"INTRA-OPERATIVE URETERAL STENT USE AT RADICAL CYSTECTOMY IS ASSOCIATED WITH HIGHER 30-DAY COMPLICATIONS RATES"

ABSTRACT # 20-5446

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BACKGROUND

- RC is associated with a high risk for complications

- Intraoperative stents (IAS) are commonly utilized in an attempt to decrease complications related to the ureteroenteric anastomosis (UEA) including:
  - Ureteral leaks
  - Acute obstruction
  - Pelvic abscesses
  - Ureteroenteric strictures

- Paucity of data evaluating the risks/benefits of perioperative stents use

- Increasing data documenting infectious related complications related to periop use of stents

METHODS

- **Goal of Study:** Compare stent to no stents in terms of complications
- Analysis of 283 pts enrolled into a randomized controlled trial evaluating 30-day perioperative complications with goal-directed fluid therapy following open RCUD between 08/2014 and 04/ 2018
- Six high volume surgeons
- Martin criteria for surgical complication reporting was utilized
- **UEA-specific complications** (ureteral obstruction, urinary leak, symptomatic UTI, intrabdominal abscess and sepsis)
- Preoperative, intraoperative, and 30-day postoperative data were compared using Fisher's exact test

DEMOGRAPHIC AND PREOPERATIVE PATIENT CHARACTERISTICS

Characteristics	No Stents (N=76; 27%)	Stents Used (N=207; 73%)	P value
Gender male (%)	53 (70%)	**168 (81%)**	**0.039**
Age at surgery	**71.0 (64.7, 77.8)**	69.0 (61.7, 75.0)	**0.049**
CCI adjusted for age	**5.0 (4.0, 6.0)**	4.0 (3.0, 6.0)	**0.024**
ASA 3-4	**60 (79%)**	138 (67%)	**0.046**
BMI	28.1 (24.5, 30.7)	28.9 (25.9, 32.2)	0.065
Preop Albumin <3	0 (0%)	2 (1.0%)	0.4
Preop eGFR<60	**33 (43%)**	62 (30%)	**0.033**
Solitary Kidney	1 (1.3%)	10 (4.8%)	0.2
Preop PCN/Stent	13 (17%)	23 (11%)	0.2
Hx of Smoking	58 (76%)	140 (68%)	0.2
Diabetes	18 (24%)	31 (15%)	0.086
Hx of colitis	5 (6.6%)	15 (7.2%)	0.8
Prior pelvic surgery	32 (42%)	70 (34%)	0.2
Prior bowel surgery	12 (16%)	42 (20%)	0.4
Prior abdominal/pelvic radiation	7 (9.2%)	23 (11%)	0.6
Neoadjuvant Chemo	**41 (54%)**	83 (40%)	**0.037**
Peripheral neuropathy	**21(28%)**	26 (13%)	**0.004**
Goal Directed Fluid Arm	44 (58%)	98 (47%)	0.12

INTRAOPERATIVE AND POSTOP CHARACTERISTICS

Inpatient variables	No Stents (N=76; 27%)	Stents Used (N=207; 73%)	P value
Type Diversion: Conduit	**70 (92%)**	110 (53%)	**<0.0001**
Continent	6 (7.9%)	97 (47%)	
Length of surgery (minutes)	**338** (314.0, 376.0)	304 (264.0, 338.0)	**<0.0001**
Total EBL (mls)	600 (450.0, 800.0)	**700** (500.0, 1000.0)	**0.046**
Postop Ileus	14 (18%)	52 (25%)	0.2
Required NGT replacement	11 (14%)	34 (16%)	0.7
Postop return to OR initial admit	1 (1.3%)	7 (3.4%)	0.4
Postop IR procedure initial admit	2 (2.6%)	11 (5.3%)	0.3
Length of Stay	7.0 (6.0, 9.0)	7.0 (6.0, 10.0)	0.8
Outpatient variables	**No Stents**	**Stents Used**	**P value**
Urgent care visit ≤ 30 days of surgery	22 (29%)	**87 (42%)**	**0.045**
Readmission ≤ 30 days	13 (17%)	57 (28%)	0.071
Outpatient IR procedure ≤30 days	2 (2.6%)	19 (9.2%)	0.063
Outpatient OR procedure ≤ 30 days	0 (0%)	3 (1.4%)	0.3
	No Stents	**Stents Used**	**P Value**
Required IR procedure on initial admit or post discharge ≤ 30 days	3 (3.9%)	25 (12%)	**0.044**

