

Intra detrusor injections of botulinum toxin type A in children with spina bifida: a multicenter study

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Introduction :

Intradetrusor injections of botulinum toxin type A (IDBTX-A) : gold standard in adults for treatment of neurogenic detrusor over activity resistant to anticholinergics. Objective : assess the effectiveness of IDBTX-A in children with spina bifida

Material and methods :

Multicentric, retrospective study

- All patients under 16 years
- IDBTX-A between 2002 and 2016
- 6 french centers
- The primary endpoint : success of the injection defined as both clinical and urodynamic improvement

Results :

- 53 patients, mean age of 8.5 years
- 133 IDBTX-A
- 33 patients (62%) had a second injection
- median interval between the first two injections was 9 months.
- Patients with low compliance bladder without detrusor overactivity had no urodynamic improvement

PRIMARY ENDPOINT : Clinical and urodynamic success
GLOBAL SUCESS RATE = 30%

GENDER	TYPE OF SPINAL DYSRAPHISM	TYPE OF URODYNAMIC DISORDERS
No difference p=0,12	Closed (48%) > Open (9%) p = 0,002	No difference p = 0,96

Clinical results

Global success rate = 66%

Gender	Type of spinal dysraphism	Type of urodynamic disorders
No difference (p = 0,76)	No difference (p = 0,91)	No difference (p = 0,54)

Impact of Uretral pressure

	Uretral pressure (cm H2O)
Failure	27.6 ± 19.1
Clinical success	41.8 ± 14.3
Clinical and urodynamic success	72 ± 40.5
P value	0.01

Urodynamic results

	Compliance (ml/cm h2O)			maximal bladder capacity (ml)			maximum detrusor pressure (cm H2O)		
	Pre BTXA	Post BTXA	P value	Pre BTXA	Post BTXA	P value	Pre BTXA	Post BTXA	P value
All patients (n = 53)	9.9 ± 9.4	16.3 ± 14.0 *	0.011	184.4 ± 73.8	268.8 ± 125*	< 0,0001	47.5 ± 29	34.5 ± 22.2	0.092
Patients with low compliance bladder without detrusor overactivity (n=11)	9.6 ± 6,57	12.5 ± 8.1	0,076	234.7 ± 91.7	236 ± 103	1	40.0 ± 16.5	42.3 ± 28.1	1

CONCLUSION :

- IDBTX-A is an effective treatment in children with spina bifida, especially in case of closed spinal dysraphism.
- IBTX-A enable clinical improvement in most patients
- Urodynamic improvement was achieved less often particularly in patients with isolated low compliance bladder.