botulinum A-toxin injections were performed under cystoscopic control. At 20 to 30 different sites in the detrusor muscle, sparing the trigonum, a total amount of 200 to 400 units of botulinum A-toxin was injected. A previous titration study concluded that about 300 units might be the most effective dosage. Continuous cardiovascular monitoring was performed during the procedure. After completion of the treatment the patients were asked to reduce the use of anticholinergics up to one week after injection. Clinical and urodynamic checks were planned at 6, 12 and 24 weeks after treatment. Statistical analysis was done by repeated measures ANOVA, the level of significance was set at p=0.05.

Results

Presently all patients have been fully evaluated after 6 weeks and 8 patients after 12 weeks. At 6 weeks there was a significant increase of maximal cystometric capacity, maximal bladder capacity, and a significant decrease of maximum voiding pressure.

Six weeks after treatment n=19	Mean		Standard deviation	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
maximal cystometric capacity	213	450*	119	313
maximal bladder capacity	298	456**	183	192
maximum voiding pressure	65	19*	34	24
detrusor compliance	25	39	17	11
	*: p<0.05 **: p<0.01			

The detrusor compliance increased also, but this was not significant. All patient could reduce the amount of anticholinergics, or even complete abolish this, without resulting incontinence. All were very satisfied with the treatment. We did not observe any side effects — in particular no dysphagia, diplopia, or paresis of the remote musculature. Moreover in the two tetraplegic patients the autonomic dysreflexia that was linked to bladder emptying disappeared after treatment. The eight patients who have been evaluated 12 weeks after treatment demonstrate ongoing improvement of their urodynamic parameters and of the incontinence.

Conclusions

Botulinum A-toxin injection into the detrusor proves to be a valuable and safe therapeutical management option in spinal cord injury patients who are under intermittent self-catheterisation and suffer from incontinence despite high doses of anticholinergic drugs. Patients' acceptance and satisfaction are high. Longer follow-up is needed to assess the duration of the bladder paralysis induced by the toxin.

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)

131

Won Hee Park, Hyeong Gon Kim, Byung Joo Park*, Dong Young Kim*, Dong Jin Oh*, Yong Soo Lim*, Hong Bang Shim*

From the Dept. of Urology, Inha University College of Medicine, Songnam and Korea Veterans Hospital*, Seoul, Korea

COMPARISON OF THE EFFECTS OF INTRAVESICAL CAPSAICIN AND RESINIFERATOXIN FOR TREATMENT OF DETRUSOR HYPERREFLEXIA IN PATIENTS WITH SPINAL CORD INJURY

Aims of study

The clinical and urodynamic effects of intravesical capsaicin, a neurotoxic substance causing a reversible supression of C fiber afferent neuronal activity, and resiniferatoxin, whose phamacological effects are similar to those of capsaicin, were investigated in patients with spinal cord injury.

Methods

A total 13 patients with detrusor hyperreflexia due to chronic spinal cord injury were investigated. In 7 men capsaicin solution(2mM) dissolved in 30% alcohol was instilled intravesically and in 6 men resiniferatoxin solution(10nM) dissolved in 10% alcohol was instilled intravesically. Effects on bladder function and subjective symptoms were evaluated before and after intravesical instillation of capsacin and resiniferatoxin.

Results

In capsaicin-treatment cases, median bladder capacity increased from 108ml to 270ml 10 minutes later after treatment($p=0.007$) to 156ml at 4 weeks($p=0.06$), while maximal detrusor pressure were 75cmH_2O, 44cmH_2O($p=0.156$) and 60cmH_2O($p=0.12$), respectively. Subjectively 4 patients(57%) had considerable improvement in voiding symptoms and the effect persist for 4 to 6 weeks. Autonomic dysreflexia was observed in 4 patients, suprapubic discomfort in 3 patients and gross hematuria in 1 patient.

In resiniferatoxin-treatment cases, median bladder capacity increased from 115ml to 208ml 10 minutes later after treatment($p=0.002$) to 222ml at 4 weeks($p=0.06$), while maximal detrusor pressure were 58cmH_2O, 60cmH_2O($p=0.38$) and 53cmH_2O($p=0.34$), respectively. Subjectively 5 patients(83%) had considerable improvement in voiding symptoms and the effect persist for 4 weeks. Side effects were not found.

Conclusions

Intravesical instillation of capsaicin or resiniferatoxin seems effective methods for treatment of detrusor hyperreflexia in spinal cord injury. But the general use of intravesical capsaicin was limited due to side effects. Intravesiccal resiniferatoxin would be an interesting alternative to intravesiccal capsaicin in the treatment of detrusor hyperreflexia.

References

(1). Clinical and urodynamic effects of intravesical capsaicin treatment in patients with chronic traumatic spinal detrusor hyperreflexia. J Urol 1995; 154: 1825-9.

(2). Intravesical capsaicin for treatment of detrusor hyperreflexia. J Neuro Neurosurg Psychiatry 1994; 57: 169-73.

(3). Urodynamic effects of intravesical resiniferatoxin in humans: preliminary results in stable and unstable detrusor. J Urol 1997; 158: 2093-6.