Group B Streptococcal Disease (GBS) (Screening and Preventive Medication)

Clinical Preventive Service Recommendations

U.S. Preventive Services Task Force Recommendation

Not Applicable

CDC Recommendation

The Centers for Disease Control and Prevention (CDC) recommends that clinicians screen all pregnant women for vaginal and rectal group B streptococcal (GBS) colonization at 35 to 37 weeks' gestation.[1]

- Women should be tested for GBS at each pregnancy as colonization at a prior pregnancy is not an indication for antibiotic prophylaxis in subsequent pregnancies.
- Women who are identified through screening as GBS carriers should be given intrapartum antibiotic prophylaxis.
- Women whose screening status is unknown at the time of labor should receive intrapartum antibiotic prophylaxis if they present with any of the following risk factors: delivery at less than 37 weeks' gestation, membrane rupture ≥18 hours, or intrapartum fever ≥38C.
- Women with GBS isolated from the urine at any time in the current pregnancy should also be given intrapartum antibiotic prophylaxis.
- Women who have previously given birth to an infant with invasive GBS disease should receive intrapartum antibiotic prophylaxis.
- Women who are expected to deliver preterm (less than 37 weeks' gestation) should be assessed for their need for intrapartum antibiotic prophylaxis to prevent perinatal GBS disease.
- GBS colonized women who have a planned cesarean before rupture of the membranes are at a low risk for delivering an infant with early-onset GBS disease and should thus not routinely receive intrapartum antibiotic prophylaxis.

Evidence Rating:

Not Specified

Information Sources

The recommendations and supporting information contained in this document came from several sources, including the:

- Centers for Disease Control and Prevention (CDC)
- Royal College of Obstetricians and Gynecologists
- Peer-reviewed research

The background and supporting information contained in this document is a compilation of research findings. All information presented in this document should be attributed to its referenced source and should not be considered a reflection of other organizations cited in the text.

Condition/Disease Specific Information

Epidemiology of Condition/Disease

Group B streptococcus (GBS), a bacterium, has been a leading cause of infection-related infant death in the United States since the 1970s.[1] GBS disease is a serious infection that causes sepsis (blood poisoning), pneumonia, and meningitis in newborns. GBS can be lethal: 1 in every 20 babies born with GBS dies. Each year in the United States between 1,300 and 1,600 infants contract early-onset GBS and 65 to 80 infants die from it.[1] Those who survive are often left with lifelong disabilities such as hearing loss, vision impairments, and/or learning disabilities.[1]

In the 1980s, scientists discovered that administering antibiotics during labor to women who carry GBS could prevent early-onset GBS disease from developing in newborns. One in every 4 to 5 pregnant women carries GBS in her vagina or rectum.[1] While most women colonized with GBS are asymptomatic (meaning that they can pass the disease to their child, but are not affected by it themselves), some women become infected with GBS and are at risk of womb infections, bladder infections, and stillbirth.[1]

Condition/Disease Risk Factors

Pregnant women are at a higher risk of delivering an infant with GBS disease if they have GBS in their urine, are colonized with GBS at the time of labor, have a fever during labor, rupture their membranes 18 hours or more before delivery, or if they have previously had a baby with GBS disease.[1]

Value of Prevention

Economic Burden of Condition/Disease

While the rate of neonatal GBS infections has declined since the 1990s due to widespread screening and treatment, GBS continues to have an economic toll in the United States.[2] The average neonatal intensive care cost of a GBS-infected infant was estimated to be $30,100 in 2001.[3] The excess average discounted lifetime healthcare cost for an infant disabled by an early-onset GBS (over that for a healthy infant) was estimated to equal $261,000 (in year 2001 dollars).[4]

Workplace Burden of Condition/Disease

Productivity losses associated with absenteeism and presenteeism for parents of GBS-affected children have not been quantified.

