MATERNITY UNIT

GUIDELINE: INTRAPARTUM FEVER

SCOPE: This guideline applies to all midwives and obstetricians working in maternity unit.

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PURPOSE: To provide guidance on the management of intrapartum fever to prevent maternal and fetal compromise from infection and sepsis and to reduce neonatal morbidity/mortality.

DEFINITIONS: Intrapartum fever refers to fever during labour. Fever is defined as an elevation of body temperature ≥ 38 degrees Celsius (100.4 degrees Fahrenheit).

GUIDELINES

Contents:

1. Incidence

The reported incidence of intrapartum fever varies widely. A population-based study noted that intrapartum fever occurred in 1.6% of over 11 million singleton births in the United States between 1995 and 1997. Various studies have reported intrapartum fever to develop in 10-34% of nulliparous women who have an epidural for anaesthesia during labour.

2. Possible causes of intrapartum fever

Intrapartum fever may be of a non-infectious or infectious etiology. Intra-amniotic infection and epidural anaesthesia are the two most common causes of intrapartum fever.

Non-infectious causes

Epidural anaesthesia

Rise in maternal temperature correlates with duration of epidural use. Usually there is no effect during the initial four to five hours. Thereafter maternal temperature may increase approximately 0.10 degrees C per hour. Recommended epidural infusion vital signs include monitoring the woman's temperature.

Prostaglandins

Fever is one of the less common side effects of prostaglandin use.

Drug fever

Drug fever is a very rare cause of intrapartum fever. Febrile drug reaction usually takes several days to develop.

Environmental factors

An overheated room or pool water and dehydration can cause low grade maternal temperature elevation.

Infectious causes

Urinary

Pyelonephritis can present with all or some of the following: fever, flank pain, nausea, vomiting, costovertebral angle tenderness and lower urinary tract symptoms (dysuria, frequency, urgency, suprapubic pain and haematuria).

Respiratory

Viral / Influenza

Viral respiratory infection usually presents with low grade fever, congestion, runny nose and cough. Influenza usually presents with a one to two day period of malaise followed by abrupt onset of fever, headache, anorexia and respiratory symptoms. H1N1 may also produce gastrointestinal symptoms including abdominal pain. H1N1 can be a life threatening illness in pregnant women, particularly the obese, and antiviral treatment should be started immediately if this is suspected. **Do not wait for definitive diagnosis before beginning treatment.** Pneumonia presents with sudden onset of rigors followed by fever, pleuritic chest pain and cough with purulent sputum.

Uterine

Uterine infections are usually ascending intra-amniotic infections. Pathogens typically ascend from the vagina through the cervix but can be spread via blood. They may be confined to the fetal membranes or may infect the amniotic fluid, fetus, and parenchyma of the placenta. The process can occur with either intact or ruptured fetal membranes prior to or during labour.

Chorioamnionitis (inflammation of the chorion and amnion) is the most frequent histopathological result of ascending transcervical infection and occurs as both symptomatic and silent infections. Infection is often polymicrobial. The bacteria most commonly cultured are: Streptococcus sp., Escherichia coli, Ureaplasma sp., Fusobacterium sp., Mycoplasma sp., and anaerobes. Chorioamnionitis is the most common cause of intrapartum fever.

3. Diagnosis of Chorioamnionitis in labour

Diagnosis is typically based upon the presence of maternal fever of greater than 38 degrees C (100.4 F) **and** at least two of the following conditions:

- Maternal tachycardia (greater than 100 beats/minute)
- Fetal tachycardia (greater than 160 beats/minute)
- Uterine tenderness

- Foul odour of the amniotic fluid
- Maternal leucocytosis greater than 15,000 cells/cubic millimetre often with a left shift may be present but is an unreliable indicator

Common maternal complications include labour abnormalities, increasing incidence of caesarean delivery, uterine atony, postpartum haemorrhage, postpartum endometritis, and rarely septic pelvic thrombophlebitis. Fetal complications include early onset neonatal sepsis, pneumonia, and meningitis.

Delivery is indicated after diagnosis of intra-amniotic infection. Prompt treatment with broad spectrum antibiotics reduces maternal and neonatal morbidity.

4. Monitoring temperature during labour

On admission a full history, top to toe examination and basic observations as per Maternity Admission guidelines should be recorded. These will include maternal temperature, pulse, BP and dipstick urine to exclude possible urinary infection. If nitrates or leucocytes are present send an MSU to the laboratory for culture and sensitivity. Temperature should be recorded 4 hourly or more frequently if indicated.

Oral temperature measurement is most commonly used to record the maternal temperature and detect maternal intrapartum fever. Maternal oral temperature is 0.2 to 0.9 degrees Celsius (0.1 to 0.4 degrees Fahrenheit) lower than fetal/intrauterine temperature. Tympanic temperature is an alternative approach and gives a slightly higher recording than oral measurement but is more susceptible to user error.

5. Management of intrapartum fever

Intrapartum fever is generally considered to be maternal temperature ≥ 38 degrees Celsius.

