

## CAUSATIVE FACTORS AND CHARACTERIZATION OF PERSISTENT AND DEOVO OVERACTIVE BLADDER SYNDROME IN POST ARTIFICIAL URINARY SPHINCTER IMPLANTATION PATIENTS

### Hypothesis

We hypothesized in Artificial Urinary Sphincter (AUS) patients, preoperative overactive bladder (OAB) syndrome predicts persistent postoperative OAB syndrome and anticholinergic use postoperatively<sup>[1]</sup>. Also, we sought to characterize the overactive bladder symptoms of patients with persistent and denovo OAB post-AUS placement.

### Study design, materials and methods

We performed a retrospective study of post-prostatectomy patients who underwent Artificial Urinary Sphincter implantation by a single surgeon at a single institution between August 2000 to June 2010. International Continence Society Male Questionnaire Short Form (ICSmaleSF) questionnaires<sup>[2]</sup> were used in postoperative follow up until December 2011. Only patients who had virgin AUS implantation for post-prostatectomy incontinence and a postoperative ICSmaleSF questionnaire were included in this study. We performed a chart review and gathered the following preoperative data: history of pelvic radiotherapy, urodynamic parameters (compliance, detrusor overactivity, and capacity), nocturia, frequency, urgency, urge incontinence, and anticholinergic use. We based postoperative anticholinergic use on status at the last follow up visit. We analysed results of ICSmaleSF questionnaire I1 (urgency), I2 (urge incontinence), F (frequency), nocturia, and QoL (quality of life). OAB syndrome patients postoperatively were defined as I1  $\geq$  3 or I2  $\geq$  3 or F = 1 (see Table 1). We stratified patients preoperatively as OAB syndrome patients and nonirritative voiders. OAB syndrome was defined as presence of urgency, urge incontinence or frequency using ICSmaleSF preoperative questionnaires when available or chart review. We also stratified patients by preoperative pelvic radiotherapy. The Fisher's exact test was utilized for all analyses of categorical data, and a t-test for analyses of continuous variables. All statistical analyses were performed using SAS 9.1 for Windows (Copyright (c) 2002-2003 by SAS Institute Inc., Cary, NC).

Table 1 – Overactive Bladder Syndrome Questions from ICSmaleSF

	0	1	2	3	4
<b>I1</b> – Do you have to rush to the toilet to urinate	Never	Occasionally	sometimes	Most of the time	All of the time
<b>I2</b> – Do you urine leak before you get to the toilet	Never	Occasionally	sometimes	Most of the time	All of the time
<b>F</b> – How often do you pass urine during the day		Q1 hr	Q2 hrs	Q3hrs	Q4hrs
<b>Nocturia</b> – During the night, how many times do you have to get up at night, on average	None	1	2	3	4
<b>QoL</b> – Overall how much do your urinary symptoms interfere with your life	Not at all	A little	somewhat	A lot	

### Results

The total number of patients included in the study was 97. Mean and median follow up was 43 and 38 months respectively. Twenty-four (25%) patients had a history of prior pelvic radiotherapy. Preoperatively, we found 60 patients were nonirritative voiders and 37 patients had OAB syndrome. 15 (25%) of the nonirritative voiders developed de novo OAB syndrome postoperatively (p=0.357). 24 (65%) of the OAB syndrome patients were classified as nonirritative voiders postoperatively (p=0.357). 22 (60%) of the OAB syndrome patients preoperatively also had preoperative nocturia (p=0.011). 10 (27%) of the preoperative OAB syndrome patients used postoperative anticholinergics (p=0.046). (Table 2) Seven (29%) of the patients with preoperative pelvic radiotherapy had abnormal bladder compliance (defined as  $\leq$  10 ml/cm H<sub>2</sub>O) (p=0.038). Preoperative pelvic radiotherapy and abnormal urodynamic parameters were not associated with de novo postoperative OAB syndrome in a statistically significant fashion. Of the 37 patients with preoperative OAB syndrome, 13 (35%) had persistent OAB syndrome after AUS implantation (p=0.357).

In the 28 patients with persistent (13) or denovo (15) OAB symptoms, the most prevalent urinary complaint was nocturia ( $\geq$  2 times per night) in 77% and 80% of patients, respectively. Daytime frequency was the second most common in 17/28 (60%). Of the 13 patients with persistent OAB, 5 patients (23%) had isolated urge incontinence, resulting in their stratification as OAB patients.

Postoperative QoL was similar in all groups: nonirritative voiders, OAB syndrome and patients with and without preoperative pelvic radiotherapy. The majority of patients chose “overall, they had little to no interference of urinary symptoms with their life.”

Table 2. Demographic and Clinical Characteristics for Voiding Status Pre-AUS

	Irritative Voider Pre-AUS						P-value*
	No		Yes		Total		
	N	%	N	%	N	%	
Irritative Voider Post-AUS							0.357
No	45	75.0	24	64.9	69	71.1	
Yes	15	25.0	13	35.1	28	28.9	
Pre-AUS Anticholinergics							0.198
No	58	96.7	33	89.2	91	93.8	
Yes	2	3.3	4	10.8	6	6.2	
Post-AUS Anticholinergics							<b>0.046</b>
No	54	90.0	27	73.0	81	83.5	
Yes	6	10.0	10	27.0	16	16.5	

Interpretation of results

Our study supports the previous finding that preoperative OAB syndrome does not predict persistence of OAB syndrome postoperatively. Preoperative OAB syndrome does predict postoperative anticholinergic use. Furthermore OAB syndrome as defined in our study correlates with nocturia, which is recognized by ICS as part of OAB syndrome<sup>[3]</sup>. Although preoperative pelvic radiotherapy and abnormal urodynamic parameters did not predict de novo OAB syndrome postoperatively, the small number of patients in this study limits the interpretation of these findings. Furthermore, preoperative pelvic radiotherapy patients had a markedly abnormal preoperative UDS compliance. Although this did not translate into OAB syndrome, these patients with abnormal bladder compliance need continued monitoring to confirm improvement of their bladder storage parameters. Finally, nocturia was the most prevalent urinary symptom in patients with persistent and denovo overactive bladder.

Concluding message

In post-prostatectomy patients who undergo AUS implantation, the identification of OAB syndrome preoperatively is important for preparing patients regarding the likelihood of a postoperative anticholinergic requirement. Additionally, based on this information, we can better counsel patients on the voiding symptoms they are most likely to experience after AUS implantation.

References

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Disclosures

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