

Family Physician Corner

When to Treat Asymptomatic Bacteriuria

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It is not uncommon to encounter bacteria in the urine of an asymptomatic patient, as an incidental finding. The prevalence of asymptomatic bacteriuria varies between 1% in young females up to 19% among the elderly population¹. It is also associated with the presence of genitourinary malformation, pregnancy, diabetes mellitus, hemodialysis and indwelling catheters. Urinary tract infections (UTIs) are considered one of the most common infections for which antibiotics are prescribed². Many common pathogens have been identified, such as *Escherichia coli*, Enterobacteriaceae, *Pseudomonas aeruginosa*, Enterococcus species, and group B streptococcus. In healthy patients the likely organism is *E. coli*, while in elderly patients especially those with an indwelling catheter the most likely organisms are the drug resistant *P. aeruginosa* or urease-producing organisms such as *P. mirabilis*, *Providencia stuartii*, and *Morganella morganii*^{2,3}.

How to Diagnose Asymptomatic Bacteriuria

By definition asymptomatic bacteriuria is the documentation of the presence of a significant quantity of bacteria in a urine specimen properly collected from a person without symptoms or signs of a urinary tract infection (UTI). In order to make the diagnosis we need to observe at least 100,000 colony-forming units (CFUs) per mL of urine in a voided midstream clean-catch specimen; and at least 100 CFUs per mL of urine from a catheterized specimen². Proper sampling techniques are crucial (midstream clean-catch specimen) to avoid contamination. The criteria to make the diagnosis are listed in Table 1.

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Table 1: Criteria to Diagnose Asymptomatic Bacteruria(From Colgan *et al*, 2006 with modification)

For women		For Men	
Midstream clean-catch urine specimen	Catheterized urine specimen	Midstream clean-catch urine specimen	Catheterized urine specimen
Two consecutive specimens with isolation of the same species in quantitative counts of at least 100,000 CFUs* per mL of urine.	A single specimen with one bacterial species isolated in a quantitative count of at least 100 CFUs per mL	A single specimen with one bacterial species isolated in a quantitative count of at least 100,000 CFUs per mL.	A single specimen with one bacterial species isolated in a quantitative count of at least 100 CFUs per mL.
CFU: colony forming unit			

It is worth mentioning that commercial leukocyte esterase or nitrite tests dipsticks available in primary health care centers are not considered a sufficiently reliable diagnostic test for UTI in asymptomatic patients². Therefore, it is essential to make the diagnosis by requesting urine analysis (Urine routine and micro) test accompanied with urine culture.

Recommended Policy for Patients with Asymptomatic Bacteruria

Healthy Premenopausal Women

Randomized controlled trials showed no benefit from treating women with asymptomatic bacteriuria and treatment does not appear to decrease the frequency of symptomatic UTI or prevent further episodes of bacteriuria. In addition to the fact that untreated asymptomatic bacteriuria has not been shown to be associated with long term complications such as, hypertension, renal failure, genitourinary cancer, or decreased survival¹⁻³.

Pregnant Women

Asymptomatic bacteriuria occurs in 2-10% of pregnancies and up to 30% of these mothers will develop acute pyelonephritis if not treated. Asymptomatic bacteriuria has also been linked to low birth-weight and preterm delivery⁴. There is a consensus on the effectiveness of using antibiotics to clear the bacteruria in asymptomatic pregnant women. Systematic reviews of randomized controlled trials from the Cochrane Library have shown that antibiotic treatment is effective in reducing the risk of pyelonephritis in pregnancy⁴. The U.S. Preventive Services Task Force (USPSTF) recommends that all pregnant women should be screened for asymptomatic bacteriuria using urine culture at

12-16 weeks of gestation³. The Infectious Diseases Society of America (IDSA) recommends a course of three to seven days of antimicrobial therapy¹.

Women with Diabetes Mellitus

Asymptomatic bacteriuria is three times common among diabetic women. Many authorities recommend against screening and treatment of asymptomatic bacteriuria in diabetic women^{1,3}. Harding *et al* found that the treatment of asymptomatic bacteriuria in women with diabetes does not appear to reduce complications and diabetes itself should not be an indication for screening for or treatment of asymptomatic bacteriuria⁵.

Elderly with Asymptomatic Bacteriuria

Many clinical trials showed that neither screening nor treating asymptomatic bacteriuria was effective². Furthermore, antibiotic treatment in this category was associated with an increased drug resistance to some antibiotics. Currently, it is recommended that the screening and treating of asymptomatic bacteriuria in elderly patients is unnecessary^{1,3}.

Patients with Spinal Cord Injuries

There is a general agreement that only symptomatic patients with spinal injury should be treated because many studies failed to demonstrate the effectiveness of screening and treating these patients^{1,2}.

Patients with Indwelling Urethral Catheters

Many randomized controlled trials reached similar conclusions and advised against screening and treating asymptomatic bacteriuria or funguria in patients with indwelling catheter^{1,2}. The only exception is in asymptomatic women with catheter-acquired bacteriuria that persists beyond 48 hours after removing the catheter. In this situation, antibiotics may be considered¹.

Summary

Asymptomatic bacteriuria is not uncommon. The recommendation on whether to screen and/or to treat depends on individual cases. Nevertheless, a consensus has been agreed upon, it is illustrated in Figure 1.

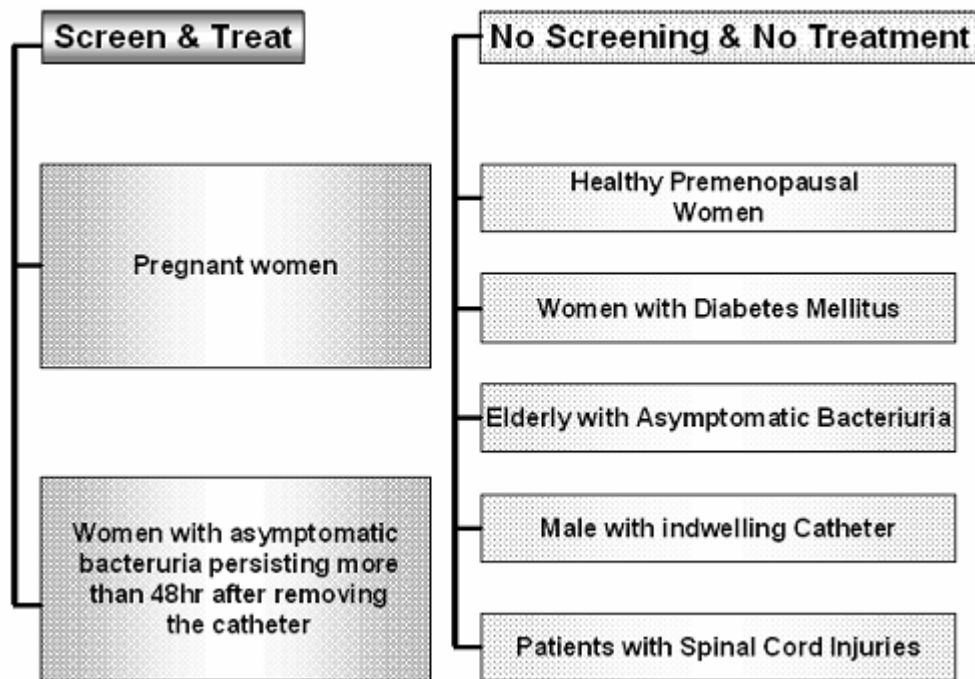


Figure 1: Management of Asymptomatic Bacteriuria

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