Guideline

GBS Colonisation: Management of Infant to Prevent Early Onset Group B Streptococcus (EOGBS) Disease

the women's
the royal women's hospital

1. Purpose

Early-onset neonatal Group B Streptococcus (EOGBS) disease is acquired by vertical transmission from a colonised mother, sometimes antenatally, but more frequently intrapartum when GBS either ascends from the vagina into the amniotic fluid or the infant is colonised during the birth process [1].

The past two decades have seen significant reductions in EOGBS infections following the widespread adoption of intrapartum antibiotic prophylaxis (IAP) as a means of interrupting vertical GBS transmission from mothers to their infants [2]. However, despite these reductions GBS disease remains a leading cause of neonatal morbidity and mortality in Australia and many other developed regions of the world [3-5].

IAP has altered the profile of newborn infants who develop EOGBS disease. Many affected infants lack the typical intrapartum risk-factors for GBS infection, are born to mothers with a negative GBS screen or represent missed opportunities for prevention. Clinicians should remain alert for signs of sepsis in any newborn infant.

This guideline outlines strategies for the identification and management of infants at risk of Group B Streptococcus infection at the Women's. This guideline accords with the 2010 Centers for Disease Control guideline [4].

2. Definitions

GBS (*Streptococcus agalactiae*) is a Gram positive bacteria that commonly colonizes the female genital tract (10-40% of pregnant women), may be transmitted to the infant intrapartum and is a common cause of early-onset neonatal infection [1].

Intrapartum antibiotic prophylaxis (IAP) is administration of antibiotic during labour with the intention of preventing GBS transmission from mother to infant.

Early onset sepsis is defined by surveillance networks in Australia and New Zealand as infection in the first 48-hours of life [6, 7].

3. Responsibilities

Obstetric and neonatal doctors are responsible for identifying infants at risk of neonatal GBS disease, based upon antepartum or postpartum risk factors (e.g. inadequate GBS IAP in a colonized mother, an infant with clinical signs of sepsis).

Midwives and Nurses working on the maternity wards are responsible for identifying babies at potential risk of sepsis, based upon abnormal routine observations (heart rate, respiratory rate, temperature).

4. Guideline

4.1 Identifying infants at risk of GBS disease

IAP reduces, but does not eliminate, EOGBS disease [4]. Clinicians must therefore remain vigilant for signs of EOGBS infection. They should be aware that early-onset disease can occur in infants of culture-screened GBS negative women. Reports from countries where 'universal screening' based IAP is practiced record that up to 60% of EOGBS disease is in newborn infants whose mothers had a negative GBS screen [8].

Any newborn infant with signs of sepsis (eg. any combination of respiratory distress, apnoea, pallor with poor peripheral perfusion, fever $\geq 38^0$C or unstable temperature, and acidosis) should have a full diagnostic evaluation (usually full blood examination, blood culture, and chest x-ray if indicated) and receive broad-spectrum antibiotics (eg. penicillin and gentamicin) whilst awaiting the results of cultures [4, 9]. It is worth emphasising that clinical signs are highly sensitive indicators of sepsis [10].

Maternal chorioamnionitis indicates a high-risk for early-onset neonatal GBS disease, even when the mother has received appropriate intrapartum antibiotics [10].

In contrast, infants of GBS positive mothers who have received adequate IAP can be considered for discharge home within 24-hours of delivery, provided they can still be observed closely by an experienced health professional [9]. Fortunately, several studies show that maternal intrapartum antibiotics do not change the timing or clinical presentation of EOGBS disease with more than 90% of infants developing signs of sepsis within 24-hours of birth [10, 11].

4.2 Neonatal Algorithm

See Appendix 1 for Algorithm of Management of Infant to Prevent Early Onset Group B Streptococcus (EOGBS) Disease.

5. Evaluation, monitoring and reporting of compliance to this guideline

Compliance to this guideline will be monitored by incidences reported to VHIMs and evaluated by annual review of episodes of Early Onset Group B Streptococcus Disease at The Women's.

6. References

1) Baker, C.J. and F.F. Barrett, Transmission of group B streptococci among parturient women and their neonates. J Pediatr, 1973. **83**(6): p. 919-25.

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7) Grimwood, K., et al., Early-onset neonatal group B streptococcal infections in New Zealand 1998-1999. J Paediatr Child Health, 2002. **38**(3): p. 272-7.

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10) Escobar, G.J., et al., Neonatal sepsis workups in infants >/=2000 grams at birth: A population-based study. Pediatrics, 2000. **106**(2 Pt 1): p. 256-63.

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7. Legislation/Regulations related to this guideline

Not applicable.

