

Intraoperative Betadine Lavage for Reduction of Postoperative Urinary Tract Infections in Cystoscopic Procedures

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BACKGROUND

Infectious complications after cystoscopic procedures

- Cystoscopic procedures carry a risk of infection ranging from 4% for simple diagnostic cystoscopy to nearly 20% for certain therapeutic procedures such as botulinum toxin A injections or transurethral resection of the prostate (TURP). (Baten 2021, Li 2017)
- Current guidelines advise utilization of systemic antimicrobial prophylaxis, pre-operative testing (urinalysis and/or culture) and skin preparation with an aqueous-based cleansing solution (Campbell-Walsh-Wein, 2021), but concerns for increasing drug resistance remain.
- Intravesical treatments previously have found mixed results (Huen 2019 Slopnick 2020), but older studies of pre-operative betadine instillations were found effective at reducing post-operative infection but have not been repeated. (Richter 1991)

AIMS

Intraoperative betadine lavage

- Our aim was to evaluate the efficacy of using a dilute betadine solution intra-operatively in patients undergoing cystoscopic procedures by a single surgeon.

METHODS

Chart review

- Permission for chart review was obtained through our local institutional review board (IRB)
- Electronic medical records were reviewed between the years 2019-2021 for a single surgeon who utilized intraoperative betadine lavage on patients who had a history of multidrug resistant organisms in their urine culture

Treatment groups

- Betadine (n=30)
- Control (n=20)

Data collection

- Patients were excluded if they did not have documented follow-up of at least 30 days after the index procedure
- Data was collected including demographic information, pre- and post-operative urine culture, adverse reactions, hospital readmissions, documented urinary tract infections, and rates of sepsis

Betadine procedure

- After entering the bladder with the cystoscope, lavage of saline was administered to clear any gross debris
- Dilute betadine solution was created by mixed 50 cc of 8% betadine with 1,000 cc of warm saline
- A second lavage was administered using 0.38% betadine solution x 180-240 cc
- The lavage was then performed with a 60 cc syringe through the cystoscope side port
- Betadine was irrigated clear using saline or water irrigation and the procedure continued as planned

Data analysis

- Data were analyzed in Excel (v 16.44)

RESULTS



Figure 1. Representative intraoperative cystoscopy images.

A) Initial view upon entry.

B) Following lavage with saline. Note persistent edema and sub-urothelial collections.

C) Following lavage with betadine. Note improved visual clarity.

Table 1. Demographics and procedures

Characteristic	Betadine (n=30)	Control (n=20)
Race	White	77 %
	Black/African American	10 %
	Asian	7 %
	American Indian/Alaskan Native	3 %
	Native Hawaiian/Pacific Islander	3 %
	Other/Declined	0 %
	10 %	
Ethnicity	Hispanic/Latino	27 %
Age (mean, years)	61.7	62.5
Male	67 %	40 %
BMI (mean, kg/m ²)	27.3	27.2
Procedure type	Botox	50 %
	TURP	23 %
	TURBT	10 %
	Other (e.g. SPT placement)	13 %

Condition	Betadine (n=30)	Control (n=20)
Diabetes	33 %	10 %
Radiation to pelvis	10 %	0 %
GU anatomic abnormality	7 %	0 %
Advanced age	47 %	40 %
Chronic steroid usage	3 %	0 %
Preoperative catheter use	60 %	20 %

Table 3. Post-operative outcomes and adverse events in the betadine versus control group. Post-operative urinary tract infection (UTI) was higher in the control group than in the betadine group. Larger sample size will be required to further elucidate differences in sepsis and hospital readmission rates

Outcome (30 days post-operative)	Betadine (n=30)	Control (n=20)
Post-operative UTI	0 %	10 %
Sepsis	0 %	0 %
Hospital readmission	0 %	0 %
Adverse reactions / allergic reaction	0 %	-

Table 2. Comorbid conditions in each group associated with higher rates of infectious complications following cystoscopic procedures. The betadine group had higher rates of diabetes, radiation, anatomic abnormalities and preoperative catheter use. Rates of advanced age were similar.

CONCLUSIONS

Betadine lavage may be a useful tool for the prevention of infection associated with cystoscopic lower urinary tract procedures. Future efforts may be aimed at increasing the sample size, as well as obtaining prospectively collected data.

DISCLOSURES

- The authors declare no conflict of interest in relationship to the content of this presentation.