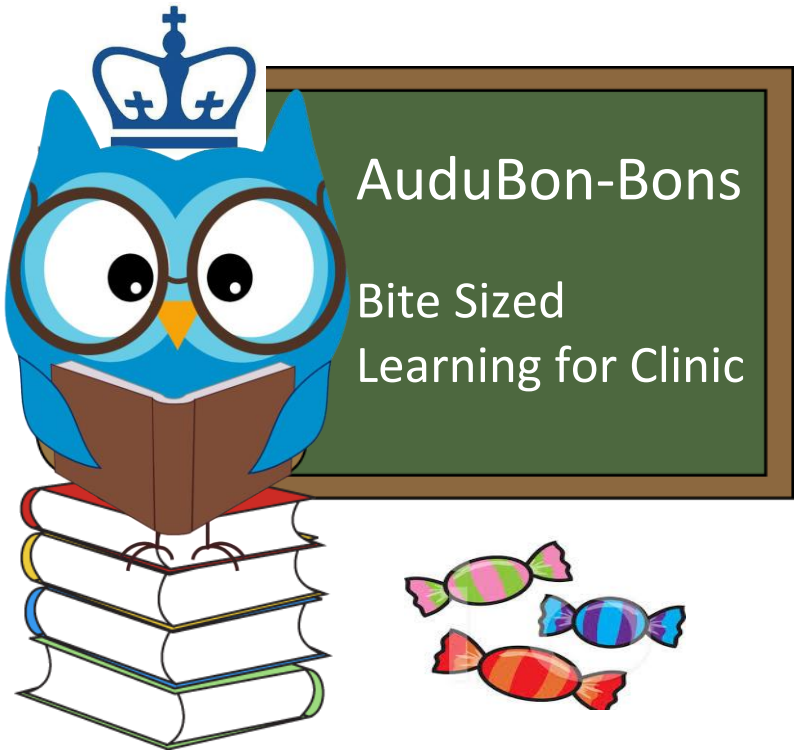
URINARY TRACT INFECTION IN PREGNANCY



Week 41

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With SDH and .phrase slides by Chloé Altchek, 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 anti-microbial 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**

URINARY TRACT IN PREGNANCY

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

PRENATAL CARE: SCREENING URINE CULTURE

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**

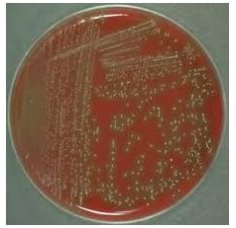
What is the reason for additional screening in a patient with sickle cell trait?

- 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

EVALUATION AND DIAGNOSIS

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?

- $\geq 10^5$ cfu/mL

How is this colony count modified in the case of our symptomatic patient?

- $\geq 10^3$ 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 BACTERIURIA

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?

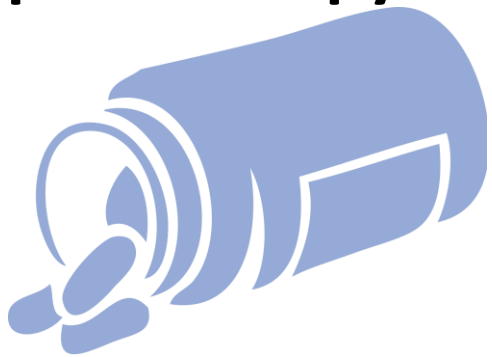
- **Oral Antibiotics**
  - Correlate to the organism cultured and susceptibility
- **Duration**
  - Shortest effective course of therapy, usually 4-7 days
- **Follow up**
  - Repeat urine culture after completion of treatment
  - Suppressive therapy after a second UTI

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?



- **1st Trimester**
  - **Cephalexin** 500mg PO Q6h x 5-7d
  - Amoxicillin 875mg PO Q12h x 5-7d
  - Amoxicillin/clavulanic acid 875mg PO Q12h x 5-7d
- **2nd and 3rd Trimester**
  - **Nitrofurantoin** 100mg PO Q12h x 5-7d
  - Cephalexin 500mg PO Q6h x 5-7d
  - TMP/SMX 800/160mg PO Q12h x 3d

ANTIBIOTIC SAFETY CONCERNS

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

ANTIBIOTIC SAFETY CONCERNS

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

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

Barriers to accessing prenatal care	Factors associated with underutilization of prenatal care
• Cost / availability of transportation • Inflexible work hours • Lack of child care	• Unintended pregnancy

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

Epic .phrase

.BBonUTIpreventioncounseling

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.

.BBonUTIrisksinpregnancy

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
- Sulfonamides, nitrofurantoin, and risk of birth defects. Committee Opinion No. 717. American College of Obstetricians and Gynecologists. Obstet Gynecol 2017;130:e150–2.
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