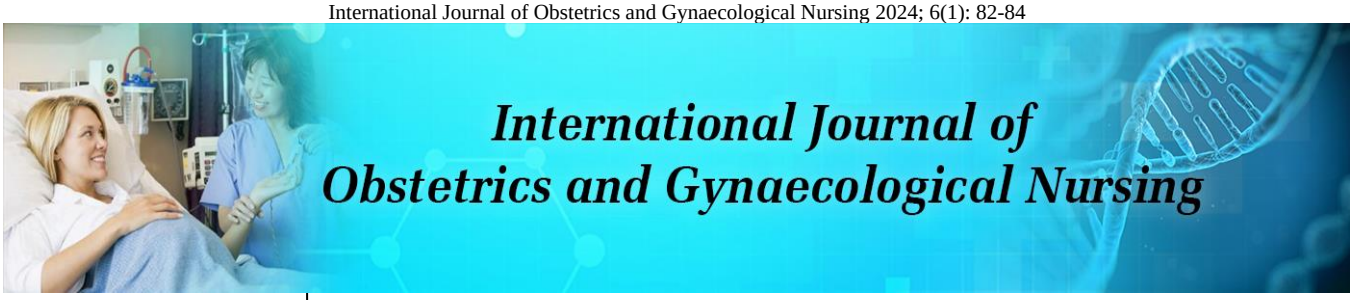

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Review on Uti in pregnancy

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Abstract
Urinary tract infections (UTIs) during pregnancy are common and can be concerning if not properly managed. Hormonal changes and the growing uterus can contribute to changes in the urinary tract, increasing the risk of UTIs. Symptoms of a UTI include a frequent urge to urinate, a burning sensation when urinating, cloudy or strong-smelling urine, and pelvic pain. It's important to treat UTIs in pregnancy promptly to prevent complications such as kidney infections or preterm labor. Antibiotics are typically prescribed to treat UTIs in pregnant women, but it's important to consult with a healthcare provider before starting any medication. Drinking plenty of water and practicing good hygiene can also help prevent UTIs. If you suspect you have a UTI during pregnancy, it's important to contact your healthcare provider for proper evaluation and treatment. Approximately are affected by urinary tract infections (UTIs), one of the more frequent prenatal problems. From asymptomatic bacteriuria to symptomatic acute cystitis to the most dangerous condition, pyelonephritis, these infections span a spectrum. Negative pregnancy outcomes, such as elevated rates of preterm delivery and low birth weight, have been linked to the prevalence of UTIs. Numerous studies have demonstrated that detecting and treating asymptomatic bacteriuria can lower the incidence of pyelonephritis during pregnancy. Pregnant patients frequently get urinary tract infections (UTIs), therefore being able to identify, diagnose, and treat them is crucial for healthcare providers. This Clinical Consensus document was created in collaboration with the following authors utilising a recognised process.

Keywords: Urinary tract infection, bladder infection, cystitis, urethritis, bacterial infection

Introduction
A frequent perinatal complication that affects about 8% of pregnancies is urinary tract infection (UTI). These infections range in severity from asymptomatic bacteriuria (ASB) to acute cystitis with symptoms to pyelonephritis, which is the most serious. When it comes to bacterial pathogens isolated from urine samples of pregnant people, Escherichia coli is the most common. Low birth weight and premature delivery rates are among the unfavourable pregnancy outcomes that have been linked to the occurrence of UTIs. Acute respiratory distress syndrome (ARDS), disseminated intravascular coagulation, and sepsis are additional severe maternal consequences of pyelonephritis. The prevalence of urinary tract infections (UTIs) during pregnancy makes it imperative for healthcare professionals to be able to identify, diagnose, and treat these infections. Cystitis, which is an infection of the bladder and lower urinary tract, and pyelonephritis, which is an infection of the kidney and upper urinary system, are examples of urinary tract infections (UTIs). The pathogenesis of UTIs in females starts when uropathogens from the fecal flora colonise the vaginal introitus. These pathogens then ascend through the urethra into the bladder and, in the case of pyelonephritis, via the ureters into the kidneys.

This subject will go over how to treat female patients who exhibit typical symptoms of cystitis when there is no reason to believe that the infection has spread to other parts of the bladder. This is classified as acute simple cystitis.

