Chapter 42

GROUP B STREPTOCOCCAL INFECTIONS IN THE NEWBORN

Group B Streptococci (GBS) continues to be a major cause of bacterial sepsis among newborn infants. While the organism commonly inhabits the large bowel and rectum, the source of the infection in the neonate is the colonized maternal birth canal. Vertical transmission during birth is the usual mode of neonatal infection. Estimates of GBS colonization rates among pregnant women range from 15 to 40 percent. The prevalence in women giving birth in London is about 25 percent. GBS is transmitted to 40 to 70 percent of newborns of colonized mothers (ie: they become colonized); however, only one to two percent of such infants develop clinical evidence of sepsis. Two types of GBS infections occur in the newborn; early-onset and late-onset disease. Early-onset disease (< seven days of age) is more common and has a higher rate of mortality. Late-onset disease (seven days to three months of age) is less common and has a lower associated mortality. The information that follows is about early-onset disease.

Recommendations

Although intrapartum chemoprophylaxis in situations of increased risk reduces the morbidity and mortality due to early-onset GBS infection, no method prevents all GBS deaths. However, universal screening is >50% more effective than the risk-based approach at preventing perinatal GBS disease.

1. Universal screening of all pregnant women at 35 to 37 weeks gestation with a single combined vaginal-anorectal swab and the use of intrapartum chemoprophylaxis to all GBS-colonized women.

2. Risk-based strategy based on GBS prophylaxis is reserved for women at term with unknown GBS culture status at time of labour

3. The GBS cultures are taken as a single swab of the lower vagina and the anorectum. It is transported to the laboratory in selective broth medium and subcultured onto selective solid media. Standardized methods should be established in each facility for the collection, requisition, transport, testing, and reporting of these specimens. GBS antigen tests should not be used.

- If the mother is penicillin allergic, obtain GBS sensitivities to clindamycin and erythromycin.

4. **Indications for Intrapartum antibiotic prophylaxis (IAP) under universal prenatal screening:**
   - Previous infant with invasive GBS disease
   - GBS bacteriuria during current pregnancy
   - Positive GBS screening culture during current pregnancy (unless a planned caesarean birth, in the absence of labour or amniotic membrane rupture)
   - Unknown GBS status AND any of the following:
     - Delivery at < 37 weeks' gestation
     - Amniotic membrane rupture ≥ 18 hours
     - Intrapartum temperature ≥ 100.4°F (≥38.0 C)

5. **Intrapartum prophylaxis NOT indicated:**
   - Previous pregnancy with a positive GBS screening culture (unless a culture was ALSO positive during the current pregnancy)
   - Planned caesarean birth performed in the absence of labour or membrane rupture (regardless of maternal GBS culture status)
   - Negative vaginal and rectal GBS screening culture during the current pregnancy, regardless of intrapartum risk factors.

6. **Threatened preterm birth:**
   Suggested algorithm for management of threatened preterm birth (labour or rupture of membranes at < 37 weeks' gestation) which does not proceed rapidly to birth:
   - Culture and start IV antibiotics
   - Stop antibiotics if labour does not progress
   - If culture positive, treat the mother when she goes into labour
   - If culture negative and undelivered within 4 weeks: re-screen at 35-37 weeks

7. **Neonatal management:**
   - For well appearing full term infants:
     - if delivered after at least 4 hours of intrapartum antibiotics – there is no need for septic workup, additional therapy or investigations. However, observe, in hospital, for signs of infection for the first 24 hours.
     - If delivered after less than 4 hours of intrapartum antibiotics – evaluate and observe for 48 hours and consider a CBC and differential if there are additional maternal/fetal risk factors.

- Infants of mothers with chorioamnionitis require a full diagnostic and therapeutic evaluation for sepsis

- Preterm infants require individualized evaluation and management

- **Symptomatic infants are at a very high risk for morbidity and require early consultation, investigation and treatment. These infants are ideally managed in an intensive care facility.** Septic workup includes a complete blood-cell count and differential, blood culture, chest radiograph, and a lumbar puncture if feasible.

Early Signs of Neonatal Sepsis

- Apnea
- Tachycardia
- Temperature instability
- Tachycardia
- Lethargy
- Poor feeding

8. **GBS intrapartum antibiotics prophylaxis:**
   - IV Penicillin G is 1st line
     - 5 x 10^6 units x 1, then 2.5 x 10^6 q4h

9. **In Penicillin allergic patients:**
   Is the patient at high or low risk for anaphylaxis?
   - Not high risk:
     - Cefazolin 2 gm x 1, then 1 gm q8h
   - At high risk
     i. GBS sensitive to clindamycin and erythromycin
        - clindamycin 900mg IV q8h, until delivery or
        - erythromycin 500mg IV q6h, until delivery
     ii. GBS not sensitive (or unknown) to clindamycin or erythromycin (must be sensitive to both to use either)
        - vancomycin 1g IV, q12h until delivery

