OBSTETRICS AND GYNAECOLOGY
Clinical Practice Guideline

Infections in obstetrics

(Intra-amniotic chorioamnionitis and postpartum infection):

Diagnosis and management

This document should be read in conjunction with this Disclaimer

For suspected sepsis and septic shock recognition and treatment see MR283 Adult / Maternal Sepsis Pathway. Think Sepsis.

Contents

Aim

- The detection and prompt management of obstetric infections to prevent the development of sepsis.

For suspected sepsis and septic shock see MR 283 Adult / Maternal Sepsis Pathway

Referral and review by obstetrician

All women with suspected / confirmed endometritis, post-surgical wound infection/ cellulitis, retained products of conception and septic pelvic thrombophlebitis must be referred and reviewed by an obstetrician.

Intra-amniotic infection (chorioamnionitis)

Background

Intra-amniotic infection (previously called chorioamnionitis) is an infection involving the amniotic fluid, placenta, fetus, fetal membranes or decidua. Most intra-amniotic infections are polymicrobial and caused by ascending cervicovaginal organisms (e.g. *Streptococcus agalactiae* [group B streptococcus], Enterobacteriaceae). Genital mycoplasmas are commonly isolated from patients with intra-amniotic infection, but the clinical significance of these organisms is uncertain. Rarely, intra-amniotic infection may arise from haematogenous spread of organisms from a maternal bacteraemia (e.g. *Listeria monocytogenes*) or as a direct result of an invasive procedure (e.g. amniocentesis).

Clinical presentation

Women with intra-amniotic infections often present with nonspecific signs of infection. Suspect intra-amniotic infection in a pregnant woman with any of the following features:

- fever* (38°C or more) and ruptured membranes
- fever* during labour (intrapartum fever), even if membranes are intact
- uterine tenderness
- purulent amniotic fluid

* Consider sepsis

Complications of intra-amniotic infection include preterm labour and delivery, postpartum uterine atony with haemorrhage, maternal infections including endometritis, and neonatal morbidity and mortality related to prematurity and neonatal sepsis.

Investigations

- Blood cultures if temperature ≥ 38°C
- Consider LVS, MSU
- Placenta culture. See also Labour: Indications for Pathological Examination of a Placenta

Treatment

The recommended antimicrobial regimen at KEMH is as per Postpartum Endometritis (below). Early consultation with an obstetrician is required for appropriate assessment and management.

Postpartum infections

All infections which can occur in non- pregnant women may present in pregnancy/post- partum. Consider the clinical presentation and epidemiologic risk factors in assessment

The infections occurring in the post- partum setting include endometritis, urinary tract infection, wound infections and mastitis.

Postpartum endometritis

The route of birth is the single most important factor in the development of endometritis and the risk increases dramatically following caesarean birth. Other risk factors include prolonged rupture of membranes, prolonged use of internal fetal monitoring, anaemia. Use of perioperative antibiotics decreases the incidence of endometritis.

Assessment

Endometritis may be characterized by lower abdominal tenderness on one or both sides of the abdomen, adnexal and parametrial tenderness elicited with bimanual examination, and temperature elevation (most commonly >38°C).

Some women have foul-smelling lochia without other evidence of infection. Some infections, most notably caused by group A beta-hemolytic streptococci, are frequently associated with scanty, odourless lochia.

Severe postpartum endometritis: Antibiotic management

Patient with NO known penicillin reaction or hypersensitivity

- Amoxicillin 2g IV 6 hourly

  OR

- Cefazolin 2g IV 8 hourly

PLUS Gentamicin as per the KEMH Pharmacy Gentamicin Guideline

PLUS Metronidazole 500mg IV 12 hourly

For patients with non-type 1 hypersensitivity penicillin reactions or where gentamicin is contra-indicated

- Ceftriaxone 2g IV daily
- **PLUS** Metronidazole 500mg IV 12 hourly

For patients with immediate severe or delayed severe hypersensitivity to penicillins

- Clindamycin 600mg IV 8 hourly
- **PLUS** Gentamicin as per the KEMH Gentamicin Guideline

For patients with **immediate severe** or **delayed severe** hypersensitivity to penicillins, where the **group B streptococcus isolate is resistant to clindamycin, or if the group B streptococcus status (or susceptibility) is unknown**:

