Guideline for the Management of Bacteriuria in Pregnancy

DEFINITIONS

Asymptomatic bacteriuria: Presence of bacteriuria in urine revealed by quantitative culture or microscopy in a sample taken from a patient without any typical symptoms of lower or upper urinary tract infection [1]. In contrast with ***symptomatic bacteiuria***, the presence of asymptomatic bacteriuria should be confirmed by two consecutive urine samples [1].

EPIDEMIOLOGY

Symptomatic bacteriuria occurs in up to 20% of pregnancies and has been associated with pre-labour, premature rupture of membranes (PPROM) and pre-term labour. If untreated it carries well-documented risks of morbidity, and rarely, mortality to the pregnant woman [1].

Asymptomatic bacteriuria occurs in 2-10% of pregnancies. If untreated 30% of women may develop acute pyelonephritis. Antibiotic treatment is effective in reducing the risk of pyelonephritis in pregnancy [2].

UTIs are the most common bacterial infection during pregnancy. Treatment aims to prevent complications that could lead to significant maternal and fetal sequelae.

CAUSATIVE ORGANISMS

Escherichia coli accounts for about 90% of cases.

Other pathogens include: *Klebsiella pneumoniae* (5%), *Proteus mirabilis* (5%), *Enterobacter* species (3%), *Staphylococcus saprophyticus* (2%), Group B beta-hemolytic *Streptococcus* (GBS; 1%), *Proteus* species (2%).

If GBS is identified ensure antenatal services are informed as intrapartum antibiotic prophylaxis will be required in addition to a treatment course of antibiotics for 7 days. Electronic record should be updated with an alert.

DIAGNOSIS

- All women in the first trimester should have a mid-stream specimen of urine sent for urine culture at first antenatal visit [2].
- Dipstick testing (Leucocytes or Nitrites) is **NOT** sufficiently sensitive to be used as a screening test. Urine culture should be the investigation of choice.
- The laboratory is currently performing Automated WBC and RBC counts on urine samples but will continue to perform routine culture on Maternity samples only. Further advice is then usually given when indicated.
- If a repeat sample is requested by the laboratory, then indicate on request form:

  "REPEAT SAMPLE (LAB. REQUEST)"

- Please specify whether the sample is **MSU** or **CSU**
- Confirm the presence of bacteriuria in urine with a second urine culture if positive on first sample.
- **Offer an immediate antibiotic** prescription to pregnant women with asymptomatic bacteriuria (confirmed with a repeat sample). Once treatment is completed a repeat MSU should be sent for confirmation
- Once Asymptomatic bacteriuria is diagnosed then women should have repeat urine culture at each antenatal visit until delivery [1]. This can be done using the Badger Management Plan form.
- In the event of persistent or recurrent bacteriuria a Badger alert is suggested.

TREATMENT OF ASYMPTOMATIC BACTERIURIA

- Treat with an immediate **7-day** course of antibiotic in line with sensitivity results [3].
- Alternative antibiotics should be used in women who are allergic to Penicillin.
- Repeat MSSU 7 days after completion of treatment.
- Repeat MSSU at each subsequent antenatal clinic visit

Take into account urine culture and susceptibility results and previous antibiotic use and choose from- [2]

  - Nitrofurantoin (*avoid after 37+6 weeks gestation*) 100 mg modified-release twice a day for 7 days if eGFR >45ml/minute.

- Amoxicillin (only if culture results available and susceptible) 500 mg three times a day for 7 days.
- Cefalexin 500 mg twice a day for 7 days.

- Discuss alternative choices with a specialist if required.

TREATMENT OF SYMPTOMATIC UTI

Suspect urinary tract infection (UTI) in a woman presenting with typical features of UTI (in the absence of vaginal discharge or irritation) such as:

- **Dysuria** — discomfort, pain, burning, tingling or stinging associated with urination.
- **Frequency** — passing urine more often than usual.
- **Urgency** — a strong desire to empty the bladder, which may lead to urinary incontinence.
- **Changes in urine appearance or consistency:**
  - Urine may appear cloudy to the naked eye, or change colour or odour.
  - Haematuria may present as red/brown discolouration of urine or as frank blood.

Send a midstream urine sample for culture and sensitivities before antibiotics are taken.

Offer an immediate antibiotic prescription taking account of previous urine culture and susceptibility results, previous antibiotic use (which may have led to resistant bacteria) - if unsure discuss with a specialist. [5]

As first choice antibiotic consider prescribing:

- Nitrofurantoin (*avoid using after 37+6 weeks gestation*) 100mg modified-release twice a day for 7 days if eGFR ≥45ml/minute. Avoided at term because it may produce neonatal haemolysis [4]

As second-choice (no improvement in lower UTI symptoms on first-choice taken for at least 48 hours or when first-choice not suitable due to gesration) consider prescribing:

- Cefalexin 500mg twice a day for 7 days.
- Amoxicillin (only if culture results available and susceptible) 500mg three times a day for 7 days.

- For alternative second-choices discuss with local microbiologist

Treatment may need to be altered on the basis of clinical response and/or sensitivity result. Review choice of antibiotic when results are available. Change the antibiotic according to susceptibility results if bacteria are resistant — use narrow-spectrum antibiotics if possible and seek specialist advice if unsure.

Given the risks of symptomatic bacteriuria in pregnancy, a urine culture should be performed seven days after completion of antibiotic treatment as a test of cure.

REFERENCES:

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