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MULTICENTER ANALYSIS OF 10 YEARS FOLLOW UP AFTER REPEAT INTRAVESICAL BOTULINUM TOXIN-A INJECTIONS IN PATIENTS WITH DETRUSOR OVERACTIVITY

Hypothesis / aims of study

The emerging data of intravesical botulinum toxin-A (BTA) use for the treatment of idiopathic overactive bladder showed this treatment to be an efficacious and well-tolerated alternative to the mainstay of therapy [1]. However, It has been shown to be a treatment with a temporary effect which normally lasts no more than several months up to a year [1,2]. After every injection with BTA, there is a risk of an unacceptably high post void residual bladder volume and a consecutive indication to clean intermittent self-catheterisation (CISC). It is not clear whether the effect of repeated BTA is different from each prior BTA treatment. Moreover, it is not known whether the chance of CISC increases with increasing number of BTA treatment sessions. In this study we aimed to assess the length of the effect of repeat BTA injections in the bladder of patients with an overactive bladder, due to neurogenic DO as well as idiopathic DO. Moreover, the chance of CISC necessity after each BTA treatment was evaluated.

Study design, materials and methods

Between 2004 and 2014, a total of 376 patients with either neurogenic or idiopathic DO were treated with BTA in one of the three centres included in our study. We analysed the data of all patients who were treated with at least three repeated injections. Thirty two patients met these inclusion criteria. The total dose per injection of BTA varied between 100-300 IU, However, in about 90 % of the injections 200 IU was injected. In nearly all cases the trigone was not injected with BTA. The interval between two subsequent injections was calculated in days. Data of CISC after each BTA treatment was scored and analysed. Statistical analysis of the length of effect is done with one-way analysis of variance (ANOVA).

Results

A total of thirty one patients (3 male and 28 female) with a median age of 63 years old (range 30-92) were included.
The mean interval between the first and second injection was 319 days (n=31), between the second and third, 270 days (n=31), between the third and fourth, 283 days (n=26), between the fourth and fifth, 219 days (n=15), between fifth and sixth 147 days (n= 11) and between sixth and seventh injection 175 days (n=4) (Table 1).
The interval between consecutive injections did not change significantly (p=0,72).

The number of patients requiring CISC due to urinary retention was scored around two weeks after each injection. From our total population of 31 patients, 9 patients received intravesical BTA injections due to neurogenic DO. Five of these patients had the diagnosis multiple sclerosis and two patients had suffered a stroke. The remaining two patients suffered from spinal cord injury. All of these nine patients had to perform CISC before receiving their first intravesical BTA injections and were therefore, not included in the analysis of the CISC incidence.
A total of 22 patients received intravesical BTA injections for idiopathic DO. From these 22 patients, 8 patients required CISC due to urinary retention after the first injection, (34 %), 11 patients (48 %) after second, 10 patients (52 %) after third, 8 patients (47 %) after fourth, 6 patients (53 %) after fifth, 4 patients (44 %) after sixth and 2 patient (50%) after seventh injection with BTA. [table 2].

Table 1. Inter-injection interval						
Round of BTA	**1st -2nd**	**2nd-3rd**	**3rd-4th**	**4th-5th**	**5th-6th**	**6th-7th**
Number of patients	31	31	26	15	11	4
Interval in days [range]	319 [119-630]	270 [96-1273]	283 [109-623]	219 [109-457]	147 [139-919]	175 [145-708]

Interpretation of results

CISC may be necessary after any injection, for a longer or shorter period. Some patients may never be able to void by themselves[1]. As the interval between consecutive injections did not change significantly, we can conclude that the effect duration of repeated BTA injection for both idiopathic as well as neurogenic detrusor overactivity, seems to be equal. Moreover, as the patients in our study returend spontaneaously for a repeated BTA treatment, we conclude that patients seem to be pleased or content with the treatment, even though they are often dependent on CISC after the treatment. Recent studies have reported the main adverse events after BTA to be localised to the urinary tract[3]. The mean post voiding residual volume is higher in the BTA treated patients and there is a clear risk of urinary retention requiring CISC [3]. The rate of CISC in our study ranged between 34-53% and does not seem to raise as the number of injections raises.

Table 2. The number of patients requiring CISC							
Injections with BTA	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**
Patients requiring CISC	8	11	10	8	6	4	2
Total nr of BTA treated patients	23	23	19	17	11	9	4
Percentage of CSIC	34%	48%	52%	47%	53%	44%	50%

Concluding message

It does not seem to matter whether it is a first injection or a repeat injection for the persistence of the length of effect of BTA for the treatment of DO. Moreover, the chance of high post voiding residual volumes or urinary retention as a complication of BTA treatment requiring CISC, does not seem to increase with increasing number of BTA treatment sessions.

References

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