URINARY RELATED COMPLICATIONS BY STENT USE AND TYPE DIVERSION

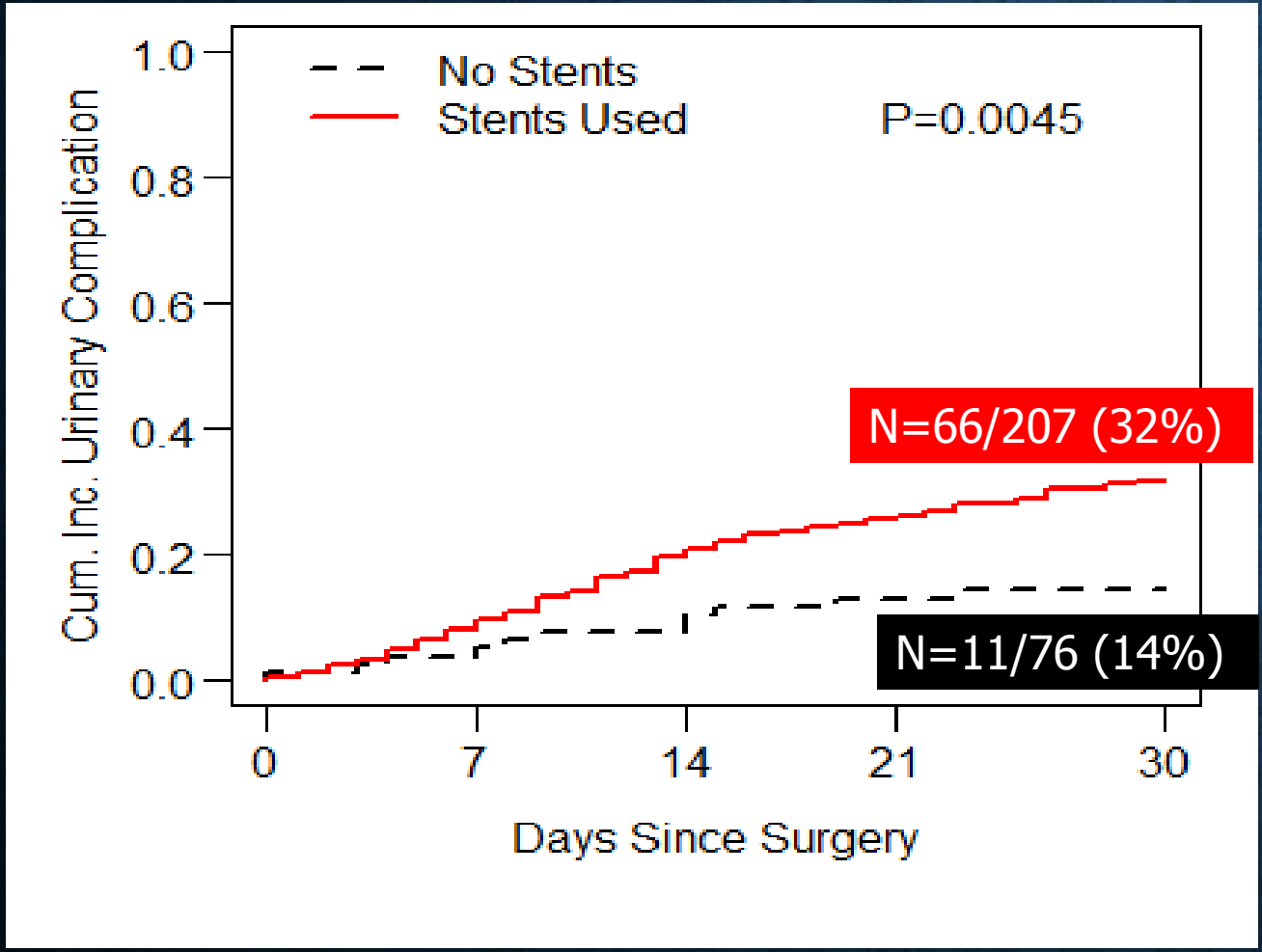
Entire Cohort, N=283

Type Urinary Complication	**No Stents** N=76; 27%	Stents Used N=207; 73%	P
Composite UEA Complications:	11 (14%)	**66 (32%)**	**0.004**
Obstruction:	**0 (0%)**	10 (4.8%)	0.051
Urine Leak:	1 (1.3%)	13 (6.3%)	0.088
Symptomatic UTI/pyelo:	9 (12%)	42 (20%)	0.10
Pelvic Abscess:	3 (3.9%)	20 (10%)	0.12
Postop sepsis:	3 (3.9%)	**27 (13%)**	**0.028**

Conduit Cohort, N= 180 (64%)

Type Urinary Complication	**No Stents** N=70; 39%	**Stents Used** N=110; 61%	**P**
Composite UEA Complications:	10 (14%)	**30 (27%)**	**0.051**
Obstruction:	**0 (0%)**	5 (4.5%)	0.2
Urine Leak:	1 (1.4%)	5 (4.5%)	0.4
Symptomatic UTI/pyelo:	8 (11%)	13 (12%)	1
Pelvic Abscess:	3 (4.3%)	10 (9.1%)	0.3
Postop sepsis:	2 (2.9%)	12 (11%)	0.083

Higher Cumulative Incidence of Urinary Complications with Ureteral Stent Use, N =283



- After adjusting for hx of smoking, hx of colitis, surgical duration and total net fluids given, the use of ureteral stents significantly increased the odds of having urinary complications (**OR, 3.48**; 95% CI, 2.95 – 4.10; p<0.0001)

**the incidence of urinary complications in the stent group is always higher than no stent at all timepoints up to 30 days

FREQUENCY OF 30-DAY POSTOPERATIVE COMPLICATIONS BY STENT USE

