

Sustained reduction in inappropriate treatment of asymptomatic bacteriuria in a long-term care facility through an educational intervention

Trina F. Zabarsky, RN,^a Ajay K. Sethi, PhD,^b and Curtis J. Donskey, MD^{a,c}
Cleveland, Ohio

Background: In long-term care facilities, treatment of asymptomatic bacteriuria (ASB) is common. However, randomized, controlled trials suggest that such treatment offers no benefit and may promote antimicrobial resistance.

Methods: For 3 months before and 30 months after instituting an educational intervention, we monitored the appropriateness of urine culture collection and antibiotic treatment based on published guidelines and examined the effect on total antimicrobial use. The intervention included education of nursing staff to discourage the collection of urine cultures in the absence of symptoms suggestive of urinary tract infection and of primary care practitioners to not treat ASB.

Results: In preintervention period, 23 of 38 (61%) antibiotic regimens prescribed for urinary tract indications were for ASB. In the 6 months after the intervention, inappropriate submission of urine cultures decreased from 2.6 to 0.9 per 1000 patient-days ($P < .0001$), overall rate of treatment of ASB was reduced from 1.7 to 0.6 per 1000 patient-days ($P = .0017$), and total antimicrobial days of therapy were reduced from 167.7 to 117.4 per 1000 patient-days ($P < .001$). These reductions were maintained for 30 months after beginning the intervention.

Conclusion: Educational interventions requiring minimal resources can result in sustained reductions in inappropriate treatment of ASB in long-term care and decreased total antimicrobial use. Education of the nursing staff regarding appropriate criteria for requesting urine cultures should be a component of such interventions. (Am J Infect Control 2008;36:000-0.) (Am J Infect Control 2008;36:476-80.)

Urinary tract infections (UTIs) are a common problem among long-term care facility residents, accounting for 20% to 60% of systemic antimicrobial courses in this setting.^{1,2} Asymptomatic UTI, also known as asymptomatic bacteriuria (ASB), is much more common than symptomatic UTI among elderly, institutionalized subjects.^{1,2} Nearly all individuals with chronic indwelling urethral catheters have bacteriuria, and the prevalence of bacteriuria among elderly institutionalized individuals without catheters ranges from 25% to 50% for women and 15%

to 40% for men.² Several prospective, randomized clinical trials of antimicrobial therapy among long-term care facility residents have demonstrated that treatment of ASB is not beneficial.³⁻⁶ Overuse of antibiotics in this population may have adverse effects, including emergence of resistant organisms, adverse drug reactions, and increased cost of health care.¹⁻⁶ Therefore, current guidelines do not recommend screening for or treatment of ASB in residents of long-term care facilities.^{1,7}

Despite the recommendation that ASB not be treated in long-term care facility residents, therapy of ASB remains common in clinical practice.^{8,9} Loeb et al¹⁰ found that a multifaceted intervention, including small group interactive sessions for nurses, videotapes, written material, outreach visits, and one-on-one interviews with physicians, was effective in reducing the number of antimicrobial prescriptions for suspected UTI in several nursing homes for 12 months. Because surveillance data in 2001 suggested that a majority of treatment courses for UTI in our long-term care facility was for ASB (authors' unpublished data), the Infection Control Department performed a quality improvement project to reduce inappropriate treatment. Our findings demonstrate that educational interventions requiring minimal resources can result in sustained reductions in unnecessary antimicrobial use in long-term care settings.

From the Infection Control Department,^a Louis Stokes Cleveland Department of Veterans Affairs Medical Center; Department of Epidemiology and Biostatistics,^b Case Western Reserve University School of Medicine; and Infectious Diseases Section^c Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, OH.

Address correspondence to Curtis J. Donskey, MD, Infectious Diseases Section, Louis Stokes Cleveland Veterans Affairs Medical Center, 10701 East Blvd, Cleveland, OH 44106. E-mail: curtisdl23@yahoo.com.

Supported by the Infection Control Department, Louis Stokes Cleveland VA Medical Center, and by an Advanced Research Career Development Award from the Department of Veterans Affairs (to C.J.D.).

