

Hispanic Teen Mothers Lack Pertussis Immunity

BY SHERRY BOSCHERT
San Francisco Bureau

SAN FRANCISCO — Low levels of immunity to pertussis in adolescent Hispanic mothers and their newborns may help explain their overrepresentation in pertussis cases and in deaths from the disease, C. Mary Healy, M.D., said in a poster presentation at the annual meeting of the Infectious Diseases Society of America.

A study of pertussis toxin-specific IgG concentrations found low concentrations in umbilical cord blood from 220 consecutive term singletons born to Hispanic women, with the lowest geometric mean concentrations in infants born to adolescent mothers. The low antibody levels likely reflect waning of vaccine-induced or natural immunity, she said.

Dr. Healy of Baylor College of Medicine, Houston, and her associates also compared pertussis toxin-specific IgG concentrations in blood samples from 55 mothers and their infants and found a ratio indicating efficient transfer of antibodies across the placenta. That suggests that one reason infants may be so susceptible to acquiring life-threatening pertussis in the first 4 months of life is because their mothers supply them with few antibodies.

"If you have high levels in the mothers, for example through vaccination, then the likelihood is that the antibodies will transmit very efficiently to infants and, hopefully, protect them at that most vul-

nerable period in the first few months of life before they begin their primary series of immunizations," she said in an interview at the meeting.

Currently there are no recommendations to vaccinate pregnant women against pertussis. Discussions are underway about whether to give pregnant women one of two relatively new acellular pertussis vaccines licensed for use in adolescents, Dr. Healy said.

"Hispanic women, especially adolescents, should be immunized with newly licensed acellular pertussis vaccine to prevent pertussis in themselves and life-threatening disease in their infants," she concluded in her poster.

Pertussis incidence is increasing among infants younger than 4 months of age, too young to have completed the DTaP primary vaccination series at ages 2, 4, and 6 months. The annual incidence of pertussis in the United States increased fivefold since 1980 despite childhood immunization rates above 80%, mainly due to disease in the youngest infants, according to federal statistics.

Pertussis incidence was 74% higher in Hispanic infants than in infants of other ethnicities throughout the 1990s despite comparable childhood immunization rates. Pertussis was reported in 68/100,000 Hispanic infants, compared with 39/100,000 non-Hispanic infants. Among infant deaths from pertussis between 1990 and 2000, 36%-41% who died were Hispanic infants. In addition, Hispanics made up 19% of children in 2003,

according to U.S. Census data. The reasons for this ethnic difference in pertussis are unclear and require further study, she said.

Mothers of the 220 infants in the study had a mean age of 26 years (ranging from 14 to 42 years), and they reported a mean of 8 years of education.

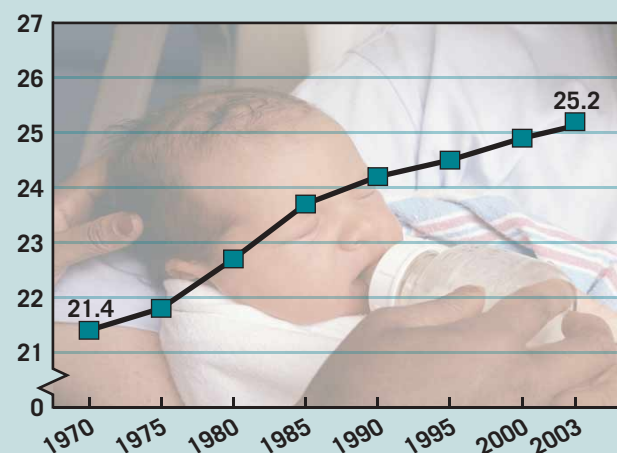
Thirty percent did not begin prenatal care until the second trimester and 28% had fewer than nine prenatal care visits, which the investigators considered to be delayed prenatal care and inadequate prenatal care, respectively.

For the 55 matched mother-infant pairs, investigators stratified them by age groups of Hispanic mothers in Texas: 10% aged 10-19 years, 30% aged 20-24 years, 30% aged 25-29 years, and 30% aged 30 years or older.

