URINARY TRACT INFECTION IN PREGNANCY

Week 41

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With SDH and .phrase slides by Chloé Altechek, MS4

Reading Assignment
ACOG Committee Opinion #717: Sulfonamides, Nitrofurantoin, and Risk of Birth Defects

Review
https://www.sahealth.sa.gov.au/wps/wcm/connect/4bf52c004eee77c8bfa3bf6a7ac0d6e4/Urinary+Tract+Infections+in+Pregnancy_PPG_v3.0.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-4bf52c004eee77c8bfa3bf6a7ac0d6e4- mSVcBLx
LEARNING OBJECTIVES

• To be able to identify the indications for screening for UTI during prenatal care

• To gain an understanding of management strategies for UTI in pregnancy

• To review the safety concerns and recommendations for specific antimicrobial medications for the treatment of UTI in the pregnant patient

• To be comfortable counseling the patient about prevention of UTIs and the impact of UTI on pregnancy
CASE VIGNETTE

- Ms. U. Ti is a 22 yo G1 P0 woman at 16 weeks EGA who presents to clinic for a routine PNC visit. She reports some pain with urination for the past 3 days. She also reports new onset frequency and urgency associated with this pain.

- She denies any other complaints of pain or bleeding. She denies any flank/back pain, N/V, or subjective fevers. Her pregnancy has been uncomplicated to this point.
FOCUSED HISTORY

What will be pertinent in her history?

- **POB:** No prior pregnancies
- **PGYN:** Regular menses, no STIs/cysts/fibroids, no abnormal paps
- **PMH:** Denies
- **PSH:** Denies
- **Meds:** PNV
- **All:** NKDA
- **Soc:** No toxic habits, lives with her husband, works as a sales rep, accepts blood products
- **FHx:** Sister with sickle cell disease
PERTINENT OBJECTIVE FINDINGS

What will be pertinent in her physical exam?

• Vitals: T: 36.9 P: 70 BP: 110/60
• Urine dip: LE +3, Nit Neg
• Abd: Soft, NT/ND
• Back: No CVA/flank tenderness b/l
• FHR: 145 bpm
• Ext: NT b/l

What will be pertinent in her prenatal labs?

• Hemoglobin electrophoresis - HbAA
• Negative screening urine culture
What factors increase the risk of UTIs and how does pregnancy further increase these risks?

• Anatomical placement of the urethra in women
• Increased blood glucose levels
• Conditions increasing urinary stasis
• Changes in urine pH, bladder compression, and urethral dilation
What are the recommendations for a screening urine culture in prenatal care?

- Screen all pregnant women for asymptomatic bacteriuria at least once in early pregnancy, usually by 12-16 weeks

How would this differ if the patient’s hemoglobin profile was significant for HbAS?

- Screen with a urine culture each trimester

What is the reason for additional screening in a patient with sickle cell trait?

- Overall, rates of UTI are higher for women with sickle cell trait
- The rate of asymptomatic bacteriuria of pregnancy is approximately doubled for women with sickle cell trait
What is the proper way to obtain a clean catch urine specimen?
- A clean catch is defined as a **midstream** collection after **local cleansing** of the urethral meatus and surrounding tissue.

What is the criteria for bacterial colonization required for diagnosis of an **asymptomatic UTI** in clinical practice?
- ≥10⁵ cfu/mL

How is this colony count modified in the case of our **symptomatic** patient?
- ≥10³ cfu/mL

Which urine culture results that may suggest vaginal or skin flora?
- Isolation of more than one species (MCM)
- Atypical uropathogens
  - Lactobacillus
  - Staphylococcus species (except saprophyticus)
ASYMPTOMATIC BACTERIURIJA

Should a positive screening urine culture be treated in an asymptomatic pregnant patient?
• Yes

How would you counsel a pregnant patient who is hesitant to start treatment for a UTI in the absence of symptoms?
• Pyelonephritis
• Preterm birth
• Low birth weight
TREATMENT

What is the treatment strategy for **asymptomatic bacteriuria** in pregnancy?

- **Oral Antibiotics**
  - Correlate to the organism cultured and susceptibility
- **Duration**
  - Shortest effective course of therapy, usually 4-7 days
- **Follow up**
  - Repeat urine culture after completion of treatment
  - Suppressive therapy after a second UTI

What is the treatment strategy for a **symptomatic UTI** in pregnancy?

