Progress made on group B streptococcus vaccine

October 30 2009

Scientists supported by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, have completed a Phase II clinical study that indicates a vaccine to prevent Group B Streptococcus (GBS) infection is possible. GBS is the most common cause of sepsis and meningitis in newborns in the United States, according to the Centers for Disease Control and Prevention (CDC). It can also cause severe illness in pregnant women, the elderly and adults with chronic illnesses. Colonization of the genital or gastrointestinal tract is a critical risk factor for infections due to GBS.

The researchers, led by Sharon L. Hillier, Ph.D., from the Magee-Womens Research Institute at the University of the Pittsburgh, found that the vaccine used in the study can cause a modest but sustained reduction in genital and gastrointestinal GBS bacterial colonization.

The GBS bacterium, which is commonly found in the gut and genital tracts, can infect the fetus during gestation and birth or after delivery. Pregnancy-related infections can lead to serious consequences for women including stillbirth. Currently, one-third of pregnant women in the United States test positive for asymptomatic GBS and receive antibiotics during labor to prevent infection of the newborn. Although this antibiotic strategy is highly effective, the broad use of antibiotics in pregnant women is of concern to public health officials. Many women are allergic to penicillin and penicillin-type antibiotics that are the preferred treatment, and GBS is increasingly resistant to other common antibiotics.

Dr. Hillier and her colleagues conducted a double-blind, randomized trial of the GBS vaccine that included a total of 650 sexually active, non-pregnant women ages 18 to 40 who were GBS-negative in the vagina and rectum at the beginning of the study. Approximately one-half of the women were in the control group and received a licensed tetanus and diphtheria toxoids (Td) vaccine instead of the GBS vaccine. The women were followed for 18 months after they were vaccinated and checked for GBS bacteria at regular intervals. The goal of the study was to see whether vaccination could prevent or decrease colonization by one of the most common subtypes of GBS bacteria: Type III.

Although the vaccine had a modest effect on bacterial colonization (36 percent in the vagina and 43 percent in the rectum), it provided some protection over the entire period of the study. The GBS vaccine also was found to be safe and well-tolerated, and elicited a strong immune response. The next step to prevent GBS disease would be to develop vaccines that provide protection against a broader range of GBS types and test them in clinical trials.

Dr. Hillier will present these findings on Friday Oct. 30, 2009, at the 47th Annual Meeting of the Infectious Diseases Society of America in Philadelphia.

Source: NIH/National Institute of Allergy and Infectious Diseases (news : web)