EAU Guidelines on Urological Infections

Classification, Asymptomatic bacteriuria, Uncomplicated cystitis

CLASSIFICATION OF URINARY TRACT INFECTIONS (UTIs)

Uncomplicated UTIs: Acute, sporadic or recurrent lower and/or upper UTI, limited to non-pregnant women with no known relevant anatomical and functional abnormalities or comorbidities.

Complicated UTIs: All UTIs which are not defined as uncomplicated. UTIs in a patient with an increased chance of a complicated course (all men, pregnant women, patients with relevant anatomical or functional abnormalities, indwelling catheters, renal diseases, and/or with other concomitant immunocompromising diseases).

Recurrent UTIs: Recurrences of UTIs, with a frequency of at least three UTIs/year or two UTIs in the last six months.

Catheter-associated UTIs: UTIs occurring in a person whose urinary tract is currently catheterised or has had a catheter within the past 48 hours.

Urosepsis: Life threatening organ dysfunction caused by a dysregulated host response to infection originating from the urinary tract.

ASYMPTOMATIC BACTERIURIA IN ADULTS

Urinary growth of bacteria in an asymptomatic individual is common and corresponds to a commensal colonisation. It may protect against superinfecting symptomatic UTI. Treatment should be performed only in cases of proven benefit to avoid the risk of selecting antimicrobial resistance.

DIAGNOSTIC EVALUATION:

An individual without urinary tract symptoms is defined by a mid-stream sample of urine showing bacterial growth ≥ 105 cfu/mL in two consecutive samples in women and in one single sample in men. In a single catheterised sample, bacterial growth may be as low as 102 cfu/mL to be considered representing true bacteriuria in both men and women.

RECOMMENDATIONS FOR THE MANAGEMENT:

Recommendations	Strength rating
Do not screen or treat asymptomatic bacteriuria in the following conditions: • women without risk factors; • patients with well-regulated diabetes mellitus; • post-menopausal women; • elderly institutionalised patients; • patients with dysfunctional and/or reconstructed lower urinary tracts; • patients with renal transplants; • patients prior to arthroplasty surgeries; • patients with recurrent urinary tract infections.	Strong
Screen for and treat asymptomatic bacteriuria prior to urological procedures breaching the mucosa.	Strong
Screen for and treat asymptomatic bacteriuria in pregnant women with standard short course treatment.	Weak

UNCOMPLICATED CYSTITIS

The majority of cases of uncomplicated cystitis are caused by E. coli.

Uncomplicated cystitis is defined as acute, sporadic or recurrent cystitis limited to non-pregnant women with no known relevant anatomical and functional abnormalities within the urinary tract or comorbidities.

Risk factors: sexual intercourse, use of spermicides, a new sexual partner, a mother with a history of UTI and a history of UTI during childhood.

DIAGNOSTIC EVALUATION:

- **Clinical:** History of lower urinary tract symptoms (dysuria, frequency and urgency) and the absence of vaginal discharge.
- **Laboratory:** With typical symptoms, urine analysis leads only to a minimal increase in diagnostic accuracy.

Urine culture is recommended in patients with atypical symptoms, as well as those who fail to respond to appropriate antimicrobial therapy.

Recommendations	Strength rating
Diagnose uncomplicated cystitis in women who have no other risk factors for complicated urinary tract infections based on: • a focused history of lower urinary tract symptoms (dysuria, frequency and urgency); • the absence of vaginal discharge.	Strong
Use urine dipstick testing for diagnosis of acute uncomplicated cystitis.	Weak
Urine cultures should be done in the following situations: • suspected acute pyelonephritis; • symptoms that do not resolve or recur within four weeks after completion of treatment; • women who present with atypical symptoms; • pregnant women.	Strong

DISEASE MANAGEMENT:

Summary of evidence	LE
Clinical success for the treatment of uncomplicated cystitis is significantly more likely in women treated with antimicrobials than placebo.	1b
Aminopenicillins are no longer suitable for antimicrobial therapy in uncomplicated cystitis because of negative ecological effects, high resistance rates and their increased selection for extended spectrum beta-lactamase (ESBL)-producing bacteria.	3

Recommendations	Strength rating
Prescribe fosfomycin trometamol, pivmecillinam or nitrofurantoin as first-line treatment for uncomplicated cystitis in women.	Strong
Do not use aminopenicillins or fluoroquinolones to treat uncomplicated cystitis.	Strong

Routine post-treatment urinalysis or urine cultures in asymptomatic patients are not indicated.

Suggested regimens for antimicrobial therapy in uncomplicated cystitis

Antimicrobial	Daily dose	Duration of therapy	Comments
First-line women			
Fosfomycin trometamol	3 g SD	1 day	Recommended only in women with uncomplicated cystitis.
Nitrofurantoin macrocrystal	50-100 mg four times a day	5 days	
Nitrofurantoin monohydrate/ macrocrystals	100 mg b.i.d	5 days	
Nitrofurantoin macrocrystal prolonged release	100 mg b.i.d	5 days	
Pivmecillinam	400 mg t.i.d	3-5 days	
Alternatives			
Cephalosporins (e.g. cefadroxil)	500 mg b.i.d	3 days	Or comparable
If the local resistance pattern for E. coli is < 20%			
Trimethoprim	200 mg b.i.d	5 days	Not in the first trimenon of pregnancy
Trimethoprim-sulfamethoxazole	160/800 mg b.i.d	3 days	Not in the last trimenon of pregnancy
Treatment in men			
Trimethoprim-sulfamethoxazole	160/800 mg b.i.d	7 days	Restricted to men, fluoroquinolones can also be prescribed in accordance with local susceptibility testing.

SD = single dose; b.i.d = twice daily; t.i.d = three times daily.