The investigators quantified pertussis antibody levels using enzyme-linked immunosorbent assay (ELISA). The geometric mean concentration of pertussis toxin-specific IgG was 8.45 ELISA U/mL for all infants and 4.63 ELISA U/mL for infants of adolescent mothers, which was a significant difference, Dr. Healy said. ■

DATA WATCH

Mean Age of Mother at Birth of First Child Rose 18% Since 1970



Source: Centers for Disease Control and Prevention

KEVIN FOLEY, RESEARCH

Vaginal Flora Tied to Proinflammatory Cytokines in Pregnancy, Study Shows

BY SHARON WORCESTER
Southeast Bureau

CHARLESTON, S.C. — Sexually transmitted diseases and bacterial vaginosis are known to be associated with elevated cervical proinflammatory cytokines in pregnancy, and interim results from an ongoing study suggest that vaginal flora that are opportunistic pathogens also have such an effect.

Candida albicans, *Escherichia coli*, and group B streptococci all were associated with elevations in specific cytokines in the 244 women enrolled in the study who were available for interim analysis, Marijane A. Krohn, Ph.D., reported at the annual meeting of the Infectious Diseases Society for Obstetrics and Gynecology.

"*C. albicans*, *E. coli*, and group B streptococci are very frequent colonizers in asymptomatic women—however, these microorganisms appear ready to start an inflammatory process, even when by local vaginal crite-

ria they seem to be nonpathogenic at that time or quiescent," Dr. Krohn said.

Given that these organisms are pathogenic to immunologically naive fetuses and neonates, and that they also can cause infection in women, it makes sense that they would show some pathogenic po-



'C. albicans, E. coli, and group B streptococci are very frequent colonizers in asymptomatic women.'

DR. KROHN

tential by being associated with elevated proinflammatory cytokines, she noted.

The women were sampled before 16 weeks' gestation, and some of them also were sampled later in pregnancy.

Cervical proinflammatory cytokines were considered elevated if they were at or above the 75th percentile on any sample, said Dr.

Krohn of the University of Pittsburgh.

Of 80 patients who had *C. albicans*, 47% of them had elevated levels of interleukin (IL)-1 α , and 51% of them had elevated levels of IL-1 β .

The number of patients with IL-1 α and IL-1 β at these levels was significantly higher in the participants with *C. albicans* colonization, compared with those participants without *C. albicans* colonization. IL-6 was also significantly higher in the colonized group.

Similarly, of the 28 patients with *E. coli*, 54% had IL-1 α at or above the 75th percentile, and significantly more of those with *E. coli* colonization had elevated IL-1 α and IL-1 β , compared with those without such colonization.

The researchers said only IL-6 was significantly elevated in the participants who had group B streptococci colonization, compared with the participants of the study without group B streptococci. ■

Study: Women With HCM Should Not Be Discouraged From Becoming Pregnant

ST. LOUIS — There were no maternal or fetal deaths in a study of 13 pregnant women with hypertrophic cardiomyopathy.

Women with this condition can have successful pregnancies with minimal risk to themselves and their babies, and should not be discouraged from becoming pregnant, Neeru Kaushik, M.D., reported in a poster presented at the annual meeting of the Midwest Society for Pediatric Research.

"Our understanding of hypertrophic cardiomyopathy has changed," Dr. Kaushik said in an interview. "Most women with HCM don't need invasive monitoring during delivery."

Dr. Kaushik and her colleagues at Magee-Women's Hospital in Pittsburgh reviewed 13 women aged 17-36 years with 16 pregnancies who were seen in the department of maternal-fetal cardi-

ology from 1989 to 2005.

The women had maternal echocardiograms at 20 and 30 weeks' gestation and at 6 weeks post partum and fetal echocardiograms between 18 and 30 weeks' gestation. Maternal echocardiograms showed a median septal wall thickness of 2.3 cm, and the median predicted Doppler gradient in the left ventricular outflow tract was 37 mm Hg.

All the women delivered in a perinatal special care unit. One woman had a cesarean delivery, and the rest had assisted vaginal deliveries with a shortened second stage of labor. The maternal heart rates remained in the range of 70-80 beats per minute, controlled with atenolol or verapamil in most cases.

Central venous pressure used was not necessary, the investigators said.

—Heidi Splette