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Treating Group B Strep

http://www.hpakids.org/holistic-health/articles/172/1/Treating-Group-B-Strep
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Published on 08/31/2005

Discussion of Group B Streptococcus (Step) and the use of antibiotics to treat.

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Treating Group B Strep: Are Antibiotics Necessary?

Most women who have been pregnant in the last few years are familiar with the terms Group B Strep (for Group B Streptococcus), or GBS. The US Centers for Disease Control and Prevention (CDC) and the American College of Obstetricians and Gynecologists (ACOG) recommend that all pregnant women be screened between weeks 35 and 37 of their pregnancies to determine if they are carriers of GBS. This is done by taking a swab of the pregnant woman's vaginal and rectal areas. Studies show that approximately 30 percent of pregnant women are found to be colonized with GBS in one or both areas.1-5

The CDC and ACOG advise all pregnant women who are found to be carriers of GBS to be treated with intravenous antibiotics during labor. Doctors and midwives have such great concern because GBS can be passed from the mother to the infant during delivery and can cause sepsis (a blood infection), pneumonia, and meningitis (an infection of the fluid and lining of the brain) in newborn infants. Therefore, most pregnant women who test positive for GBS choose to follow CDC and ACOG recommendations and attempt to avoid transmitting GBS to their newborns through treatment with IV antibiotics throughout their labors. Given all this, why would any woman choose not to accept IV antibiotics? But no woman can make a truly informed decision about this issue without taking a critical look at any recommendation that a third of all women and their infants be given antibiotics during labor.

GBS is a bacterium that normally lives in the intestinal tracts of many healthy people. A vaginal-rectal area colonized by GBS should not be termed "infected" any more than an intestinal tract colonized by GBS would be. GBS is a problem only when it is present in the genital area of a pregnant woman during labor and delivery. When this happens, there is a small risk that the bacterium will be passed on to the newborn infant, and that she or he will become sick as a result. Approximately 0.5 percent of women found to have GBS bacteria in their genital areas at 35 to 37 weeks into their pregnancies will go on to deliver a baby who becomes ill from GBS. This is 0.5 percent of women who receive no antibiotics during labor and delivery.

We should not take lightly the use of antibiotics for 200 women and their babies to prevent only a single blood infection-however serious that infection might be-especially in this age of increasing resistance to antibiotics. Concerns have arisen in several areas regarding the use of antibiotics for so many laboring women. One dilemma is that colonization of the vaginal area by GBS is, at best, a poor method of predicting whether a newborn will develop a GBS infection. As mentioned, even without any intervention during labor, fewer than 1 percent of infants born to carriers of GBS develop infections.6, 7

Some studies have shown a decrease in GBS infection in newborns whose mothers accepted IV antibiotics during labor, but no decrease in the incidence of death.8, 9 Still other research has found that preventive use of antibiotics is not always effective.10 In fact, one study found no decrease in GBS infection or deaths among newborns whose mothers were given IV antibiotics during labor.11

Perhaps the greatest area of concern to medical researchers, as it should be to us all, is the alarming increase in antibiotic-resistant strains of bacteria. Antibiotic-resistant bacteria can cause infections in newborns that are very difficult to treat. Many large research studies have found not only resistant strains of GBS, but also antibiotic-resistant strains of E. coli and other bacteria caused by the use of antibiotics in laboring women.12-21 Some strains of GBS have been found to be resistant to treatment by all currently used forms of antibiotics.22

While many studies have found that giving antibiotics during labor to women who test positive for GBS decreases the rate of GBS infection among newborns, research is beginning to show that this benefit is being outweighed by increases in other forms of infection. One study, which looked at the rates of blood infection among newborns over a period of six years, found that the use of antibiotics during labor reduced the instance of GBS infection in newborns but increased the incidence of other forms of blood infection.23 The overall effect was that the incidence of newborn blood infection remained unchanged.

The increase in other forms of blood infection among newborns is likely due to bacteria made drug-resistant by the

overuse of antibiotics. Evidence exists that increased use of antibiotics frequently leads to increasing bacterial resistance. When a woman is given antibiotics during labor to treat GBS, the antibiotics cross the placenta and enter the amniotic fluid. While the antibiotics may have the desired effect of killing the GBS bacteria, some GBS bacteria can survive and become difficult, if not impossible, to kill with traditionally used antibiotics. Similarly, other bacteria, such as E. coli, that may be present in the mother or infant can become resistant to antibiotic treatment. These bacteria may not have presented a large risk of infection to the newborn until they were exposed to antibiotics and made into "super-bugs."