Economic Benefit of Preventive Intervention

Preventing a case of infant disability due to GBS can reduce the discounted lifetime healthcare costs for an infant by $261,000, on average (year 2001 dollars).[4] In 1993, researchers estimated that treating high-risk women identified through screening with intrapartum antibiotic prophylaxis could prevent 3,300 cases of GBS annually; saving approximately $16 million in direct medical costs.[2]

Estimated Cost of Preventive Intervention

In 2004, the private-sector cost of screening for GBS averaged $13 per screen; approximately 95% of all paid claims fell within the range of $4 to $33 per screen.[6] When women with a positive test result are treated with antibiotic therapy during labor (an initial dose of 2g of ampicillin intravenously, followed by 1g every 4 hours) the preventive mediation costs are estimated to equal $63 per course of therapy.[4]

Estimated Cost of Treatment

The cost of treating an infant with early-onset group B streptococcal sepsis (a severe form of the disease) was estimated to exceed $123,000 (in year 1993 dollars).[4]

Cost-Effectiveness and/or Cost-Benefit Analysis of Preventive Intervention

Screening to prevent early-onset GBS is estimated to cost less than $12,000 (in year 1997 dollars) per prevented case. Preventive intervention may also generate net cost-savings if the high cost of managing a case of early-onset GBS is considered.[3]

In comparison to other preventive interventions and to commonly accepted cost-effectiveness benchmarks, screening for GBS is cost-effective.

Preventive Intervention Information

Preventive Intervention: Purpose of Screening

Identifying women who carry group B streptococcal bacteria allows clinicians to administer antibiotic prophylaxis during labor, thus preventing transmission of the bacteria to the infant. Vaccines to prevent GBS disease are under development but are not currently available. Thus, universal prenatal GBS culture-based screening is the best available prevention strategy.[1]

Benefits and Risks of Intervention

The risks of screening for GBS colonization are minimal. However, there are risks associated with intrapartum antibiotic prophylaxis. Severe anaphylaxis is associated with the use of penicillin in some women. Anaphylaxis occurs in 1 out of every 10,000 treatments and can be fatal. Also, the widespread use of antibiotics, particularly broad-spectrum antibiotics such as ampicillin, contributes to the development of resistant organisms.[1]

Despite the risks associated with prevention, screening for group B streptococcal colonization and intrapartum antibiotic prophylaxis can reduce the rate of neonatal infection death and prevent infants from significant disability. These significant benefits outweigh the risks and costs associated with screening.

Initiation, Cessation, and Interval of Screening and Preventive Medication

All pregnant women should be screened for vaginal and rectal group B streptococcal (GBS) colonization between 35 and 37 weeks' gestation. Preventive medication should be given to colonized women, as medically indicated.

Intervention Process Screening

All women should be screened for vaginal and rectal group B streptococcal colonization using recommended laboratory methods for GBS isolation and identification. Women should be screened for GBS with each pregnancy as colonization at a prior pregnancy is not an indication for antibiotic prophylaxis in subsequent pregnancies.

Preventive Medication

Intrapartum antibiotic prophylaxis should be given, as medically indicated, to:

- Women who are identified as GBS carriers.
- Women whose screening status is unknown at the time of labor *if* they present with any of the following risk factors: delivery at less than 37 weeks' gestation, membrane rupture ≥18 hours, or intrapartum fever ≥ 38C.

- Women with GBS isolated from the urine at any time in the current pregnancy.
- Women who have previously given birth to an infant with invasive GBS disease.

Women who are expected to deliver preterm (less than 37 weeks gestation) should be assessed for their need for intrapartum antibiotic prophylaxis to prevent perinatal GBS disease.

GBS colonized women who have a planned cesarean before rupture of the membranes are at a low risk for delivering an infant with early-onset GBS disease and should thus not routinely receive intrapartum antibiotic prophylaxis.[1]

Treatment Information

Health benefits should include provisions for treatment services for affected women and infants.

Strength of Evidence for the Clinical Preventive Service

The level of evidence supporting the recommendations contained in this section is described below.

Recommended Guidance:

The Centers for Disease Control and Prevention (CDC)
Strength of Evidence: Not Specified

- The CDC recommends screening all pregnant women for vaginal and rectal group B streptococcal (GBS) colonization between 35 and 37 weeks' gestation.[1]

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Campbell KP, Chattopadhyay S. Group B streptococcal disease evidence-statement: screening and preventive medication. In: Campbell KP, Lanza A, Dixon R, Chattopadhyay S, Molinari N, Finch RA, editors. *A Purchaser's Guide to Clinical Preventive Services: Moving Science into Coverage*. Washington, DC: National Business Group on Health; 2006.

References

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4. Haberland CA, Benitz WE, Sanders GD, Pietzsch JB, Yamada S,Nguyen L, et al. Perinatal screening for Group B Streptococci: Cost-Benefit analysis of rapid polymerase chain reaction. Pediatrics 2002;110(3):471-480.
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