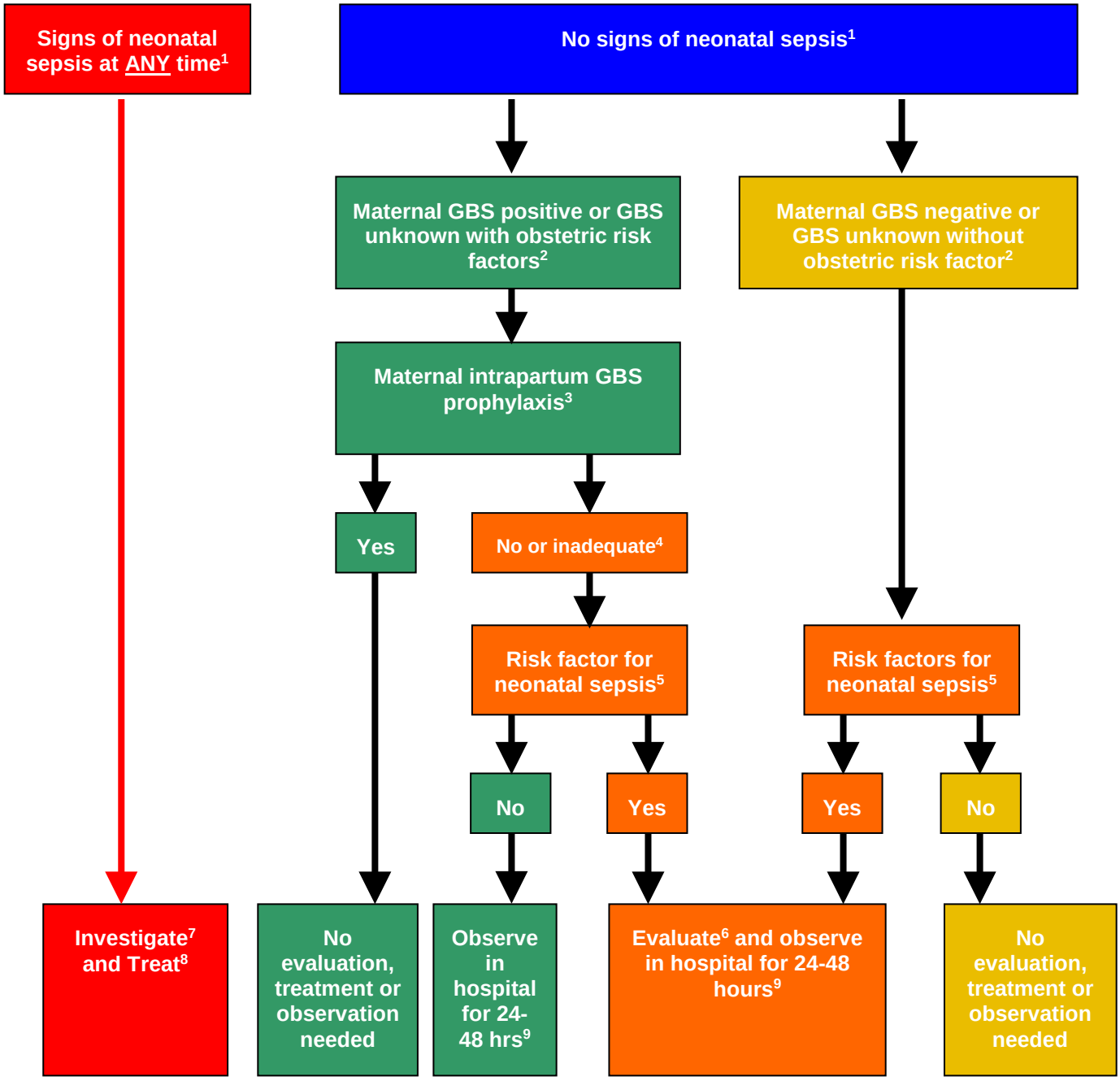
8. Appendices

Appendix 1: Algorithm: Management of Infant to Prevent Early Onset Group B Streptococcus (EOGBS) Disease

GBS Colonisation: Management of Infant to Prevent Early Onset Group B Streptococcus (EOGBS) Disease

Appendix 1

Algorithm: Management of Infant to Prevent Early Onset Group B Streptococcus (EOGBS) Disease



Notes

1. Signs of neonatal sepsis are non-specific and include respiratory distress, temperature instability, tachycardia, shock, or “unwell”.
2. Obstetric risk factors include (a) labour before 37 weeks gestation or (b) rupture of membranes more than 18 hours (or anticipated to be more than 18 hours).
3. Maternal intrapartum GBS prophylaxis is administered if a woman is (a) GBS positive or has GBS bacteruria or is GBS unknown with an obstetric risk factor in her current pregnancy or (b) if she had a previous baby with EOGBS disease.
4. Inadequate intrapartum chemoprophylaxis: a single dose of penicillin < 4 hours before delivery.

Appendix 1

Algorithm: Management of Infant to Prevent Early Onset Group B Streptococcus (EOGBS) Disease

5. Neonatal risk factors for sepsis are: (a) suspected or overt maternal intrauterine sepsis or chorioamnionitis (including maternal fever >38^{o}C, maternal tachycardia, uterine tenderness, purulent discharge/liquor or fetal tachycardia), (b) labour <37 weeks and (c) the need for active resuscitation (positive pressure ventilation for more than a few breaths).
6. Evaluate – paediatric assessment +/- full blood count. Consider blood culture and antibiotics if the I/T ratio is >0.2 or as clinically indicated or signs of neonatal sepsis[1] at any time.
7. Investigate – blood culture, full blood count. Examination of CSF or urine or CXR as clinically indicated and when infant is stable.
8. Treatment – benzylpenicillin IV 60mg/kg/dose (120mg/kg/dose in meningitis) link to benzylpenicillin neonatal monograph
   - gentamicin IV 5mg/kg/dose link to gentamicin neonatal monograph

   If meningitis suspected, change to
   - cefotaxime IV 50mg/kg/dose link to cefotaxime neonatal monograph
   - amoxycillin IV 50mg/kg/dose link to amoxycillin neonatal monograph

   If meningitis proven, change to
   - benzylpenicillin IV 120mg/kg/dose link to benzylpenicillin neonatal monoraph
9. 90% of EOGBS disease presents clinically in the first 12 hours of life. Observation comprises monitoring A.C. temperature, heart rate and respiratory rate until 24 hours of age, then a further 24 hours in hospital depending on the risk factors and medical assessment.