10. **Key GBS resources:**
    - Centers for Disease Control and Prevention's GBS internet page http://www.cdc.gov/groupbstrep
    - Schrag et al, MEJM 2002; vol. 347 (4): 233-239
    - American College of Obstetrician and Gynecologists http://www.acog.org
    - American Academy of Pediatrics http://www.aap.org
    - SOGC www.sogc.org

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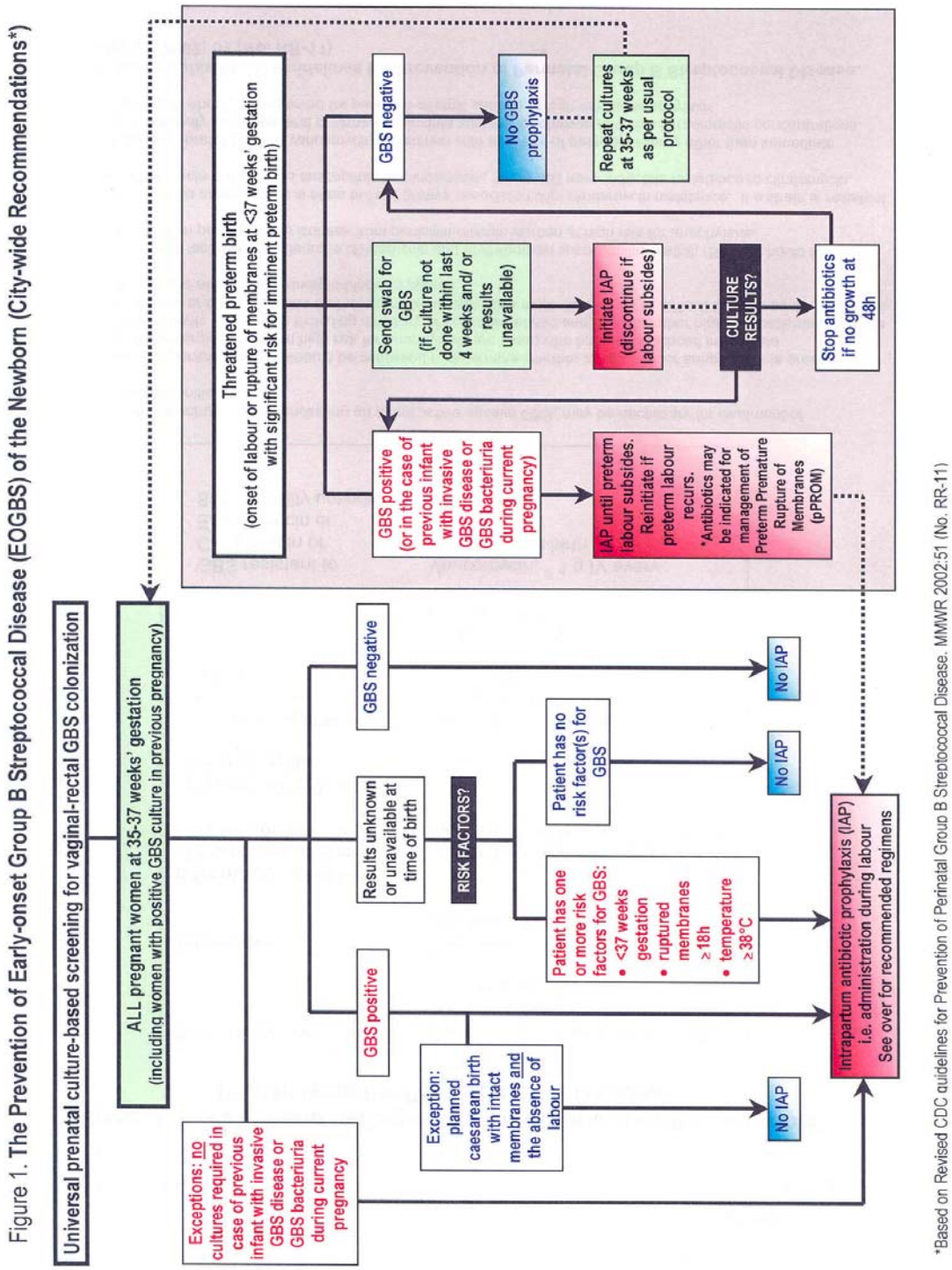

Figure 1. **The Prevention of Early-onset Group B Streptococcal Disease (EOGBS) of the Newborn (City-wide Recommendations*)**

*Based on Revised CDC guidelines for Prevention of Perinatal Group B Streptococcal Disease. MMWR 2002;51 (No. RR-11)