If maternal temperature is found to be elevated in labour:

- Notify the Obstetrician (use SBARR tool)
- Consider the "big picture" – length of labour, number of vaginal exams, duration of rupture of membranes, exposure to intrapartum devices such as fetal scalp electrode, urinary tract or respiratory symptoms, use of epidural analgesia, medication usage.
- If the woman has an epidural in situ, consider notifying the anaesthetist.
- Commence continuous electronic fetal monitoring but avoid use of fetal scalp electrode if possible due to increased risk of infection.
- Be prepared to expedite delivery if there are any signs of fetal compromise on CTG recording.
- Record full set of maternal observations and begin MEWS chart in MCIS with ½ hourly recordings of temperature and pulse. Note and act on any deviations.
- Antibiotics will likely be ordered, so site an IV luer and commence IV fluids (usually normal saline) to hydrate woman.

- Laboratory tests: Send blood cultures, CBC, creatinine and group and hold. Consider a lactate level. Do urinary dipstick and any other tests as ordered by obstetrician.
- Consider using Panadol to lower fever as elevated maternal body temperature increases risk to baby of low Apgar score, hypotonia and unexplained neonatal seizures.
- Notify the NNU and paediatrician as the baby may require observations and NNU admission and infection screening and/or antibiotics.
- Apply basic principles of care for someone with fever to include:
  - increase fluid intake
  - accurate fluid balance chart
  - MEWS observations and chart
  - reduced room temperature
  - cool flannels and tepid sponging/bed bath (family member can do this if woman prefers)
  - discuss with obstetrician if oral fluids can be given and if so provide with iced water.

6. Antibiotic Therapy

Since chorioamnionitis is typically due to multiple organisms, antibiotic coverage needs to be broad spectrum to cover potential pathogens. **Augmentin 1.2gm IV 8 hourly together with Gentamicin 5-7mg/kg 24 hourly is the recommended regimen**. The initial dose of Gentamycin can be quickly calculated at 5mg/kg based on the booking weight or recorded weight nearest the booking date. Subsequent dosing can be calculated by the pharmacy or using the formulas below:

LBW = (0.3 X ABW) + (0.4 X HT) – 43
DW = LBW + ((ABW-LBW) X 0.43)
LBW – lean body weight
ABW – actual body weight in kg
HT – height in cm
DW – dosing weight

Vancomycin 1gm IV q12 hours may be used if the woman is allergic to Penicillin. If the birth is by caesarean, additional anaerobic coverage should be considered such as Clindamycin or Metronidazole. It is recommended that the intrapartum IV antibiotics are continued for a minimum of one further dose postpartum but are often continued for the initial 24hours post birth as a precaution or until 24hours post last febrile episode, especially if caesarean section is required. The obstetrician will prescribe the antibiotics required and the core staff will ensure they are administered. It is best practice to administer Augmentin first and Gentamicin second. If two IV sites are available both can be given simultaneously.

7. After the birth

- Consider cord blood gases
- Be prepared for uterine atony and PPH
- Gain consent to send placenta for evaluation and histology if possible
- Continue antibiotics as above
- Continue 4 hourly MEWS observations until 48hours post last febrile episode

ASSOCIATED DOCUMENTS

- Maternity admissions
- Management of preterm pre-labour rupture of the membranes (PPROM)
- Pre labour spontaneous rupture of membranes at term
- The prevention of neonatal Group B Streptococcal infection (GBS)
- Inhibition of preterm labour
- Antimicrobial usage policy

REFERENCES

Banerjee, s. & Steer, PJ. (2004). The rise in maternal temperature associated with regional analgesia in labour is harmful and should be treated. *MIDIRS Midwifery Digest* 14(1): 79-83

Chen, KT., Ramin, SM & Barss, VA (May 2011). Intrapartum Fever. Retrieved from www.uptodate.com Accessed 11/08/11

Churgay, CA. & Smith, MA. & Blok B (1994). Maternal fever during labor – what does it mean? *J Am Board Fam Pract (Jan—Feb)* 7(1), 14-24

Lieberman E, Lang JM, Frigoletto F Jr, Richardson DK, Ringer SA, Cohen A.(1997). Epidural analgesia, intrapartum fever and neonatal sepsis evaluation. *Pediatrics* 99(3):415-9

Petrova, A., Deissie, K., Rhoads, G.G. et al (2001). Association of maternal fever during labor with neonatal and infant morbidity and mortality. *Obstet Gynecol* 98(1): 20-7

Tita, A.T.N (2011). Intraamniotic infection (Chorioamnionitis). Retrieved from www.uptodate.com Accessed 11/08/11

Zanella, P., Bogana, G., Zambon, A., Serena, a. & Albertin, MA. (2010). Chorioamnionitis in the delivery room) *Minerva Pediatrics* 62(3 Suppl): 151-3

Uptodate Intrapartum Fever (Sept 2016);
https://www.uptodate.com/contents/intrapartumfever

Date of Approval: 12/04/2018
Next Review Date: **13/04/2021**