A study of 43 newborns with blood infections caused by GBS and other bacteria found that, when the mothers of the ill newborns had been given antibiotics during labor, 88 to 91 percent of the infants' infections were resistant to antibiotics. It is unlikely to be a coincidence that the drugs to which the bacteria showed resistance were the same antibiotics that had been administered during labor.24 For the newborns who had developed blood infections without exposure to antibiotics during labor and delivery, only 18 to 20 percent of their infections were resistant to antibiotics.

E. coli, in particular, is becoming an increasing cause of bacterial infection in newborns as the use of antibiotics in labor has increased. One study, which looked at causes of newborn blood infections between 1991 and 1996, found that the incidence of infections caused by GBS decreased during this time, but that the incidence of infection caused by other bacteria, especially E. coli, increased.25 During those years, antibiotic use during labor increased from less than 10 percent to almost 17 percent of the women included in this study. The researchers concluded that increased use of antibiotics during labor was the likely cause of increased newborn blood infections with bacteria other than GBS.

E. coli infection is particularly difficult to treat in premature babies. Unfortunately, the proportion of E. coli bacteria that are resistant to antibiotic treatment has increased astronomically in premature infants in the past few years. In a review of 70 cases of E. coli infection in newborns over a two-year period, researchers found that 29 percent of the E. coli bacteria present in premature babies were resistant to ampicillin in 1998; two years later, 84 percent of the E. coli bacteria present in premature babies were resistant to the same antibiotic.26

Preterm labor (i.e., labor before 37 weeks) is a well-accepted risk factor for transmission of GBS to the infant during labor and delivery. Due to the larger risk of transmitting GBS to a premature baby during delivery, most women who go into early labor will opt to receive IV antibiotics during their labor. However, infants born prematurely are at a greater risk from super-bugs caused by the very antibiotics that are supposed to be reducing their risk of infection. Severe complications for the babies, even deaths, have occurred when women whose waters broke before 37 weeks were given antibiotics to prevent transmission of GBS to their newborns. St. Joseph's Hospital in Denver, Colorado, tracked four cases in which women whose waters broke before 37 weeks were given ampicillin or amoxicillin. Following the administration of antibiotics, infection of the amniotic fluid occurred in all four cases. Two of the infants died as a result of blood infections from resistant bacteria; a third was stillborn, presumably from the same cause.27

Given the frightening results of these studies, what is a woman to do if she tests positive for GBS during her pregnancy? A closer look at the real risks of transmission, a frank talk with her provider of prenatal care, and a consideration of alternatives for eradicating GBS are all good places to start.

How great is the risk of my baby becoming sick from GBS?

There are three significant factors that place a woman at increased risk of delivering an infant who becomes ill from GBS: fever during labor, her water breaking 18 hours or more before delivery (prolonged rupture of membranes, or PROM), and/or labor or broken water before 37 weeks gestation.28 Other factors that can contribute to a newborn's risk of contracting GBS infection include age, economic, and medical criteria, such as the following: being born to a mother who is less than 20 years of age,29, 30 being African American,31, 32 the mother having large amounts of GBS bacteria in her vaginal tract,33-37 and being born to a mother who has given birth to a prior sibling with GBS disease.38-40

In the absence of the first three risk factors (fever during labor, PROM, or labor before 37 weeks), the risk of a newborn developing GBS infection is very small. The CDC estimates that, without the use of antibiotics during labor, only one out of every 200 GBS-positive women without these risk factors (0.5 percent) will deliver an infant with GBS disease. Some studies have found even lower rates of transmission. If antibiotics are given to the mother during labor, the CDC estimates that one in 4,000 GBS-positive women with no other risk factors will deliver an infant with GBS infection.

Conservative studies find that the use of antibiotics during labor fails to prevent up to 30 percent of GBS infections, and 10 percent of the deaths from GBS disease or infections.41, 42 Although, by CDC estimations, there is a reduced risk of GBS transmission with the use of antibiotics, one must take into account the risks posed by the use of the antibiotics themselves.

For a woman who has a negative culture for GBS at 35 to 37 weeks, there is a one in 2,000 risk of her newborn developing a GBS infection, and antibiotics are not recommended by the CDC. The CDC does recommend treating all women with risk factors (fever, PROM, premature labor) with antibiotics if they have not been tested to determine whether they are carriers of GBS.

What are the symptoms of GBS infection in a baby?

There are two forms of GBS infection: early and late onset. In early-onset GBS disease, the infant will become ill within seven days of birth. Of those infants who do develop a severe early-onset GBS infection, approximately 6 percent will die from complications of the infection.43 Full-term babies are less likely to die; 2 to 8 percent of them suffer fatal complications.44 Premature infants have mortality rates of 25 to 30 percent.45 Late-onset GBS infection is more complex and has not been convincingly tied to the GBS status of the mother. Late-onset GBS infection in infants occurs between seven days and three months of age.

