



JAMDA

journal homepage: www.jamda.com

Controversies in Long Term Care

Clinical Uncertainties in the Approach to Long Term Care Residents With Possible Urinary Tract Infection

David A. Nace MD, MPH, CMD^{a,*}, Paul J. Drinka MD, AGSF, FSHEA^{b,c},
Christopher J. Crnich MD, MS^{b,d}

^a Division of Geriatric Medicine, Department of Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA

^b University of Wisconsin School of Medicine and Public Health, Madison, WI

^c Medical College of Wisconsin, Milwaukee, WI

^d William S. Middleton Veterans Administration Medical Center, Madison, WI

A B S T R A C T

Keywords:

Urinary tract infection (UTI)
antimicrobial stewardship
nursing home
medical decision making

Urinary tract infection (UTI) is arguably the most common infection in the long term care (LTC) setting. Making the diagnosis of UTI and deciding when to initiate treatment with antimicrobial therapy is a challenge to all LTC providers. Widespread prevalence of asymptomatic bacteriuria, lack of an accepted clinical or laboratory gold standard to start antibiotics for UTI, and a high prevalence of cognitive impairment in the LTC population all contribute to this challenge. Several consensus based criteria for diagnosing UTI have been published, though these vary from each other owing to different intended purposes. The McGeer and updated Stone criteria are intended for surveillance and benchmarking purposes. The 2005 Loeb criteria represent minimal criteria for the initiation of antimicrobial therapy. Our review focuses on residents without a urinary catheter. The Loeb criteria should be updated, by inclusion of isolated fever in those with profound cognitive impairment as well as scrotal or prostate swelling tenderness to be consistent with the updated McGeer criteria by Stone et al. Urine testing and antimicrobial therapy should not be ordered in those with isolated nonspecific signs or noninfectious symptoms such as fatigue or delirium. Both cavalier urine testing and unnecessary antimicrobial therapy contribute to direct patient harm as well as the rapidly escalating threat of antimicrobial resistance. Observation and monitoring of residents in whom the diagnosis of UTI is unclear is a best practice that should be implemented. Facilities should consider addressing UTI management as part of their quality assurance and performance improvement process.

© 2014 - American Medical Directors Association, Inc. All rights reserved.

There are few clinical problems in long term care (LTC) that prove more controversial than the approach to the resident with suspected urinary tract infection (UTI).^{1–7} Urinary tract infections are the most common type of infection identified in LTC residents. While we can rest assured that LTC residents have been diagnosed with UTI since opening of the first nursing facilities, no gold standard has emerged for diagnosing UTI in this population. Each clinician is left relying on

her or his own clinical judgment to decide whether a UTI is present or absent. To explore this controversy in greater detail, consider the following case which should be familiar to all LTC providers.

Case

Mrs Smith is a 92-year-old female with stage 5 Alzheimer's disease. She resides in a nursing facility because of severe knee arthritis, which has prevented her from walking for the past year. In addition to the arthritis and dementia, she suffers from depression and advanced glaucoma. The nursing home staff contacts the on-call physician 1 weekend after noting the resident's urine is dark and concentrated. The nursing staff also reports the resident is slightly more confused. The resident is afebrile with normal vitals and has no urinary catheter in place. The nursing staff verbalizes a request to "send off a urine." The on-call physician complies by ordering a urine analysis and culture. No antibiotic is started. Two days later the primary attending is called with the urine results, having little knowledge of the clinical situation

Support for this project was provided by the Pittsburgh Claude D. Pepper Older Americans Independence Center (NIH P30 AG024827) and the Agency for Healthcare Research and Quality (AHRQ R01HS018721).

The primary author currently receives grant support from Sanofi Pasteur as principle investigator for an investigator initiated study evaluating the impact of regular versus high dose influenza vaccine in long term care residents. There are no other conflicts for any of the authors.

* Address correspondence to David A. Nace, MD, MPH, CMD, Division of Geriatric Medicine, Department of Medicine, University of Pittsburgh, 3471 Fifth Ave, Ste 500, Pittsburgh, PA 15213.

E-mail address: naceda@upmc.edu (D.A. Nace).

surrounding the original test order. The resident has been stable with no fever or urinary symptoms. The urine analysis is remarkable for moderate pyuria and 1+ nitrites. The culture grows greater than 100,000 CFU of a gram negative rod for which an antibiotic is ordered.

At the next quality improvement (QI) meeting, the facility infection control practitioner expresses concern over the rate of UTIs within the facility. In particular, the infection control practitioner notes this case did not meet the McGeer criteria for UTI and feels the resident should not have been treated. One week later, the patient continues to have dark urine but remains stable with no fever or urinary symptoms. The resident's family now requests "a repeat urine to make sure the infection has resolved."

This case highlights several important questions that LTC clinicians confront and for which there is a controversial evidence base.

- (1) Are there minimal criteria that should be considered prior to initiating antimicrobial treatment for suspected UTI in a LTC resident?
- (2) Is there a potential for harm when ordering urine tests for LTC residents in the setting of non-specific symptoms?
- (3) Should clinicians order a urine culture to perform a test of cure?
- (4) Is withholding an antibiotic in the presence of nonspecific symptoms the same as failure to treat?
- (5) What is the role of the facility's infection control program and the medical director in reducing over-diagnosis and treatment of UTI?

Are There Minimal Criteria That Should Be Considered Prior to Initiating Antimicrobial Treatment for Suspected UTI in a LTC Resident?

