

# Artificial Urinary Sphincter Insertion in the Era of Antibiotic Stewardship: Are Postoperative Antibiotics Necessary?

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## Introduction

- Artificial Urinary Sphincter (AUS) Insertion is the most effective treatment for men with stress urinary incontinence<sup>1</sup>
- 3500 AUS Insertions are performed annually in the US<sup>2</sup>
- The majority of patients are discharged with a course of oral antibiotics after AUS insertion<sup>3</sup>
- Limited evidence has not found a benefit from postoperative oral antibiotic administration<sup>3</sup>
- Antibiotic overuse can cause harm to individual patients (allergic reaction and adverse events) and to society at large (drug resistance)<sup>4</sup>
- Our institutional practice has been to withhold postoperative antibiotics for low risk patients undergoing AUS insertion

## Objective

- Determine if patients discharged without antibiotics after AUS insertion were more likely to require device explantation for infection or erosion compared to patients discharged with antibiotics at our institution and compared to patients in other large, contemporary series

## Methods

- IRB approved retrospective study of AUS insertions between June 2013 and September 2017
- Inclusion criteria:
  - AUS insertion
- Exclusion criteria:
  - None
- Demographics, co-morbidities, post-operative antibiotic prescription status, infectious complications, and need for surgical revision were collected

## Results

Group	Group 1 LR, Abx (-) (n = 44)	Group 2 HR, Abx (-) (n = 47)	Group 3 HR, Abx (+) (n = 64)	p-value	p-value Group 2 vs. 3 only
<b>Patient Demographics</b>					
Risk Factors for Infection, mean ± STD	0 ± 0	1.2 ± 0.8	1.7 ± 0.8	< 0.001	0.002
Discharged with Antibiotics, count (%)	0 (0)	0 (0)	64 (100)	< 0.001	< 0.001
Age (years), mean ± SD	69.8 ± 7.7	69.0 ± 7.7	70.6 ± 9.6	0.638	0.347
BMI (kg/m <sup>2</sup> ), mean ± SD	27.4 ± 5.5	29.1 ± 5.1	29.9 ± 4.6	0.036	0.365
History of Prostatectomy, count (%)	41 (93)	39 (83)	50 (78)	0.110	0.526
Concomitant IPP insertion, count (%)	1 (2)	2 (4)	2 (3)	0.865	0.752
History of Bladder Neck Contracture, count (%)	6 (14)	13 (28)	17 (27)	0.203	0.898
History of Urethral Stricture Disease, count (%)	3 (7)	10 (21)	14 (22)	0.090	0.940
<b>Risk Factors for Infection</b>					
History of Diabetes, count (%)	0 (0)	25 (53)	26 (41)	< 0.001	0.189
History of Prostate Radiation, count (%)	0 (0)	15 (32)	40 (63)	< 0.001	0.001
History of Prior AUS, count (%)	0 (0)	2 (4)	14 (22)	< 0.001	0.009
Chronic Steroid use, count (%)	0 (0)	3 (6)	3 (5)	0.261	0.696
Cuff size 3.5 cm, count (%)	0 (0)	2 (4)	2 (3)	0.414	0.752
IPP in place at time of AUS insertion, count (%)	0 (0)	3 (6)	8 (13)	0.044	0.287
History of Urolume Urethral Stent, count (%)	0 (0)	5 (11)	7 (11)	0.076	0.960
History of Urethroplasty, count (%)	0 (0)	1 (2)	3 (5)	0.311	0.475
History of 'Other' Risk Factor, count (%)	0 (0)	0 (0)	4 (6)	0.054	0.081
<b>Implant Survival and Complications</b>					
Total Length of Follow Up (months), med (IQR)	12.7 (4.6 - 25.1)	10.7 (4.5 - 31.3)	8.3 (4.4 - 26.4)	0.808	0.567
Device Explant for Any Cause, count (%)	4 (9)	3 (6)	12 (19)	0.109	0.060
Device Explant for Infection or Erosion, count (%)	1 (2)	2 (4)	9 (14)	0.045	0.088
Device Explant for Infection, count (%)	0 (0)	1 (2)	4 (6)	0.172	0.301
Device Explant for Cuff Erosion, count (%)	1 (2)	1 (2)	5 (8)	0.253	0.191
Device Explant for Mechanical Failure, count (%)	3 (7)	0 (0)	1 (2)	0.098	0.389
Device Explant for Persistent Pain, count (%)	0 (0)	0 (0)	1 (2)	0.489	0.389

Low Risk (LR): no history of risk factors for infection or erosion; Higher Risk (HR): history of ≥ 1 risk factors for infection or erosion  
Abx (-): no postoperative antibiotics prescribed; Abx (+) postoperative antibiotics prescribed

## Discussion

- Rates of AUS explantation due to device infection (0 vs. 2 vs. 6%, p = 0.172) or cuff erosion (2 vs. 2 vs. 8%, p = 0.253) did not vary significantly between Groups 1-3
- Antibiotic overuse provokes harm to both the recipient as well as the wider population<sup>4</sup>
- The present study is limited by its retrospective design, relatively small sample size, and selection bias without a standardized protocol for determining which patients received postoperative antibiotics
- In our experience, withholding postoperative antibiotics after AUS insertion does not appear to increase the risk of device explantation
- In light of the known consequences of antibiotic overuse, a randomized controlled trial is warranted.

## References

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### Author Disclosures

Dropkin- None, Chisholm- None, Dallmer- None, Johnsen- None, Dmochowski- Consultant for Medtronic, Allergan, Serenity; Investigator Myopowers, Milam- Consultant for Boston Scientific, Kaufman- Boston Scientific: Principle Investigator; Valencia Technologies: Data Safety Monitoring Board; Medtronic: Principal Investigator