Treating Asymptomatic Bacteriuria: An All-Too-Common Occurrence.

John Conely, MD February 2018

Story from the Front Lines

A man in his 80s with a history of stroke, resultant aphasia, and chronic urinary incontinence was brought to the emergency department by his daughter for cough, decreased appetite, and decreased urination. Despite his aphasia, the man was able to still nod yes or no to questions and denied dysuria. He did not meet SIRS criteria. His chest radiograph was negative for consolidation and his white blood cell count was normal. A urinalysis was also obtained via straight catheterization and showed pyuria. The patient was discharged with a 10-day course of cephalexin for presumed urinary tract infection (UTI). Urine culture eventually returned positive for $>10^5$ colony-forming units(cfu)/mL *Pseudomonas aeruginosa*.

Within several days of starting the antibiotics the patient developed diarrhea which persisted for more than two weeks, eventually prompting admission for dehydration and acute kidney injury. Stool studies were negative for *Clostridium difficile* toxin. He was treated supportively and his diarrhea and acute kidney injury resolved.

Teachable Moment

Asymptomatic bacteriuria (ASB) in men or women is defined by the Infectious Diseases Society of America (IDSA) as a single clean-catch or catheterized specimen with isolation of a single organism in quantitative counts of $\geq 10^5$ cfu/mL in an individual without symptoms of infection that can be localized to the genitourinary tract.[1] The treatment of ASB has been studied extensively over the past several decades and has not been shown reduce future infections or mortality, though it does contribute to important harms such antimicrobial resistance, antibiotic associated diarrhea, superinfection, and opportunistic infections such as *Clostridium difficile*. On the basis of high-quality evidence, current IDSA guidelines do support screening for, or treatment of, ASB in certain subsets of the population including pregnant women and patients who are going to have urological procedures in which mucosal bleeding is expected. However, it is specifically not recommended for asymptomatic older persons living in the community or institutionalized elderly individuals, and was listed as one of the top 5 overused medical services by the American Geriatric Society and American Board of Internal Medicine Foundation in their 'Choosing Wisely Campaign'.[1]

While many studies investigating overuse of antibiotics for ASB are comprised primarily of female patients, studies looking at predominantly-male populations show that unnecessary treatment of ASB in men is also commonplace. One retrospective study of more than 2000 patients with bacteriuria showed that nearly 70% of patients with ASB who met zero SIRS criteria were treated with antibiotics.[2] Additionally, since UTIs in men are considered

complicated, they often receive longer courses of antibiotics despite evidence that longer duration of treatment is not beneficial. For example, in a large retrospective study of over 4 million veterans and nearly 40,000 cases of documented and treated UTI (regardless of symptoms), a longer duration of treatment (>7 days) did not decrease the rate of recurrence and was associated with higher rates of *Clostridium difficile* infections.[3]

Infectious Disease specialists are trying to lead the broader medical community in adopting an approach to diagnosing UTIs rooted in recognition of clinical signs and symptoms, and emphasizing the value of urinalysis as an exclusionary rather than a confirmatory tool.[4] Many quality-improvement initiatives have aimed to increase recognition among providers of the lack of utility of treating ASB and its associated harms, and multimodal approaches combining elements of education, audit and feedback, clinical decision support and algorithms have shown to be successful in reducing antibiotic use for ASB.[5]

For our patient, the decision to use antibiotics to treat his ASB was not indicated and likely contributed to his diarrhea and subsequent admission for acute kidney injury. Fostering continued education of health-care providers regarding the guidelines around ASB can help reduce unnecessary antibiotic use while improving value and patient safety outcomes.

REFERENCES

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