When there is a possibility that the infection has spread outside of the bladder, such as when there is fever, other symptoms of systemic illness, or flank discomfort or other symptoms suggestive of pyelonephritis

Signs and symptoms
Urinary tract infections (UTIs) can present with a variety of signs and symptoms, which can vary in severity. Common signs and symptoms of UTIs include:

- **Pain or burning sensation during urination:** This is one of the most common symptoms of a UTI. It can occur due to irritation of the urethra or bladder lining by bacteria.
- **Frequent urination:** People with UTIs often feel the need to urinate more frequently than usual. However, they may only pass small amounts of urine each time.
- **Urgency:** There is a strong, sudden urge to urinate that is difficult to delay. This symptom is often accompanied by discomfort or pressure in the bladder.
- **Cloudy or bloody urine:** Urine may appear cloudy, indicating the presence of pus, or it may contain blood, giving it a pink or red tinge.
- **Strong-smelling urine:** UTIs can cause urine to have a strong, unpleasant odor.
- **Pelvic pain:** Some people with UTIs experience discomfort or pressure in the lower abdomen or pelvis. This may be mild or severe, depending on the severity of the infection.
- **Back pain:** In some cases, UTIs can lead to pain in the lower back, particularly if the infection has spread to the kidneys.
- **Fatigue or malaise:** UTIs can cause general feelings of fatigue, weakness, or just not feeling well.

It's important to note that the symptoms of a UTI can vary from person to person, and some individuals may not experience any symptoms at all, especially in older adults or individuals with compromised immune systems. If you suspect you have a UTI, it's important to see a healthcare provider for proper diagnosis and treatment.

Diagnosis

Patients exhibiting characteristic signs and symptoms (dysuria, frequency, urgency, and/or suprapubic pain) are clinically diagnosed with cystitis. The presence of pyuria and bacteriuria on urinalysis and/or culture supports the diagnosis in females with unusual urine symptoms. (See above under 'Clinical suspicion and evaluation'.)

A fever (>99.9 °F/37.7 °C), other systemic disease signs and symptoms (such as chills, rigors, or severe weariness or malaise beyond baseline), flank pain, and costovertebral angle soreness are also excluded in the clinical diagnosis of acute uncomplicated cystitis (table 1). We treat the patient as though they have an acute complex UTI, which is covered in detail elsewhere if any of these symptoms are present as they may indicate pyelonephritis or an infection that has spread outside of the bladder. Additionally, if a patient exhibits more subdued indications of probable upper tract infection or systemic illness, we will consider them to have an acute complex UTI rather than a higher-risk patient. These risk factors include immunocompromising diseases (such as advanced HIV infection or neutropenia), poorly managed diabetes mellitus, and urologic abnormalities (such as nephrolithiasis, strictures, stents, or urinary diversions). (See "Acute complicated urinary tract infection (including pyelonephritis) in adults and adolescents".)

Asymptomatic bacteriuria, which can occur with or without pyuria in the absence of any symptoms that might indicate a UTI, usually doesn't require treatment in non-pregnant individuals who aren't having urologic procedures done. (See "Asymptomatic bacteriuria in adults"). A more thorough discussion of UTI diagnosis in patients with indwelling urinary catheters can be found elsewhere.

Differential diagnosis

The symptoms of dysuria, frequency, urgency, suprapubic discomfort, and/or hematuria can be brought on by both viral and non infectious causes.

- **Vaginitis:** In females with dysuria, vaginal discharge or odour, pruritus, dyspareunia, and lack of urgency or frequency of urination should all be taken into account. Trichomonas, bacterial vaginosis, and yeast infections are the causes of vaginitis. (See "Vaginitis in adults: Initial evaluation".)
- **Urethritis:** In sexually active females with dysuria, especially those with pyuria on a urinalysis but no bacteriuria, a urethritis evaluation is necessary. Chlamydia, gonorrhoea, trichomoniasis, Candida species, herpes simplex virus, and non-infectious irritants such contraceptive gel are among the causes of urethritis in females. Please refer to the section on "Dysuria-pyuria syndrome due to urethritis" under "Clinical manifestations and diagnosis of Chlamydia trachomatis infections."
- **Painful bladder syndrome:** This is an exclusion diagnosis given to women who experience persistent discomfort in their bladder, accompanied by dysuria, frequency, and/or urgency, but who do not exhibit any symptoms of an infection or other discernible cause. (See "Interstitial cystitis/bladder pain syndrome: Clinical features and diagnosis".)
- **Pelvic inflammatory disease (PID):** Patients with PID typically appear with lower abdomen or pelvic pain and fever, while dysuria is also a possible clinical finding. A pelvic examination that reveals cervical motion pain or mucopurulent endocervical discharge is very indicative of PID. (See "Pelvic inflammatory disease: Clinical manifestations and diagnosis").

Complications

Pyelonephritis patients run the risk of developing multiple serious side effects.

As sepsis progresses, tachycardia, hypotension, and reduced urine production may occur. Admission to the ICU might be necessary.