0196-6553/\$34.00

Copyright © 2008 by the Association for Professionals in Infection Control and Epidemiology, Inc.

doi:10.1016/j.ajic.2007.11.007

Table 1. Educational information for nursing staff regarding criteria for sending urine cultures

Criteria for sending a urine culture:
Fever or rigors
Urinary urgency or frequency
Dysuria
Hematuria
New onset of urinary incontinence
Acute urinary retention
Flank pain
Significant change in mental status, with no other explanation
Do NOT send a urine specimen routinely for:
Foul-smelling or cloudy urine
After every urethral catheter change
Upon admission
After treatment to document cure

Table 3. Educational information for primary care providers regarding criteria for empiric antibiotic treatment while awaiting culture results

No indwelling catheter present:
Acute dysuria alone
OR
Fever AND at least 1 of the following: urgency, frequency, suprapubic tenderness, hematuria, flank pain, new incontinence
Indwelling catheter present:
Presence of at least 1 of the following symptoms: fever or rigors, costovertebral tenderness, or new-onset delirium

NOTE. Primary care providers include physicians, nurse practitioners, physicians' assistants.

METHODS

A 33-month prospective study from February 1, 2002, to October 31, 2004, was conducted in the long-term care facility of the Cleveland Department of Veterans Affairs Medical Center. The long-term care facility contains 190 beds on 5 separate wards and is separate from the acute care hospital. The facility is staffed with 1 infection control nurse, approximately 80 licensed nurses, and 6 full-time primary care providers. The educational intervention and monitoring of ASB rates were conducted by the facility's infection control nurse (T.F.Z.) as a quality improvement initiative with assistance from an infectious diseases physician, who is also chair of the Infection Control Committee (C.J.D.).

Symptomatic UTI was defined as the presence of clinical symptoms or signs suggestive of UTI (ie, dysuria, frequency, urgency, suprapubic tenderness, and fever) in association with significant bacteriuria ($>10^5$ colony-forming units/mL).^{1,2} ASB was defined as the presence of significant bacteriuria without symptoms or signs suggestive of UTI.^{1,2} Rates of inappropriate submission of urine cultures and of treatment of ASB were monitored for 3 months before and 30 months after an educational intervention.

Table 2. Educational information for primary care providers regarding diagnosis of symptomatic urinary tract infection

Symptomatic urinary tract infection must have:
One of the following symptoms: fever, urgency, frequency, dysuria, or suprapubic tenderness
AND
Positive urine culture ($>10^5$ organisms/cm ³)
OR
Two of the following symptoms: fever, urgency, frequency, dysuria, or suprapubic tenderness
AND
Two urine cultures with the same uropathogen ($>10^2$ organisms/cm ³) or other positive findings

NOTE. Primary care providers include physicians, nurse practitioners, physicians' assistants.

The educational intervention was directed at the nursing staff and the primary care providers (ie, individuals prescribing antimicrobials, including physicians, physicians' assistants, and nurse practitioners). Interviews were conducted with nurses and primary care providers to determine their opinions and knowledge regarding appropriate diagnosis and management of UTIs. The nursing staff received pocket-sized reference cards describing appropriate and inappropriate indications for sending urine cultures (Table 1). The primary care providers received similar reference cards indicating appropriate criteria for empiric antibiotic treatment for suspected symptomatic UTI (Table 2) and criteria for diagnosis of symptomatic UTI (Table 3). Larger cards were posted at each computer station used by the nursing staff and primary care providers.

The nursing staff and primary care providers also received education regarding current guidelines for management of ASB and the results of the randomized, controlled trials that found that antibiotic treatment of ASB offers no benefit.³⁻⁶ In addition, education was provided regarding the potential adverse effects of unnecessary antibiotic use, including promotion of antibiotic resistance, *Clostridium difficile* infection, and adverse drug reactions. Providers were encouraged to reserve antibiotic treatment for those patients with recognized symptoms of UTI in accordance with the published guidelines.^{1,7} To include the nurses from all 3 shifts, nursing education was provided at the change of shift on each unit. Nursing staff members and primary care providers who could not attend the educational sessions were educated by their supervisors and received a memo that outlined the information provided in the sessions.

Follow-up educational sessions for each nursing unit were conducted semiannually throughout the study period by the infection control nurse. In addition, nurses and primary care providers were provided with

Download English Version:

<https://daneshyari.com/en/article/2640214>

Download Persian Version:

<https://daneshyari.com/article/2640214>

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