Despite being recognized as the most commonly diagnosed infection in LTC settings, there is no universally accepted definition of UTI used for initiating treatment. Several consensus based definitions of UTI have been promulgated and revised over time to improve their performance.^{8–11} While differing in the precise criteria applied, all of these definitions require the presence of urinary tract signs and symptoms. Urinary tract signs and symptoms include dysuria, new onset frequency, urgency, incontinence, flank pain/tenderness, suprapubic pain, gross hematuria, or focal tenderness or swelling of the testis, epididymis, or prostate. Recent catheter trauma, obstruction, or purulent drainage around the catheter also provides evidence of localization in the face of systemic infectious illness in addition to the localizing signs and symptoms described above. These consensus definitions have gained wide spread acceptance among infection control experts. In practice, however, many clinicians consider the presence of nonspecific symptoms such as fever alone, functional decline, behavioral changes, and mental status changes when diagnosing UTI in older adults.^{1,5,12,13} This is due to wide appreciation that diseases frequently present atypically in frail older adults, particularly those with cognitive impairment.^{14–17} Unfortunately, nonspecific symptoms are just that: nonspecific. They can be present in any number of other infectious or noninfectious conditions and, therefore, have low positive predictive value.^{7,18} For example, Orr et al estimated UTI to be present in less than 10% of nursing facility residents with positive urine cultures and in whom the only symptom present was fever.¹⁹ Boscia et al found no association between malaise, anorexia or fatigue and the presence of bacteriuria.²⁰ Studies exploring the association between mental status changes or delirium and UTI are very limited. Available evidence does not support a clear association of mental status changes or delirium with uncomplicated UTI.^{2,21,22} The role of fever and leukocytosis in diagnosing UTI is imprecise in frail older adults. Studies evaluating the association

between fever and UTI have not used consistent definitions. In 2 studies looking at hospitalized patients with bacteremic UTI, typical urinary symptoms were absent; however, fever, defined several ways, was present in the vast majority.^{23,24} Leukocytosis ($>11,000$ leukocytes/mm³) was also present in the majority of these patients. These studies only evaluated hospitalized patients with bacteremic infections; whether the findings apply to patients with typical non-bacteremic UTI remains to be proven. Patients with significantly advanced cognitive impairment present a challenge in that they may not be able to report any symptoms. In this group of selected patients, the presence of fever, peripheral leukocytosis, or hemodynamic instability alone may be adequate to warrant antimicrobial treatment.^{4,14} Thus, nonspecific symptoms in the absence of urinary symptoms should not be used alone to rule in a UTI, with the possible exception of isolated fever or leukocytosis in patients with significantly advanced cognitive impairment.^{14,15}

A number of investigators have attempted to refine the consensus UTI definitions in the hopes of creating a stronger evidence base and resolving the contentious role of nonspecific findings.^{13–15} Unfortunately, these studies have suffered from a key methodological flaw: the absence of a uniformly applied and accepted UTI definition for case finding purposes.³ In all of these studies, the outcome definition used was "suspected UTI," which simply amounts to whatever criteria the clinician decided to use at the time.

The McGeer criteria are perhaps the most widely quoted consensus criteria. The McGeer criteria were first composed over 2 decades ago and have recently been updated by Stone and colleagues (Table 1).^{10,11} Confusion over the role of these criteria exists, and many clinicians are unfamiliar with the criteria.^{12,25} The role of the McGeer, and now Stone, criteria for UTI are for *surveillance* purposes, not determining if antimicrobials should be used. Surveillance definitions are designed to be highly *specific*, so that rates can be reliably benchmarked across facilities. Surveillance criteria are not meant to be highly *sensitive* and, therefore, may miss cases of disease when truly present. The McGeer and Stone criteria for UTI are, thus, intended to compare rates of UTI within a facility over time and between facilities for benchmarking purposes. These criteria are often determined retrospectively following a full assessment over time. Given their intended purpose, the McGeer criteria should not be considered the standard for minimal criteria for initiating antimicrobial therapy for UTI.

In contrast, clinicians must make treatment decisions in real time, often during a phone contact on the night of disease onset.^{26–28} Criteria used in this situation must be designed to be applied prospectively. The Loeb criteria for UTI were specifically designed for this purpose (Table 1).⁸ These criteria were updated in 2005. Building on evidence from randomized controlled trials, observational studies, and qualitative studies, algorithms incorporating minimum criteria for ordering a urine culture and initiating antimicrobial treatment for UTI were developed.^{29,30} These criteria were supported by a cluster randomized controlled trial of an educational intervention. The trial led to a 31% reduction in prescriptions for UTI without any increase in hospitalizations or mortality.⁹ Reduction in UTI treatment rates and overall antibiotic use were also found in a separate single facility study using very similar criteria.³¹ Two Agency for Healthcare Research and Quality funded studies attempting to implement the Loeb criteria were recently conducted.^{32,33} In a QI study conducted by the American Institutes for Research, antimicrobial utilization for UTI improved in facilities demonstrating adherence to the Loeb criteria.³⁴ A separate study conducted by Abt Associates failed to find an association between the Loeb criteria and antibiotic utilization. However, in the Abt study, adherence to the Loeb criteria was determined by retrospective chart review, was exceptionally low, and was determined only for a subsample of residents in which an antimicrobial was prescribed.^{35,36}

Download English Version:

<https://daneshyari.com/en/article/3110028>

Download Persian Version:

<https://daneshyari.com/article/3110028>

[Daneshyari.com](https://daneshyari.com)