- Vancomycin IV as per KEMH Vancomycin guidelines
- **PLUS** Gentamicin as per the KEMH Gentamicin Guideline
- **PLUS** Metronidazole 500mg IV 12 hourly

Severe postpartum endometritis: Modification and duration of therapy

For uncomplicated infections, continue intravenous antibiotic therapy for at least 24 to 48 hours after the resolution of leucocytosis and clinical signs and symptoms (i.e. fever, uterine tenderness, purulent vaginal discharge),

If IV antibiotics are required for >72h review microbiology results and seek microbiology advice to discuss alternatives to gentamicin containing regimens Oral step down therapy may be given for more severe or complex infections For (e.g. abscess, bacteraemia),. If the results of susceptibility testing are not available and oral continuation therapy is appropriate, use oral amoxicillin + clavulanate (as for non-severe postpartum endometritis)

Non-severe postpartum endometritis

Patient with NO known penicillin reaction or hypersensitivity

- Amoxicillin plus clavulanic acid 875mg/125mg orally 12 hourly for 7 days

For patients with hypersensitivity to penicillins use

- **Trimethoprim + sulfamethoxazole 160+800mg orally, 12 hourly for 7 days**
- **PLUS Metronidazole 400mg orally, 12 hourly for 7 days**

Wound and perineal infections: Postpartum

Usually the organisms associated with perineal and episiotomy site infections are *Staphylococcus* or *Streptococcus* species and gram negative organisms. Those undergoing caesarean birth have a higher readmission rate for wound infection and complications than those who deliver vaginally. See also Infections: Antibiotic Prophylaxis for Caesarean Section

Assessment

- Patients with wound infections, or episiotomy infections, have erythema, oedema, tenderness out of proportion to expected postpartum pain, and discharge from the wound or episiotomy site. See also:
  - Infection Prevention and Management policy: Prevention of Surgical Site Infections (SSI) (intranet access required)
  - Wound swabs should be collected if purulent discharge. See Wound Care: Collection of a Wound Swab
- Drainage from wound site should be differentiated from normal postpartum lochia and foul-smelling lochia, which may be suggestive of endometritis.

Management

- Drainage, debridement, and irrigation may be required.
- For perineal infection- empiric antibiotics regimens refer to KEMH guideline: Perineal Care and Repair: 'Management of Third and Fourth Degree Perineal Trauma'
- Wounds- See also Wound Care guideline

Mastitis

The most common organism reported in mastitis is *Staphylococcus aureus*.

- Refer to the KEMH Mastitis and Breast Abscess Management guideline

Urinary tract infection (UTI): Postpartum

Bacteria most frequently found in UTIs are normal bowel flora, including *E coli* and *Klebsiella, Proteus,* and *Enterobacter* species.

Any form of invasive manipulation of the urethra (e.g. Foley catheterization) increases the likelihood of a UTI.

The increased vulnerability of pregnant women to pyelonephritis persists for 2 weeks post-partum.

Assessment

- Patients with pyelonephritis or UTIs may have dysuria, urinary frequency costovertebral angle tenderness, suprapubic tenderness, and an elevated temperature.
- An MSU should be taken**.** The urinalysis provides a rapid guide to the likely presence of a UTI.

Management

- Administer fluids if there is evidence of dehydration. Fever and flank pain should raise suspicion for pyelonephritis. Consult the Therapeutic Guidelines for antibiotic treatment options.
- Refer to KEMH Obstetrics & Gynaecology clinical guideline: Infections : Urinary Tract Infection in Pregnant Women

Other conditions

Pregnant women have a higher rate of complications from influenza in comparison to non-pregnant women up to 2 weeks post- partum.

See Infection Prevention and Management policy: Influenza Like Illness in Adults

Microbiology advice

Microbiology advice should be sought in the following scenarios:

- Where the empirical antimicrobial therapy guidelines are not suitable due to patient characteristics, such as antimicrobial allergy, renal dysfunction or an identified pathogen resistant to the empiric regimens is isolated
- For advice on diagnostic workup and empiric therapy where the source of infection is unclear, or where unusual infections are suspected
- All patients with sepsis or septic shock should be discussed with the clinical microbiologist on call

Community Midwifery Program (CMP)

For suspected sepsis and septic shock- urgent referral to support hospital. This guideline does not cover sepsis, refer to support hospital policies, guidelines and sepsis pathway where available.