- **Oral Antibiotics**
  - Empiric treatment initiated at the time of reported symptoms
  - Subsequent correlation to the organism cultured and susceptibility
- **Duration**
  - Shortest effective course of therapy, usually 5-7 days
- **Follow up**
  - Repeat urine culture after completion of treatment
  - Suppressive therapy after a second UTI
ASYMPTOMATIC BACTERIURIA/SYMPTOMATIC UTI: EMPIRIC THERAPY

What antibiotics should be considered for empiric therapy?

• 1\textsuperscript{st} Trimester
  • Cephalexin 500mg PO Q6h x 5-7d
  • Amoxicillin 875mg PO Q12h x 5-7d
  • Amoxicillin/clavulanic acid 875mg PO Q12h x 5-7d

• 2\textsuperscript{nd} and 3\textsuperscript{rd} Trimester
  • Nitrofurantoin 100mg PO Q12h x 5-7d
  • Cephalexin 500mg PO Q6h x 5-7d
  • TMP/SMX 800/160mg PO Q12h x 3d
What are the concerns regarding Nitrofurantoin and TMP/SMX in the 1st and 3rd trimesters?

- **Birth Defects**
  - There is *mixed evidence* regarding an association of birth defects with *1st trimester use* of nitrofurantoin and sulfonamides

- **Glucose-6-phosphate Dehydrogenase Deficiency**
  - Nitrofurantoin and sulfonamides are contraindicated in patients with G6PDH deficiency
What are ACOG’s recommendations regarding use of nitrofurantoin and sulfonamides to treat UTIs in pregnancy?

- **1st Trimester**
  - Appropriate when no other suitable alternative antibiotics are available
  - Providers should consider and discuss with patients the benefits as well as the potential unknown risks of teratogenesis and fetal and maternal adverse reactions

- **2nd/3rd Trimester**
  - Still first-line agents for the treatment and prevention of UTIs
SUPPRESSIVE THERAPY

What are the options for preventive therapy after treatment for >2 UTIs or pyelonephritis in pregnancy?

• **Nitrofurantoin** 100mg PO Daily
• **Cephalexin** 500mg PO Daily
PREVENTION/COUNSELING

Your patient asks if there are any steps she can take to prevent further urinary tract infections during her pregnancy. What will you tell her?

- Urogenital hygiene
- Voiding after intercourse
SOCIAL DETERMINANTS OF HEALTH

• Higher rates of acute pyelonephritis identify women at risk of inadequate prenatal care
  • Women with a mental illness have a higher risk of acute pyelonephritis in pregnancy
  • Among Medicaid-covered women, Black, Hispanic, Asian and Pacific Islander women are less likely to initiate and use prenatal care

We must work to **promote early entry into prenatal care** by working with Washington Heights outreach programs and **learn the cultural expectations and challenges** faced by our community

<table>
<thead>
<tr>
<th>Barriers to accessing prenatal care</th>
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<tbody>
<tr>
<td>• Cost / availability of transportation</td>
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<tr>
<td>• Inflexible work hours</td>
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<td>• Lack of child care</td>
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<table>
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<tr>
<th>Factors associated with underutilization of prenatal care</th>
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<tr>
<td>• Unintended pregnancy</td>
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**UTI prevention counseling**

*Description: UTI prevention counseling*

UTI prevention strategies were discussed with the patient including urogenital hygiene, voiding after intercourse, hydration with frequent voiding, wiping front to back, cranberry juice, and avoidance of douching.

**UTI in pregnancy counseling**

*Description: UTI in pregnancy risks counseling*

In addition, the risks of symptomatic or asymptomatic UTI in pregnancy including pyelonephritis, cystitis, preterm birth, low birth weight, and perinatal mortality were discussed with the patient.
CODING AND BILLING

• Conditions that affect the management of pregnancy, childbirth and the puerperium are classified in categories O00 through O9A in Chapter 15 of the ICD-10-CM

  • O23.40 - Unsp infection of urinary tract in pregnancy, unsp trimester
  • O23.41 - Unsp infection of urinary tract in pregnancy, first trimester
  • O23.42 - Unsp infection of urinary tract in pregnancy, second trimester
  • O23.43 - Unsp infection of urinary tract in pregnancy, third trimester
  • O23.0 Infections of kidney in pregnancy
EVIDENCE

- Urinary Tract Infections in Pregnancy. Perinatal Practice Guideline, SA Maternal, Neonatal & Gyaecology Community of Practice 01 March 2017