



Clinical Pearls

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Urinary Tract Infection (UTI)

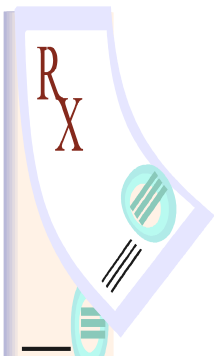
A UTI is bacterial infection of urinary tract including bladder (cystitis) and kidney (pyelonephritis). It is one of the most common type of infections found in long-term care facilities. It usually resolves within several days with antibiotic treatment. However, when it is left untreated or improperly treated, it may lead to severe consequences such as delirium, dehydration, or even death. Therefore, it is important to detect the infection early and start appropriate antibiotic treatment to reduce transfers to acute care/hospitalization and prevent further complication.

Who is at risk of getting a UTI?

- History of urinary tract infection
- Diabetes mellitus
- Obesity
- Anatomic congenital abnormalities
- Urinary tract calculi
- Urinary catheterization
- Postmenopausal Women
- Vaginal atrophy
- Incomplete bladder emptying
- Poor perineal hygiene

What are common signs and symptoms of UTI?

- Dysuria
- Urgency
- Frequency
- Fever (>38°C) or rigors
- WBC >11,000 cells/μL
- Flank pain
- Suprapubic pain
- Nausea and/or vomiting
- Foul-smelling urine
- Hematuria
- New onset delirium
- Elderly may not experience symptoms



How to reduce catheter associated UTI (CA-UTI)?

Limit catheter use to patient with clear indication (*allowable indications are defined by CMS/DADS*)

Discontinue the catheter as soon as it is no longer required

Only properly trained persons insert and maintain catheters

Follow aseptic insertion and maintain a closed drainage system

Keep the bag lower than the bladder to prevent backflow

Practice hand hygiene and standard precautions

Implement quality improvement programs

2009 CAUTI Guidelines

How to interpret the lab results?

Urinalysis

U/A helps to determine if bacteria are present in urine

	Normal	Abnormal
Contents	Sterile (bacteria free)	Presence of bacteria
	Minerals such as Na, Ca, K, etc	Presence of cast, proteins, RBC, or WBC
		Presence or Nitrites
		Presence of leukocyte esterase
Color	Yellow color	Turbidity
Urine pH	4.5-8	Abnormal (Usually Increased)
Specific gravity	1.003-1.030	Abnormal (Usually Increased)

MIC (Minimal Inhibitory Concentration)

The lower the MIC value = More sensitive to the antibiotic

MIC cannot be translated across antibiotic or different bacteria

Culture & Sensitivity

The cultured bacteria are tested against several different antibiotics and this process helps to choose the antibiotic that most effectively kill the specific types of bacteria.

Sensitive	Bacteria are killed by tested antibiotic
Resistant	Bacteria are NOT killed by tested antibiotic
Intermittent	Bacteria are partially killed by tested antibiotic

- ✓ Which antibiotic should be utilized? Sensitive vs Resistant?
SENSITIVE!!!

Is Cranberry product effective to prevent UTI?

The use of prophylactic antibiotics is still controversial due to adverse effects of antimicrobial therapy and increased antimicrobial resistance. To reduce antibiotic use, cranberry is commonly given to geriatric patients to prevent UTI. The exact mechanism of action of cranberry in UTI prevention is unknown. It may prevent bacterial colonization by inhibiting adherence of bacteria to bladder wall. The efficacy of cranberry products in UTI prophylaxis is still inconclusive, but commonly available and used forms of cranberry within the studies was up to 75ml of concentrate (i.e. UTI-STAT), 50 ml to up to 8 oz of juice, tabs and/or caps 200-500mg all taken in frequencies of qd to tid.

Wang, P. (2013). The effectiveness of cranberry products to reduce urinary tract infections in females: A literature review. *Urologic Nursing*, 33(1), 38-45.
doi:10.7257/1053-816X.2013.33.1.38

How should we treat UTI?

- Antibiotic treatment is the standard treatment for UTI
Nitrofurantoin

Trimethoprim-sulfamethoxazole

Fosfomycin tometamol

Fluoroquinolones

β-lactam agents

- Choose antibiotic with local resistant rate <20%
- Review sensitivity data for a local hospital
- Urine C&S test should be performed
- Empirical treatment should be adjusted based on C&S results

Estrogen use in postmenopausal women

Small clinical trials show that vaginal estrogen can reduce the # of UTIs and relieve UTI symptoms. It can be offered to postmenopausal women who experience recurrent UTIs. However, larger studies should be performed to ensure the outcome of effectiveness.

Available as;

Vaginal cream
Vaginal tablet
Vaginal ring

*SOGC; Society of Obstetricians and Gynaecologists of Canada
ACOG; American College of Obstetricians and Gynecologists