9 COMPLICATIONS OF THE POSTNATAL PERIOD

9.2 INFECTIONS

9.2.1 BACTERIAL SEPSIS FOLLOWING PREGNANCY

Keywords: Postpartum sepsis, bacterial sepsis, sepsis, postnatal infection

PURPOSE

- To provide guidance on the management of sepsis in the puerperium.

BACKGROUND

Despite significant advances in diagnosis, medical management and antimicrobial therapy, sepsis in the puerperium remains an important cause of maternal death. Severe sepsis with acute organ dysfunction has a mortality rate of 20-40% rising to around 60% if septic shock develops. Sepsis may be defined as infection plus systemic manifestations of infection; severe sepsis may be defined as sepsis plus sepsis-induced organ dysfunction or tissue hypoperfusion. Septic shock is defined as the persistence of hypoperfusion despite adequate fluid replacement therapy. Symptoms of sepsis may be less distinctive than in the non-pregnant population and are not necessarily present in all cases, therefore a high index of suspicion is necessary. Disease progression may be rapid. Genital tract sepsis may present with constant severe abdominal pain and tenderness unrelieved by usual analgesia, and this should prompt urgent medical review.

KEY POINTS

1. Sepsis should always be considered in recently delivered women who feel unwell and have pyrexia or hypothermia.
2. The risk of sepsis is increased after prolonged rupture of membranes, emergency caesarean birth and if products of conception are retained after miscarriage, termination of pregnancy or birth.
3. All clinical staff must be aware of the symptoms and signs of maternal sepsis and critical illness and of the rapid, potentially lethal course of severe sepsis and septic shock.
4. Sepsis can be insidious in onset and have a fulminating course. The severity of the illness should not be underestimated; early management may be life saving.

DIAGNOSIS

1. Clinical signs suggestive of sepsis include one or more of the following: pyrexia, hypothermia, tachycardia, tachypnoea, hypoxia, arterial hypotension (systolic BP < 90mm Hg; mean arterial pressure < 70mm Hg; or systolic BP decrease > 40mm Hg), decreased capillary refill or mottling, oliguria, considerable oedema or positive fluid balance, hyperglycaemia is the absence of diabetes (plasma glucose > 7.7 mmol/L), bruising or discoloration of the skin suggests late fasciitis, impaired consciousness and failure to respond to treatment. These signs, including pyrexia, may not always be present and are not necessarily related to the severity of sepsis.
2. Mastitis must never be overlooked.
3. Whenever the maternal temperature is ≥ 37.5°C, a full set of vital signs must be recorded. This includes pulse rate, respiratory rate, oxygen saturation level and blood pressure.
4. The medical officer must be informed when the maternal temperature is ≥37.5°C on two consecutive occasions 1 hour apart or is ≥38.0°C on one occasion or there are other signs and or symptoms of sepsis.
5. Abdominal pain, pyrexia (> 38°C) and tachycardia ( > 90 beats / minute in the puerperium) are indications for IV antibiotics and senior clinical review.
6. The common symptoms of sepsis in the puerperium include fever, diarrhoea, vomiting, abdominal pain, generalised maculopapular rash, offensive vaginal discharge and signs of infection in caesarean wounds.
7. Agonising pain out of proportion to the clinical signs suggests a deep infection and necrotising fasciitis / myositis must be considered.

8. Some cases of sepsis in the puerperium may present initially only with severe abdominal pain, in the absence of fever and tachycardia.

9. Any widespread rash should suggest early toxic shock syndrome, especially if conjunctival hyperaemia or suffusion is present. A generalised macular rash is present in most cases of staphylococcal toxic shock syndrome but in only 10% of streptococcal toxic shock syndrome. Conjunctival suffusion is a classic sign of toxic shock syndrome.

10. The medical officer shall, on being informed of a maternal temperature as above

   - Immediately review the patient.
   - Obtain a full history.
   - Perform a full examination of the patient.
   - Any relevant imaging studies should be performed promptly in an attempt to confirm the source of infection. This may include chest x-ray, pelvic ultrasound scan or computed tomography scan if a pelvic abscess is suspected.
   - Order specimen collections as required and review bacteriological results as soon as they are available.
     - Blood cultures are the key investigation and should be obtained prior to antibiotic administration; however antibiotic treatment should be started without waiting for microbiology results
     - Other samples taken should be guided by the clinical suspicion of focus of infection as appropriate.
     - Routine blood tests should include a full blood count, urea, electrolytes, C-reactive protein, coagulation profile, LFTs,
     - Any woman with symptoms of tonsillitis / pharyngitis should have a throat swab sent for culture.
     - If the MRSA status is unknown, obtain swabs from the nose, groin and axilla and send for urgent screening.
   - Identify urgent specimens and include their mobile phone number on the pathology request form to be informed of results immediately.
   - Escalate care if the patient’s condition deteriorates.
   - If the woman has any of the signs below, review by the senior registrar or consultant must be requested urgently:
     - Tachycardia: heart rate > 90 bpm
     - Bradycardia: heart rate < 50 bpm
     - Hypotension: systolic pressure < 90
     - Tachypnoea: respiratory rate > 20 breaths per minute
     - Confusion / disorientation or agitation.
     - Oliguria: urinary output < 30mL/hour
     - Rash
     - Joint pain in any area of the body.

11. Monitoring of the woman with suspected severe sepsis or established sepsis should be multidisciplinary but preferably under the leadership of a single consultant in the Adult Special Care Unit (ASCU). A senior obstetrician should be involved in consultation with an anaesthetists and microbiologist.

MANAGEMENT

1. The focus of infection should be sought and dealt with. This may be by uterine evacuation or by drainage of a breast, wound or pelvic abscess. Broad spectrum antibiotics should be given to cover these procedures.

2. Early consult with a microbiologist is essential.
3. Commence broad spectrum antibiotics within 1 hour of suspicion of severe sepsis, with or without septic shock. After prescription administer immediately. **The importance of administration of antibiotics within the first hour cannot be over emphasised.**

4. The choice of antibiotic depends on the clinical suspicion, local flora and culture information, if available.

5. Inform the neonatologists where the mother has invasive Group A streptococcal to give prophylactic antibiotics to the neonate.

**OBSERVATIONS**

1. At least hourly vital signs including temperature, pulse, respiratory rate, blood pressure and SpO₂.
2. Use the Maternal Observation and response Chart.
3. Glasgow Coma Scale and pupil response if appropriate.
4. Hourly urine output – consider inserting an indwelling catheter.
5. In rapidly deteriorating cases, ensure urgent referral to the critical care team and obstetric consultant.

**REFERENCES / STANDARDS**

Royal College Obstetricians and Gynaecologists. Green-top Guideline No.64b. **Bacterial Sepsis Following Pregnancy** 2012

South Australian Paediatric Clinical Guideline. **Sepsis in Pregnancy**. 2012.

NSW. Royal Hospital for Women. **Sepsis in Pregnancy and Postpartum**. 2013

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Legislation - Nil

Related Policies - Nil

Other related documents – Nil

**RESPONSIBILITY**

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