Key points

1. The midwife must consult and/or transfer to the support hospital or GP for medical review when the maternal temperature is > 37.5º C on two consecutive occasions 1 hour apart or is 38ºC on one occasion or there are other signs and/or symptoms of sepsis.
2. Whenever the maternal temperature is raised > 37.5º C a full set of vital signs must be recorded.

Midwifery care:

1. Discuss findings and indications for referral for medical review with the woman
2. Arrange for immediate referral to GP or support hospital for further investigations and management
3. Ensure that all maternity records accompany woman on transfer
4. Arrange for baby to accompany the mother into hospital if an admission is indicated
5. If possible, accompany the woman and give a formal handover if a hospital admission is required
6. Urgent transfer to the support hospital must occur if the women has any of the following signs / symptoms:
    - Tachycardia: heart rate > 100bpm
    - Bradycardia: heart rate < 50bpm
    - Hypotension: systolic pressure < 90
    - Tachypnoea: respiratory rate >20 breaths per minute
    - Hyperthermia: > 37.5º C on two consecutive occasions 1 hour apart or is 38ºC on one occasion
    - Confusion / disorientation or agitation
    - Oliguria
    - Rash
    - Joint pain in any area of the body

7. Mode of transport must be determined on severity of maternal condition and as per KEMH O&G guideline ‘Transfer from home to hospital (VMS / MGP / CMP)’

References

Bibliography

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Related WNHS policies, procedures and guidelines

KEMH Clinical Guidelines:

Antimicrobial Stewardship:

- Antimicrobial Stewardship and Antimicrobial Restriction Category List
- Sepsis and Septic Shock: Antibiotics for Adult Patients at KEMH

Infection Prevention and Management (IPM)

- Group A Streptococcus
- Influenza Like Illness in Adults
- Prevention of Surgical Site Infections
- See IPM policy library for other guidelines (e.g. measles, CMV, aseptic technique)

Obstetrics & Gynaecology:

- Acute Deterioration (Adult): Resuscitation and Life Support
- Breastfeeding Challenges: Blocked Ducts; Mastitis and Breast Abscess Management
- Caesarean birth
- Gynaecology (Non-oncological) (for Pelvic Inflammatory Disease)
- Group B Streptococcal Disease
- Infections: Antibiotic Prophylaxis for Caesarean Section; Gynaecological and Urogynaecological Surgery and Hysterosalpingogram for Infertility
- Infections: Antibiotic Treatment for Vaginal Infections and UTI in Pregnant Women
- Labour: Indications for Pathological Examination of a Placenta
- Neonatal Care Eye Infections

- Operative Vaginal Birth (previously called 'Instrumental Vaginal Delivery')
- Perineal Care and Repair (including Management of Third and Fourth Degree Perineal Trauma)
- Pathology and Ultrasound Ordering by Midwife/Nurse/Nurse Practitioner
- Preterm: Preterm Labour
- Rupture of Membranes- Spontaneous (Previable, Preterm and Term)
- Sexually Transmitted Infections (STI) and STIs in Pregnancy (chlamydia, hep B, hep C, herpes, syphilis)
- Transfer from Home to Hospital (VMS / MGP / CMP)
- Wound Care

Perioperative: Skin preparation of the patient ; Surgical Scrubbing, Gowning and Gloving

Pharmacy:

- A-Z Medications: Amoxicillin; Ceftriaxone; Clindamycin; Gentamicin; Metronidazole
- Medication Administration

Neonatology:

- Candida Infections
- Sepsis: Sepsis: Neonatal

WNHS Policy:

- Recognising and Responding to Acute Physiological (Clinical) Deterioration
- Prescribing by Eligible Private Practicing Midwives with a Scheduled Medicines Endorsement

Useful resources (including related forms)

Forms: MR283 Adult / Maternal Sepsis Pathway

Think Sepsis hub page (available to WA Health employees through Healthpoint)

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