As many as 10% of pregnant individuals receiving therapy for pyelonephritis experience pulmonary problems. This can appear as acute respiratory distress syndrome (ARDS) or pulmonary edema and is caused by endotoxin-mediated alveolar destruction. Care should be taken to monitor urine output and oxygen status, since patients may need to be admitted to the intensive care unit for respiratory support.

Anemia caused by endotoxin release is possible, but it usually goes away on its own after therapy. This is the most typical side effect of pyelonephritis, occurring in as many as 25% of cases. Uterine contractions may also result from endotoxin release, and patients should be watched for preterm labor. Be treated if necessary for preterm labor. The administration of tocolytic therapy should be done with caution since the presence of a UTI increases the risk of pulmonary edema. There's a chance that some patients will always have an infection. Diagnosing renal abscess or urinary blockage should be considered in these patients. It is necessary to re-evaluate antibiotic selection and examine culture outcomes.

Treatment

Antibiotic medication is the treatment of choice for ASB and acute cystitis. If organism sensitivities from urine culture findings are available, antibiotic selection can be

customised accordingly. While 3-day doses are beneficial, one-day treatments of antibiotics are not advised during pregnancy [4]. Many antibiotics are used often, such as trimethoprim-sulfamethoxazole, ampicillin, amoxicillin, cephalosporins, and nitrofurantoin. The teratogenicity of fluoroquinolones has been the subject of conflicting investigations, leading to recommendations against using them as first-line therapy in pregnancy. In cases of resistant or recurrent illnesses, short courses of medication make sense because they are unlikely to harm the developing foetus.

It has been shown that when sulfa derivatives and nitrofurantoin are prescribed during the first trimester of pregnancy, there may be a connection between their use and congenital impairments. Although these investigations have limitations, at this time It is advised not to use these drugs during the first trimester if there are safer options [5]. It makes sense to use these drugs when necessary because the benefits of doing so far exceed the risks, especially considering the serious repercussions that could arise from an untreated UTI during pregnancy. There are additional warnings about these two antibiotic groups. Nitrofurantoin and sulfa derivatives can cause hemolysis, hence they shouldn't be given to patients who lack G6P. Trimethoprim-sulfamethoxazole should be avoided in the late third trimester because of the possibility that the newborn may have kernicterus after delivery.

Patients should receive intravenous (IV) antibiotic therapy at the moment of birth in addition to the recommended course of treatment if Group B Streptococcus (GBS) is detected on a urine culture ASB or UTI. In order to avoid early-onset GBS sepsis in infants of GBS-colonized mothers, this is being done.

A hospital stay is often necessary for pregnant women with pyelonephritis, which is a dangerous condition. Treatment after examination is mostly focused on IV fluids to maintain appropriate urine output and tailored antibiotic therapy. Acetaminophen should be taken as needed in addition to using a cooling blanket for fever. Initial therapy typically involves the use of second or third generation cephalosporins. Broad-spectrum antibiotics such as gentamicin and ampicillin serve as substitutes. In order to prevent worsening sepsis, patients should be continuously watched.

Medication

Nitrofurantoin

Although nitrofurantoin has been widely used and is thought to be safe to use during pregnancy, it should not be used during labor or when the pregnancy is almost term (i.e., more than 36 weeks). This is because the infant may experience hemolytic anemia as a result of developing erythrocyte enzyme systems (glutathione instability) twelve A study that used a seven-day treatment of nitrofurantoin found an 86% cure rate for asymptomatic bacteriuria. While nitrofurantoin reaches therapeutic quantities in the urine and is useful in the treatment of acute cystitis and asymptomatic bacteriuria, it does not penetrate tissue well enough to be used in the treatment of pyelonephritis.

Trimethoprim

Although trimethoprim is commonly used to treat symptomatic UTIs, good evidence to support its use in pregnancy is lacking. 1 However, it is not thought to be teratogenic. 2 It is recommended that trimethoprim is avoided if possible in the first trimester because it is a folic acid antagonist and theoretically may increase the risk of neural tube defects.

Cephalexin

It is deemed safe to use cephalosporins during pregnancy.11 However, when a narrow-spectrum antibiotic would be a better option, broad-spectrum antibiotics (such as cephalosporins) should not be used.8 There are worries that methicillin-resistant Staphylococcus aureus (MRSA), resistant UTIs, and Clostridium ocifficile are more common while using a wide range of antibiotics. Pregnant women who contract C. difficile infection run the risk of dying, and case reports of stillborn babies and maternal fatalities have been documented.

Amoxicillin

While it is thought that using any penicillin during pregnancy is safe, research indicates that amoxicillin resistance is greater than trimethoprim resistance. Because of this, amoxicillin is not a good empirical treatment for acute cystitis, but it may be administered if a urine culture reveals a susceptibility.

Conflict of Interest
Not available

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