In newborns, symptoms of early-onset GBS infection can include any of the following: fever or abnormally low body temperature, jaundice (yellowing of the skin and whites of the eyes), poor feeding, vomiting, seizures, difficulty in breathing, swelling of the abdomen, and bloody stools. Of course, any of the above symptoms can also be a sign of a sick newborn who does not have a bacterial infection. Newborns with any of these symptoms should be immediately evaluated by a medical professional.

How great is the risk from antibiotics?

The recommended antibiotic for treating GBS during labor is penicillin. Fewer bacteria currently show a resistance to penicillin than to other antibiotics used to treat GBS. The options are fewer for women known to be allergic to penicillin. Up to 29 percent of GBS strains have been shown to be resistant to non-penicillin antibiotics.46 For women not known to be allergic to penicillin, there is a one in ten risk of a mild allergic reaction to penicillin, such as a rash. Even for those women who have no prior experience of a penicillin allergy, there is a one in 10,000 chance of developing anaphylaxis, a life-threatening allergic reaction.

We can compare this to CDC estimates that 0.5 percent of babies born to GBS-positive mothers with no treatment will develop a GBS infection, and that 6 percent of those who develop a GBS infection will die. Six percent of 0.5 percent means that three out of every 10,000 babies born to GBS-positive mothers given no antibiotics during labor will die from GBS infection. If the mother develops anaphylaxis during labor (one in 10,000 will), and it is untreated, it is likely that the infant, too, will die. So, by CDC estimates, we save the lives of two in 10,000 babies-0.02 percent-by administering antibiotics during labor to one third of all laboring women. We should also keep in mind that this figure does not take into account the infants that will die as a result of bacteria made antibiotic-resistant by the use of antibiotics during labor-infants who would not otherwise have become ill. When you take that into account, there may not be any lives saved by using antibiotics during labor.

It should be noted that antibiotics such as penicillin kill GBS as well as other bacteria that might cause a newborn to become ill. Currently, the use of penicillin during labor may be a case in which the benefits outweigh the risks, depending on your individual risk factors for passing GBS on to your baby. However, it was only a few years ago that the same could have been said about other antibiotics. Ampicillin and amoxicillin have been rendered virtually useless for treating GBS by their prior overuse in laboring women in an effort to prevent GBS infection in newborns. How long will it be before penicillin, too, becomes useless in the battle to prevent GBS infections?

More minor risks of the use of antibiotics include an increase in thrush and other yeast infections among newborns. Along with the risks of thrush and allergic reactions, women must take into consideration the risk of creating antibiotic-resistant bacteria in themselves and their newborns. It is possible that exposure to antibiotics during birth could delay establishment of healthy bacteria in the infant's intestinal tract and allow penicillin-resistant bacteria, many of which are harmful, to become established.

Each woman must weigh for herself the likelihood of GBS infection in her newborn, taking into account her individual risk factors as well as the risk of other forms of infection caused by antibiotic-resistant bacteria. This is a good discussion to have with your healthcare provider so that you can be an informed partner in your own health care.

Alternatives to Antibiotics

Many women are interested in alternatives to antibiotics that may help get rid of GBS prior to labor. Unfortunately, no scientific studies of alternative treatments have been published. Several researchers have suggested that studies are needed to determine whether alternative approaches to eradicating GBS in pregnant women would be effective. Alternate approaches that have been suggested include vaginal washing and immunotherapy.47 At this point, however, these alternatives remain to be studied, and I am aware of no healthcare providers that use either method.

Some practitioners of natural medicine have suggested supplements for the mother in an effort to eradicate GBS prior to delivery. One suggestion is that, when a woman tests positive for GBS, she should take a course of garlic, vitamin C, echinacea, and/or bee propolis, and then be re-tested to determine if she is still carrying GBS. Any supplements that a pregnant woman considers taking should first be discussed with a homeopathic or naturopathic physician or other knowledgeable practitioner of natural medicine.

Because colonization by GBS is intermittent or transient for 60 percent of carriers, testing positive for GBS once does not indicate that a woman will always be colonized.48 However, most studies indicate that a positive culture at 35 to 37 weeks gestation is a fairly accurate predictor of GBS colonization at delivery. Without an active effort to eradicate the

GBS colonization, it is likely that a woman will still be colonized at delivery.

Ultimately, it is the pregnant woman herself who will have to decide what is right for her and her baby. Deciding to follow the recommendations of ACOG and the CDC is not necessarily the wrong choice, as long as a woman is adequately informed of the risks that come with antibiotic use. But none of us should blindly follow recommendations to interfere with the natural birth process without taking a good look at the risks, as well as the benefits, of doing so.

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This article was first published in Mothering Magazine Issue 121, Nov/Dec 2003