Complication Category	No Stents (N=76; 27%)	Stents Used (N=207; 73%)	P value
Surgical	5 (6.6%)	6 (2.9%)	0.2
Wound	18 (24%)	**86 (42%)**	**0.006**
Pulmonary	14 (18%)	42 (20%)	0.7
Neurologic	17 (22%)	47 (23%)	1
GU	34 (45%)	110 (53%)	0.2
Infection	11 (14%)	**65 (31%)**	**0.004**
GI	21 (28%)	82 (40%)	0.063
Cardiac	15 (20%)	46 (22%)	0.7
Bleeding	25 (33%)	81 (39%)	0.3
Misc.	6 (7.9%)	23 (11%)	0.4
Thromboembolic	3 (3.9%)	17 (8.2%)	0.2

*Patients were recorded more than once if they had more than one complication within a category

SUMMARY

Contrary to conventional beliefs, stent use:

- Did not lower (UEA) anastomotic associated urinary complications for RC
- Significantly increased the odds (OR 3.48) of having urinary related complications within 30 days of surgery
- Associated with significantly higher incidence of infectious and wound complications
- Had a significantly higher incidence of UCC visits and interventional radiology (IR) procedures

CONCLUSIONS

- These findings warrant further investigation of our longstanding held beliefs that intraoperative ureteral stent use will lower the risks of urinary anastomotic related complications

- Stent use is associated with higher infectious complications and thereby the need for greater antibiotic use

- It’s unclear whether these findings can be translated to the community