# The role of antibiotic prophylaxis after radical cystectomy in preventing urinary tract infections and readmission for sepsis

## Alberto Martini<sup>1,2</sup>, Shivaram Cumarasamy<sup>1</sup>, Marco Moschini<sup>3</sup>, Ashutosh K. Tewari<sup>1</sup>

<sup>1</sup>Department of Urology, Icahn School of Medicine at Mount Sinai, New York, USA; <sup>2</sup>Department of Urology, Vita-Salute San Raffaele University, Milan, Italy; <sup>3</sup>Klinik für Urologie, Luzerner Kantonsspital, Lucerne, Switzerland

Correspondence to: Dr. Alberto Martini, MD. Department of Urology, Icahn School of Medicine at Mount Sinai, 1425 Madison Avenue, 6th Floor, New York, NY 10029, USA. Email: a.martini.md@gmail.com.

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*Comment on:* Werntz RP, Martinez-Acevedo A, Amadi H, *et al.* Prophylactic antibiotics following radical cystectomy reduces urinary tract infections and readmission for sepsis from a urinary source. Urol Oncol 2018;36:238.e1-238.e5.

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Radical cystectomy (RC) is a complex and highly morbid procedure and it is associated with a variety of postoperative complications, especially in an early setting (1-5). One such complication includes urinary tract infections; one to two out of ten patients experiences a UTI following RC, with more than a third of cases occurring within the first three months of surgery (6,7).

In a recent study, Werntz *et al.* (8) evaluated whether continuous antibiotic prophylaxis (ABP) decreased the rate of UTIs in the first 30 days following RC and pelvic lymph node dissection. Forty-two RC patients were administered ABP prospectively; UTI rate in this cohort was subsequently compared to 42 patients who did not receive ABP before the protocol was initiated. In the treatment arm, patients were administered trimethoprimsulfamethoxazole (TMP-SMX, 160 mg/800 mg) daily if no allergy or contraindication, or nitrofurantoin 100 mg daily if TMP-SMX was not an option, or ciprofloxacin 250 mg daily otherwise.

There were 35 and 34 patients who received an ileal conduit in the ABP and non-ABP groups, respectively. Similarly, there were 7 and 8 patients in the ABP and non-ABP group received either a neobladder or a pouch, respectively.

A statistically significant difference was observed in the development of UTIs in the ABP group (12%) versus the non-ABP group (36%), P<0.004. There was no association demonstrated between discharge urine culture and UTI

development within 30 days of RC. The readmission rate in the ABP group was 2% versus 17% in the non-ABP group (P=0.02).

All patients had their ureteral stents removed three weeks after surgery. No patients in the ABP group experienced UTI. Conversely, 30% of the patients in the non-ABP group developed a UTI one day after stent removal.

The results by Werntz *et al.* are promising, although they are limited by the small sample size. Furthermore, some aspects need to be taken into consideration. First, concerning preoperative patient characteristics, only age, sex, BMI and preoperative albumin were considered. No differences emerged between the two groups. However, other comorbidities should be taken into account. For example, presence of diabetes, especially if poorly controlled, negatively impacts the immune response to pathogens.

The authors state that there was no association between discharge urine culture and the development of UTI within 30 days of surgery. Nevertheless, they reported that if the discharge urine culture was positive, patients were treated with 7 days of culture-specific antibiotics and then resumed their prophylaxis. A more plausible conclusion could be that, in the case of eradication of a specific microorganism, the risk of 30-day UTI is not increased. Furthermore, while no patients in the ABP group had documented Clostridium via urine culture, the small sample size makes it difficult to draw meaningful conclusions from this result.

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Finally, in the case of neo-bladder, it was not specified whether double J stents or mono J stents were placed. In the latter scenario, when the mono J stents exit the body through a skin incision, they represent another focus of potential infection. However, the small sample size does not allow to draw meaningful conclusion concerning the UTI risk according to different urinary diversions.

In conclusion, although promising, the results by Werntz *et al.* have limitations. A randomized clinical trial would be warranted to draw further conclusions and potentially revise the AUA Best Practice Statement on antimicrobial prophylaxis that, as Werntz *et al.* appropriately pointed out, can be interpreted broadly.

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#### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

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