

## PROPHYLACTIC ANTIBIOTIC USE AND URINARY TRACT INFECTIONS IN PATIENTS RECEIVING BOTULINUM TOXIN INJECTIONS INTO DETRUSOR

### Hypothesis / aims of study

Botulinum toxin A (BTA) injections into the detrusor are used for both neurogenic and idiopathic detrusor overactivity. The aim of our study was to look at frequency of symptomatic urinary tract infections following the procedure, whether this affected the outcome of BTA injections and prophylactic antibiotic use in patients on our Spinal Injuries Regional Unit and General Urology Unit which also serves as a tertiary referral centre.

### Study design, materials and methods

We conducted prospective audit of patients who received BTA injections into detrusor with some review of the case notes. We looked at indications, technique and outcomes of the procedure. We recorded prophylactic antibiotic use and symptomatic urinary tract infections. We used Statistical Package for Social Sciences (SPSS) for analysis.

### Results

97 patients received BTA injections in last 2 years. There were 3 subsequent exclusions (one due to death of the patient due to unrelated cause and 2 due to finding of alternative pathology at cystoscopy).

The indication for BTA injections were urodynamically proven neurogenic or idiopathic detrusor overactivity after failure of other treatments, such as anticholinergic medication.

Patients diagnosis and initial bladder management is shown in table 1.

Diagnosis	Bladder management			
	Catheter	Intermittent catheterisation (IC)	Voiding, no IC	Grand Total
Idiopathic detrusor overactivity (IDO)	1	4	36	41
Neurogenic detrusor overactivity due to spinal cord injuries (SCI)	6	19	1	26
Neurogenic detrusor overactivity due to multiple sclerosis (MS)	4	10	2	16
Other types of bladder dysfunction	1		6	7
Post-radical prostatectomy detrusor overactivity (PPDO)			4	4
Grand Total	12	33	49	94

Initially all procedures were performed using rigid cystoscopes and needles, however, now the majority of procedures are carried out with flexible cystoscopes and needles (table 2).

Type of procedure	1st BTA	2nd BTA	3rd BTA	4th BTA
General anaesthetic	80	12	3	1
Local anaesthetic	11	22	11	3
No record	3	4		
Grand Total	94	38	14	4

We report the outcome of the patients after first BTA injections (table 3).

Type	Overall effect			Grand Total
	Improved	Not improved	Insufficient follow up	
Idiopathic bladder dysfunction (IDO, PPDO, other)	23	12	14	49
Neurogenic bladder dysfunction (SCI, MS)	26	10	9	45
Grand Total	49	22	23	94

35 patients become continent (73% of all evaluated patients with incontinence).

6 patients were on antibiotic prophylaxis preoperatively, 57 patients received antibiotics intra-operatively (61%) and 31 patients (33%) were discharged with prescription of antibiotics.

Peri-operative antibiotics	No symptomatic UTI		Symptomatic UTI		Grand Total
No	19	76.0%	6	24.0%	25
Yes	65	94.2%	4	5.8%	69
Grand Total	84	89.4%	10	10.7%	94

The multivariate logistic regression analysis demonstrated that patients who had peri-operative antibiotics were 4.8 times less likely to develop symptomatic urinary tract infection after BTA injections ( $p < 0.05$ ). This finding was not dependent on the type of bladder dysfunction (idiopathic or neurogenic) and the symptomatic outcome after BTA injections.

#### Interpretation of results

The administration of antibiotics significantly decreased rate of symptomatic urinary tract infections after the BTA injections into detrusor.

The effect of the procedure does not seem to be influenced by occurrence of symptomatic infection, although the number of patients with sufficient follow up is small.

#### Concluding message

The use of prophylactic antibiotics for BTA injections should be routine and randomised prospective studies are required for determination of optimal regime of prophylaxis.

BTA effect does not seem to be influenced by occurrence of urosepsis.

<b><i>Specify source of funding or grant</i></b>	<b>None</b>
<b><i>Is this a clinical trial?</i></b>	<b>No</b>
<b><i>What were the subjects in the study?</i></b>	<b>HUMAN</b>
<b><i>Was this study approved by an ethics committee?</i></b>	<b>No</b>
<b><i>This study did not require ethics committee approval because</i></b>	<b>The study was an audit and did not involve any intervention over the subjects</b>
<b><i>Was the Declaration of Helsinki followed?</i></b>	<b>Yes</b>
<b><i>Was informed consent obtained from the patients?</i></b>	<b>No</b>