

Vaisman and colleagues<sup>1</sup> justify their decision to deny the patient antibiotic therapy based on prevalence-biased diagnostic measures, low probability of disease in a different (i.e., otherwise healthy) population and by retroductive inference.

Because the patient presented in a shock state with evidence of urosepsis, she required immediate treatment for sepsis, including antibiotics, and, in our opinion, treating her otherwise was unacceptable.

**Margaret J. Ackerman MD MEd,  
Andrew Worster MD, Daren Lin MD**  
Emergency physician (Ackerman, Worster, Lin), Hamilton Health Sciences, Hamilton, Ont.

## References

1. Vaisman A, Gold WL, Leis JA. A 78-year-old woman with lethargy and a positive urine culture. *CMAJ* 2013;185:679-80.
2. Walker S, McGeer A, Simor AE, et al. Why are antibiotics prescribed for asymptomatic bacteriuria in institutionalized elderly people? A qualitative study of physicians' and nurses' perceptions. *CMAJ* 2000;163:273-7.
3. Nicolle LE, Mayhew WJ, Bryan L. Prospective randomized comparison of therapy and no therapy for asymptomatic bacteriuria in institutionalized elderly women. *Am J Med* 1987;83:27-33.

*CMAJ* 2013. DOI:10.1503/cmaj.113-2146

## The authors respond

We thank Ackerman and colleagues<sup>1</sup> for their discussion related to our article<sup>2</sup> and for taking the time to poll their colleagues on how they would have managed the patient in the clinical scenario. Interpretation of positive urine culture results has long been the subject of passionate debate in the literature.<sup>3</sup>

Because we believe that a change in clinical practice regarding urine culture test ordering and management of positive results is needed, we are encouraged that our article has stimulated a healthy discussion on the issue.

We agree with the use of early empiric antibiotic therapy in reducing mortality due to sepsis; however, in the scenario presented, the patient did not meet criteria for sepsis.<sup>4</sup> Furthermore, an alternate explanation existed for the

patient's hypotension and tachycardia, namely hypovolemia secondary to gastrointestinal fluid losses. Although the patient had a fever 3 days before presentation, it was self-limited and there was an alternate explanation — her diarrheal illness in the setting of an institutional outbreak. This also showed that she could mount a febrile response in the event of an infection. Therefore, we disagree with Ackerman and colleagues<sup>1</sup> conclusion that the patient had systemic inflammatory response syndrome (SIRS) and septic shock and required early antibiotic therapy.

If the patient had met the case definition for SIRS and sepsis, an additional point to highlight would be that older adults with sepsis without urinary symptoms should not be assumed to have a urinary infection based on findings of urinalysis or culture results, because this may lead to early diagnostic closure and a failure to investigate and treat for other causes of infection.

Bacteriuria is present in up to 50% of elderly women in long-term care facilities; and 90% of those patients have pyuria.<sup>5</sup> Therefore, these abnormalities should not constitute a urinary tract infection diagnosis in a patient who can reliably report the presence or absence of urinary symptoms, as in the case presented.<sup>2</sup>

Our case highlights the importance of appreciating clinical context when both ordering urine cultures and interpreting results. In the absence of urinary symptoms and the presence of an alternate diagnosis, the positive culture in the patient likely represented asymptomatic bacteriuria, rather than a urinary tract infection. Robust clinical literature, including many randomized controlled trials, show the lack of benefit of treating asymptomatic bacteriuria with antimicrobial therapy across multiple patient populations.<sup>6-8</sup> Furthermore, antimicrobial therapy for asymptomatic bacteriuria has been associated with harm. One trial showed an increased risk of symptomatic urinary

tract infection in those who were treated for asymptomatic bacteriuria.<sup>9</sup> The practice is also associated with adverse drug reactions and *Clostridium difficile* infection.<sup>10</sup>

**Alon Vaisman MD, Wayne L. Gold MD,  
Jerome A. Leis MD**

Department of Medicine (Vaisman, Gold, Leis), University of Toronto; and the Division of Infectious Diseases (Gold, Leis), University Health Network, Toronto, Ont.

## References

1. Ackerman MJ, Worster A, Lin D. Interpreting positive urine cultures [letter]. *CMAJ* 2013;185:1526-7.
2. Vaisman A, Gold WL, Leis JA. A 78-year-old woman with lethargy and a positive urine culture. *CMAJ* 2013;185:679-80.
3. Miller J. To treat or not to treat: managing bacteriuria in elderly people. *CMAJ* 2001;164:619-20.
4. Dellinger RP, Levy MM, Rhodes A, et al. Surviving Sepsis Campaign: international guidelines for management of severe sepsis and septic shock. 2012. *Intensive Care Med* 2013;39:165-228.
5. Nicolle LE, Bradley S, Colgan R. Infectious Diseases Society of America Guidelines for the Diagnosis and Treatment of Asymptomatic Bacteriuria in Adults. *Clin Infect Dis* 2005; 40:643-54.
6. Nicolle LE, Bjornson J, Harding GK, et al. Bacteriuria in elderly institutionalized men. *N Engl J Med* 1983;309:1420-5.
7. Boscia JA, Kobasa WD, Knight RA, et al. Therapy v. no therapy for bacteriuria in elderly ambulatory nonhospitalized women. *JAMA* 1987;257:1067-71.
8. Abrutyn E, Mossey J, Berlin JA, et al. Does asymptomatic bacteriuria predict mortality and does antimicrobial treatment reduce mortality in elderly ambulatory women? *Ann Intern Med* 1994; 120:827-33.
9. Cai T, Mazzoli S, Mondaini N, et al. The role of asymptomatic bacteriuria in young women with recurrent urinary tract infections: to treat or not to treat? *Clin Infect Dis* 2012;55:771-7.
10. Rotjanapan P, Dosa D, Thomas KS. Potentially inappropriate treatment of urinary tract infections in two Rhode Island nursing homes. *Arch Intern Med* 2011;171:438-43.

*CMAJ* 2013. DOI:10.1503/cmaj.113-2147

## Letters to the editor

In submitting a letter, you automatically consent to have it appear online and/or in print. All letters accepted for print will be edited by *CMAJ* for space and style. Most references and multiple authors' names, full affiliations and competing interests will appear online only. (The full version of any letter accepted for print will be posted at cmaj.ca.)