Urinary Tract Infection (UTI) Myths and Facts

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Disclosures

• Member and facilitator of the WI Healthcare-Associated Infections (HAIs) in Long-Term Care (LTC) Coalition

• Portions of this presentation are based on information from the WI HAI in LTC Coalition's 2016 UTI 101 Workshops* and the WI LTC UTI Toolkit**

*https://www.dhs.wisconsin.gov/regulations/nh/hais‐events‐index.htm
**https://crc.chsra.wisc.edu/uti‐toolkit/overview.php

Outline

• Define and differentiate UTI and asymptomatic bacteriuria
• Dispel myths and reinforce facts about UTIs
• Discuss antibiotic resistance as a consequence of inappropriate antibiotic use
• Discuss how to evaluate and prevent falls as a change of condition
UTI Laboratory Diagnosis

An infection caused by bacteria that involves any part of your urinary system, which includes your kidneys, bladder, ureters, and urethra

Asymptomatic Bacteriuria

Presence of bacteria in the urine without clinical signs and symptoms localizing to the urinary tract

Prevalence of Asymptomatic Bacteria

<table>
<thead>
<tr>
<th>Population</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly in the community (age ≥ 70)</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>10.8 - 16</td>
</tr>
<tr>
<td>Men</td>
<td>0.7 - 11</td>
</tr>
<tr>
<td>Elderly in a long-term care facility</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>25-50</td>
</tr>
<tr>
<td>Men</td>
<td>15-50</td>
</tr>
<tr>
<td>Persons with indwelling catheter use</td>
<td></td>
</tr>
<tr>
<td>Short-term</td>
<td>3% - 5% / day of catheter</td>
</tr>
<tr>
<td>Long-term</td>
<td>100</td>
</tr>
</tbody>
</table>

Clinical Practice Guidelines for the Management of Asymptomatic Bacteriuria. 2019 update by the Infectious Diseases Society of America
Research is creating new knowledge.

Neil Armstrong
Astronaut

UTI Clinical Diagnosis

- There is no gold standard definition of UTI, but several consensus definitions have been suggested and revised over time\(^1\,^2\)
- These definitions differ slightly, but all require the presence of signs and symptoms (s/s) localizing to the urinary tract

\(^1\)Loeb et al. JCHI 2001; 2001; \(^2\)Stone et al. JCHI 2012; 10(30); 966–77

Localizing Urinary Signs and Symptoms

- Dysuria (burning pain)
- New onset
  - Frequency
  - Urgency, or
  - Incontinence
- Flank pain or tenderness
- Suprapubic pain
- Gross hematuria
- Focal tenderness or swelling of testis, epididymis or prostate
- Recent catheter trauma, obstruction, or purulent drainage around the catheter

\(^2\)Nace, et. al. JAMA 2014; 15(2): 133–39
What About Non-Communicative Residents?

- Residents frequently have non-specific geriatric symptoms and can’t tell us what is bothering them

<table>
<thead>
<tr>
<th>Behavior changes</th>
<th>Functional decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in mental status</td>
<td>Falls</td>
</tr>
<tr>
<td>Restlessness</td>
<td>Fatigue</td>
</tr>
</tbody>
</table>

- Unfortunately, these symptoms are non-specific and often triggered by other (for example, non-infectious) causes


What About Non-Communicative Residents?

- A resident with advanced dementia may be unable to report symptoms
- It is reasonable to obtain a urine culture if there are signs of systemic infection such as:
  - Fever – ↑ in temperature of ≥ 2°F
  - Leukocytosis
  - Hemodynamic instability
  - Chills in the absence of additional symptoms (e.g., new cough) to suggest an alternative source of infection.*

*AMDA Choosing Wisely Campaign (See Item 3, https://paltc.org/choosing.wisely)

Non-Specific Geriatric Symptoms May Accompany a UTI, but…

Without another localizing urinary symptom or fever or leukocytosis and no other identified source of infection, these non-specific symptoms are unlikely a sign of UTI AND a urine specimen should NOT be sent
Non-Specific Symptoms in Absence of Urinary Symptoms

It's important to consider a range of possible causes for non-specific geriatric symptoms to prevent missing the real diagnosis.

Common UTI Myths and Facts

- The skin surface is not sterile…
- The mouth is not sterile…
- The colon is not sterile…
- And in many elderly residents the bladder is not sterile.

Bacteria in the Urine ≠ UTI

- Up to 19% of community elderly and 50% of the elderly in LTC have bacteria in their urine without any signs of infection*

*Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria in 2019 update by the IDSA
Asymptomatic Bacteriuria (ASB) ≠ UTI

- ASB frequently mistaken for a UTI and leads to unnecessary testing and inappropriate treatment with antibiotics
- Inappropriate treatment is all harm and no benefit*
  - Drug to drug interactions
  - Promotes antibiotic resistance
  - Increases risk of C. difficile infection
  - Nausea and vomiting
  - Adverse drug reactions


Adverse Drug Events

Antibiotic Resistance

Change in the Character of the Urine ≠ UTI

- Dark concentrated urine and/or strong smelling urine can be caused by several factors, including dehydration, diet, medication, or the presence of specific bacteria
- Changes in the character of the urine WITHOUT specific urinary symptoms do not indicate the presence of UTI
- Without specific urinary tract s/s, DO NOT TEST
A Change in Mental Status, Behavior, Functional Status or a Fall ≠ UTI?

- There is no evidence that behavior change, falls, or functional status are associated with UTI
- Non-specific geriatric symptoms may be due to a variety of non-infectious causes

<table>
<thead>
<tr>
<th>Constipation</th>
<th>Dehydration</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrolyte imbalance</td>
<td>Hypoglycemia</td>
<td>High carbon dioxide (COPD)</td>
</tr>
<tr>
<td>Low oxygen (CHF, COPD)</td>
<td>Medications</td>
<td>Pain</td>
</tr>
<tr>
<td>Seizure</td>
<td>Sleep deprivation</td>
<td>Stroke</td>
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</tbody>
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When Symptoms Are Absent:

- “Positive” urine dip is meaningless
- “Positive” urinalysis is meaningless
- “Positive” urine culture is just asymptomatic bacteriuria

In other words…

Don’t think urine first in a resident with a change of condition such as a fall and no localizing urinary tract signs and symptoms
Evaluation of Falls as a Change of Condition

Resources
Interventions to Reduce Acute Care Transfer
- Communication Tools
  - Stop & Watch
- Decision Support Tools
  - Acute Change in Condition File Cards
  - Care Paths for Multiple Issues (Falls, UTI…)
- Resources
  - Fall Prevention Program
  - Guidance on Identification & Management of Infections

Thank You