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EUROPEAN EXPERIENCE OF 184 CASES TREATED WITH BOTULINUM-A TOXIN INJECTIONS INTO THE DETRUSOR MUSCLE FOR NEUROGENIC INCONTINENCE

Aims of Study

The efficiency of botulinum-A toxin injections into the detrusor muscle to treat major detrusor hyperreflexia and neurogenic incontinence has been recently established (1,2). This minimal invasive procedure offers a new therapeutic option between ineffective or incompatible anticholinergic drug therapy and surgery like enterocystoplasty. This study aimed at providing a comprehensive european experience with botulinum-A toxin injections into the detrusor muscle in patients with spinal cord injury/disease, detrusor hyperreflexia and neurogenic incontinence.

Methods

Nine centers with experience in botulinum-A toxin injections into the detrusor muscle provided their data. Since 1998 all together 215 patients with neurogenic incontinene due to SCI, multiple sclerosis, spina bifida or myelomeningocele were treated with botulinum-A toxin injections into the detrusor muscle. Only the first botulinum-A toxin injection per patient was included in this study and all reinjections were excluded. All patients had detrusor hyperreflexia and incontinence resistent to high doses of anticholinergics or presented severe side effects of the anticholinergic medication. Intermittent self-catheterisation was performed by most of the patients to empty the bladder. The evaluation before injection included clinical examination, urine analysis and complete urodynamics. During baseline urodynamics and follow-up examination special attention was paid to the following parameters: reflex volume (RV), maximum detrusor pressure during voiding (MVP), detrusor compliance and maximum cystometric bladder capacity for patients with impaired sensation (MCMC). Botulinum-A toxin injections were performed under cystoscopic control. 300 units of Botox® (Allergan Inc) were injected into the detrusor muscle at 30 different sites (10 units per ml and per site) sparing the trigonum. Continuous cardiovascular monitoring was obtained in all patients all along the procedure. After injection the patients were instructed to reduce anticholinergic drugs up to 1 week after treatment. Clinical and urodynamical data of the first and the second urodynamical follow-up examination were analysed. Data were statistically evaluated by analysis of variance for repeated measurements (ANOVA, level of significance $p<0.05$).

Results

184 of the 215 patients treated with intravesical botulinum A toxin injections could be analysed. The data of 31 treatments were incomplete and excluded. The injection appeared as an easy and minimal-invasive procedure. No injection-related complications or toxin-related side effects were reported. The analysed patients could considerably reduce or even stop anticholinergic drugs without recurrence of reflex incontinence and were satisfied with the treatment.

At the first urodynamical follow-up examination (mean: 12 weeks after injection) we observed a significant increase of the mean MCBC from 272 ml to 420 ml ($p<0.0001$), a significant increase of the mean RV from 236 ml to 387 ml ($p<0.0001$) and a significant reduction of the mean MVP from 61 cm H_20 to 30 cm H_20 ($p<0.0001$). The mean bladder compliance increased significantly from 32 ml/cm H_20 to 72 ml/cm H_20 ($p<0.0001$).

At the second urodynamical follow-up examination (mean: 36 weeks after injection) there was still a significant increase of the mean MCBC from 272 ml to 352 ml ($p<0.0001$), a significant increase of the mean RV from 236 ml to 291 ml ($p<0.01$) and a significant reduction of the mean MVP from 61 cm H_20 to 44 cm H_20 ($p<0.0001$). The mean bladder compliance increased non significantly from 32 ml/cm H_20 to 51 ml/cm H_20.

Conclusions

This retrospective european multicenter study confirms that botulinum-A toxin injections into the detrusor muscle allow a valuable and safe therapeutical management of detrusor hyperreflexia and neurogenic reflex incontinence. The technique described in 2000 seems to be adequate in this indication (1,2). Significant improvement of bladder function concerning RV, MCBC and MVP could be observed for a mean period up to 36 weeks. The benefit of urodynamical parameters corresponds with continence and subjective satisfaction noted by the treated patients.

Botulinum-A toxin for treating detrusor hyperreflexia: a new alternative to anticholinergic drugs, preliminary results. J Urol 2000; 164: 692-97.

Botulinum-A toxin injections to treat neurogenic incontinence in spinal cord injured patients. N Engl J Med 2000; 342(9): 665.