EDITORIAL

Antibiotic stewardship in urologic surgery

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In this issue of *CUAJ*, readers will encounter two well-written and practical guidelines that will undoubtedly inform and support most of our daily practices. Specifically, the "CUA Guidelines on antibiotic prophylaxis for urologic procedures"[1] is an excellent addition to a highly visible and evolving area of concern of peri-procedure infections in urological care, highlighted by a growing apprehension of our typically empiric choices in a world of multi-drug resistant organisms.[2] These CUA guidelines focus on the role of antibiotic use to reduce urinary tract infections in less invasive procedures, as compared to surgical site infections after open surgeries. They strike a good balance of informing our practical needs to manage our manipulations of the urinary tract, often in the clinical context where there is at least a decent chance of colonization by uropathogens, with an eye on antibiotic stewardship that has been advocated by many other authorities and associations, including recent contributions of the AUA and Choosing Wisely.

Such guidelines synthesize the available literature and provide rationale evidence-based recommendations – putting us all on the same page and, if effectively disseminated and implemented, facilitating risk reduction for our patients. Taking the recommendations for TRUSP biopsy prophylaxis as an example, how exactly should the practicing clinician interpret the document? To start with, a single dose (or very short course) of a fluoroquinolone given to a low-risk patient with a sterile urine culture remains reasonable for most communities. However, if fluoroquinolone-resistance in extended-spectrum beta-lactamase producing organisms is becoming prevalent in your local area, then a change of antimicrobial coverage to these organisms may be critical. Even better would be to base the local prophylaxis strategy on pre-biopsy rectal cultures.

What becomes apparent reading the document is what these guidelines do not represent: a cookbook to be used in every clinical situation. Unfortunately these guidelines on antimicrobial prophylaxis do not (and probably should not) advise us on the specific antibiotic to employ for each procedure or the specific duration of time that is optimal to avoid significant infectious complications. At least in part, the reason for the lack of any prescriptive recommendations is due to a lack of well-controlled, contemporary trials powered sufficiently to inform us on the more important infectious outcomes of our procedures. Of the randomized trials included in the systematic review informing us on antibiotic use for TRUSP biopsy, only a few were performed in the last decade and most with primary outcomes focused only on bacteriuria. Similarly, our new guidelines are unable to define the optimal duration of prophylaxis for most of these procedures and can only refer to previous recommendations advocating shorter (<24 hours) duration despite the fact that these are based on surgical site infections in non-urological surgeries.

Furthermore, the reality is that any attempt to develop strict recommendations for infection prophylaxis in contemporary urologic practice based on critical review of past literature would likely lead to obsolescence before they are even published. Many of our microbe friends have already adapted to strategies outlined in the systematic reviews and will continue to cause serious infections despite our best evidence-based approach in such a rapidly changing environment. For example, since most of the more recent trials examined flouroqinolones for TRUSP biopsy prophylaxis, our recommendations will imply that this class should remain our empiric choice. Yet the rapid proliferation (likely exacerbated by poor antibiotic stewardship) of multi-drug resistant organisms is now resulting in increasingly more prevalent and severe post-TRUSP biopsy infections despite widespread use of flouroquinolone prophylaxis.

The authors of this guideline offer suggestions on how to mitigate this risk by considering rectal swab culture and sensitivity testing and revising the antibiotic prophylactic strategy accordingly prior to proceeding with the invasive biopsies. However, one would worry that without explicit and detailed protocols, as well as widespread advocacy for

its adoption, most urologists will have difficulty convincing their local institutions to implement such a practice. While not suggested in the recommendations, use of an alternate or combination antimicrobial coverage for those at high risk of harbouring flouroquinolone-resistent organisms on spec may be a practical option. While development of guidelines on antibiotic prophylaxis is a required and important exercise, the real world's evolving lessons will likely continue to drive our practice going forward.

To this point the authors of this guideline importantly advocate for more active antimicrobial stewardship within our individual institutions and the ability to create and participate in formal programs to audit optimal and judicious utilization of antibiotic, including basing our decisions on the local epidemiology of drug resistance in potential pathogens. Although the effectiveness of antibiotic prophylaxis in reducing postoperative UTIs is well-established, there is evidence to suggest significant variation in utilization of antibiotic prophylaxis, including inappropriate selection of drugs, improper timing of administration, and excessive duration of prophylaxis.[3] We should all use these guidelines as a framework to plan our local strategies based on our hospital or communities' antibiogram, keeping in mind that proper antibiotic stewardship is critical to slowing the rise of resistant organisms and reducing significant future risk for our patients.

References

1. Mrkobrada M, Ying I, Mokrycke S, et al. CUA Guidelines on antibiotic prophylaxis for urologic procedures. *Can Urol Assoc J* 2015;9:13-22. http://dx.doi.org/10.5489/cuaj.2382
2. Cohen JE, Landis P, Trock BJ, et al. Fluoroquinolone resistance in the rectal carriage of men in an active surveillance cohort: longitudinal analysis. *J Urol* 2015;193:552-6. http://dx.doi.org/10.1016/j.juro.2014.08.008. Epub 2014 Aug 9.
3. Mossanen M, Calvert JK, Holt SK, et al. Overuse of antimicrobial prophylaxis in community practice urology. *J Urol* 2015;193:543-7. http://dx.doi.org/10.1016/j.juro.2014.08.107. Epub 2014 Sep 6.