Preoperative Urine Cultures at a Veterans Affairs Medical Center

The value of preoperative urine screening is unproven, except before urologic procedures, in which detection and treatment of asymptomatic bacteriuria is beneficial.1 Despite this, authors of multiple small case series advocate for screening before nonurologic procedures.2-5 However, patients with detected bacteriuria may undergo further testing and, if prescribed antimicrobial drugs, can develop diarrhea, allergic reactions, and Clostridium difficile infection (CDI).6 In addition, treatment of bacteriuria can delay procedures and extend hospitalization. Accordingly, we reviewed the medical records of patients who underwent cardiothoracic, orthopedic, and vascular procedures to document (1) the frequency of preoperative culture (UC) use, (2) the frequency of consequent antimicrobial therapy, and (3) any effect of preoperative urine screening, or consequent antimicrobial therapy, on postoperative complications.

Methods. We identified all cardiothoracic, orthopedic, and vascular surgical procedures performed during FY2010 at the Minneapolis VA Medical Center, and abstracted any UC order or result during the 7 days before each procedure. Bacteriuria was classified as high count \(\geq 100,000\) colony-forming units (CFU)/mL or low count \(10,000-90,000\) CFU/mL. Cultures with fewer than \(10,000\) CFU/mL or no growth were considered negative for bacteriuria. Antimicrobial drugs for urinary tract infection (UTI) were recorded from 7 days before until 30 days after surgery, as were clinical manifestations or health care provider diagnoses of UTI. Assessed complications varied with bacteriuria vs those without (20% vs 16%; \(P=.03\)). In contrast, postoperative UTI was more frequent among patients with bacteriuria vs those without (9% vs 2%; \(P=.01\)) (Table). Rates of other complications (diarrhea, CDI, allergy) did not differ by UC result or bacteriuria treatment (data not shown).

Among patients with a positive screening UC, treated and untreated patients were compared with identify possible benefits or harms of such treatment (Table). Paradoxically, a greater proportion of treated patients developed a SSI (45% vs 14%; \(P=.03\)). This effect was greatest among patients with high-count bacteriuria, with SSI occurring in 4 of 8 (50%) if treated vs 1 of 15 (7%) if untreated (\(P=.03\)). Postoperative UTI also was numerically more frequent among treated patients than untreated patients (18% vs 7%). Other complications did not vary in frequency with treatment (data not shown).

Comment. We found that preoperative UCs were ordered inconsistently, that findings were rarely positive for bacteriuria, and that bacteriuria, when detected, usually was treated inconsistently, that findings were rarely positive for bacteriuria, and that bacteriuria, when detected, usually was...

Table. Urine Culture (UC) and Associated Antimicrobial Treatment Prior to 1934 Surgical Procedures Among Veterans in FY 2010 in Relation to Rates of Postoperative Urinary Tract Infection (UTI) and Surgical Site Infection (SSI)

<table>
<thead>
<tr>
<th>UC Status</th>
<th>Antimicrobial Treatment</th>
<th>Procedures, No.</th>
<th>SSI</th>
<th>Postoperative UTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>No UC</td>
<td>No</td>
<td>1445</td>
<td>63 (4)</td>
<td>22 (2)</td>
</tr>
<tr>
<td>UC negative</td>
<td>Yes</td>
<td>430</td>
<td>70 (16)</td>
<td>8 (2)</td>
</tr>
<tr>
<td>UC positive</td>
<td>Yes</td>
<td>5</td>
<td>1 (20)</td>
<td>1 (20)</td>
</tr>
<tr>
<td>UC positive</td>
<td>Yes</td>
<td>43</td>
<td>6 (14)</td>
<td>3 (7)</td>
</tr>
<tr>
<td>UC positive</td>
<td>Yes</td>
<td>11</td>
<td>5 (45)</td>
<td>2 (18)</td>
</tr>
</tbody>
</table>

Note. No UC, no UC obtained; UC negative, UC with fewer than \(10,000\) colony-forming units (CFU)/mL or no growth; UC positive, UC with at least \(10,000\) CFU/mL.
not treated. In addition, preoperative UCs were associated with higher rates of SSI, diarrhea, and CDI, whereas bacteriuria, although associated with health care provider-diagnosed postoperative UTI, was not associated with SSI. Because these associations are derived from small samples in an observational study, they should be interpreted cautiously, recognizing the potential for confounding. Similarly, the finding that treating bacteriuria was associated with SSI may be confounded by factors that contributed to the decision to administer antimicrobial drugs.

To our knowledge, this study provides the first systematic assessment of the frequency of preoperative UCs. Moreover, with nearly 2000 procedures, it is the largest study to assess outcomes associated with such testing. Our findings document that treatment of preoperative bacteriuria is associated with no benefit. These findings suggest that, outside the context of a randomized clinical trial, preoperative screening for and treatment of asymptomatic bacteriuria should be avoided in patients undergoing cardiovascular, orthopedic, or vascular surgery procedures.

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A Comparison of Care at E-visits and Physician Office Visits for Sinusitis and Urinary Tract Infection

Internet capabilities create the opportunity for e-visits, in which physicians and patients interact virtually instead of face-to-face. In e-visits, patients log into their secure personal health record internet portal and answer a series of questions about their condition. This written information is sent to the physicians, who make a diagnosis, order necessary care, put a note in the patients' electronic medical records, and reply to the patients via the secure portal within several hours. E-visits are offered by numerous health systems and are commonly reimbursed by health plans. They typically focus on care for acute conditions, such as minor infections.

There are several potential advantages of e-visits, including convenience and efficiency (avoiding travel and time) and lower costs. Furthermore, e-visits can be provided by the patient's primary care physician instead of a specialist at an emergency department or urgent care center. The main concerns about e-visits center on quality issues: whether physicians can make accurate diagnoses without a face-to-face interview or physical examination, whether the use of tests and follow-up visits is appropriate, and whether antibiotics might be overprescribed.

To our knowledge, no studies have characterized the differences between e-visits and office visits. To fill this knowledge gap, we compared the care at e-visits and office visits for 2 conditions: sinusitis and urinary tract infection (UTI).

Methods. We studied all e-visits and office visits at 4 primary care practices within the University of Pittsburgh Medical Center Health System, Pittsburgh, Pennsylvania. These practices were the first to offer e-visits, but they are now offered at all primary care office locations. The practices have a total of 63 internal medicine and family practice physicians. We identified all office visits and e-visits for sinusitis and UTI at these practices between January 1, 2010, and May 1, 2011. Structured data were obtained directly from the electronic medical records (EpicCare).