UTI in Pregnancy

INTRODUCTION

By convention, UTI is defined either as a lower tract (acute cystitis) or upper tract (acute pyelonephritis) infection

- UTI may be asymptomatic (subclinical infection) or symptomatic (disease).
- Thus, the term *UTI* encompasses a variety of clinical entities, including asymptomatic bacteriuria (ABU), cystitis, prostatitis, and pyelonephritis.
- ABU occurs in the absence of symptoms attributable to the bacteria in the urinary tract and does not usually require treatment
- UTI has more typically been assumed to imply symptomatic disease that warrants antimicrobial therapy.

IN PREGNANCY

- These are the most common bacterial infections during pregnancy.
- *Asymptomatic bacteriuria* is the most common
- In pregnant women, ABU has clinical consequences, and both screening for and treatment of this condition are indicated
- Specifically, ABU during pregnancy is associated with preterm birth and perinatal mortality for the fetus and with pyelonephritis for the mother.

ETIOLOGY

- Normal perineal flora
- E.coli (75-90% of isolates), Klebsiella, Proteus, Citrobacter, Enterococcus
- Complicated UTI – All the above, plus *Acinetobacter* species, *Morganella* species, and *Pseudomonas aeruginosa*

ASYMPTOMATIC BACTERUIMIA

- The incidence during pregnancy is similar to that in nonpregnant women and varies from 2 to 7 percent
- Recurrent bacteriuria is more common during pregnancy
- Typically occurs during early pregnancy, with only approximately a quarter of cases identified in the second and third trimesters
- A clean-voided specimen containing more than 100,000 organisms/mL is diagnostic.
- there have been instances of counts from 20,000-50,000/ml resulting in pyelonephritis

SIGNIFICANCE

- If not treated, approximately 25 percent of infected women will develop symptomatic infection during pregnancy.
- In some, but not all studies, covert bacteriuria has been associated with preterm or low-birth weight infants
- Schieve and coworkers (1994) reported urinary tract infection to be associated with increased risks for low- birthweight infants, preterm delivery, pregnancy associated hypertension, and anemia.

Screening And Treatment

- Performed at 12 to 16 weeks gestation (or the first prenatal visit, if that occurs later) with a urine culture
- Reasonable to rescreen women at high risk for infection (eg, history of UTI or presence of urinary tract anomalies, diabetes mellitus, hemoglobin S, or preterm labor)
- Specimen – Mid stream clean catch
- Diagnosis – one specimen growing organisms $\geq 10^5$
- Treatment - antibiotic therapy tailored to culture results and follow-up cultures to confirm sterilization of the urine. For those women with persistent or recurrent bacteriuria, prophylactic or suppressive antibiotics may be warranted in addition to retreatment

ACUTE CYSTITIS

- **CLINICAL MANIFESTATIONS**
- The typical symptoms of acute cystitis in the pregnant woman are the same as in nonpregnant women
- Include the sudden onset of **dysuria and urinary urgency and frequency**. Hematuria and pyuria are also frequently seen on urinalysis.
- Systemic symptoms, such as fevers and chills, are generally absent in isolated cystitis

DIAGNOSIS AND TREATMENT

- Acute cystitis should be suspected in pregnant women who complain about dysuria
- The presence of fever and chills, flank pain, and costovertebral angle tenderness should raise suspicion for pyelonephritis
- Urinanalysis, and culture
- Prior to confirming the diagnosis, empiric treatment is typically initiated in a patient with consistent symptoms and pyuria on urinalysis
- it is reasonable to use a quantitative count $\geq 10^3$ cfu/mL in a symptomatic pregnant woman as an indicator of symptomatic UTI
- Treatment is by the same drugs used in treatment of asymptomatic bacteriuria

ACUTE PYELONEPHRITIS

- Fever (>38ºC or 100.4ºF), flank pain, nausea, vomiting, and/or costovertebral angle tenderness
- Pyuria is a typical finding
- Most cases of pyelonephritis occur during the second and third trimesters
- Pregnant women may become quite ill and are at risk for both medical and obstetrical complications from pyelonephritis
- As many as 20 percent of women with severe pyelonephritis develop complications that include septic shock syndrome or its variants, such as acute respiratory distress syndrome

DIAGNOSIS AND TREATMENT

- Clinical symptoms + urinanalysis and culture
- Low threshold for suspicion
- Pyuria seen in a majority
- In patients with pyelonephritis who are severely ill or who also have symptoms of renal colic or history of renal stones, diabetes, history of prior urologic surgery, immunosuppression, repeated episodes of pyelonephritis, or urosepsis, imaging of the kidneys can be helpful to evaluate for complications
- Hospital admission for parenteral antibiotics, that can later be converted to an oral regime following profiling of organism
- suppressive antibiotics are typically used for the remainder of the pregnancy to prevent recurrence.
- Parenteral, broad spectrum beta-lactams are the preferred antibiotics for initial empiric therapy of pyelonephritis

OBSTRETRIC MANAGEMENT

- Pyelonephritis is not itself an indication for delivery
- If induction of labor or c-section is planned then wait till patient is afebrile.

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