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 deaths from the disease, Dr. Thomas A. 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 consec- cutively delivered infants of 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 his 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 anti- bodies across the placenta. That suggests that one reason infants may be so susceptible to acquiring life-threatening per- tussis in the first 4 months of life is be- cause their mothers supply them with few antibodies.

“If you have high levels in the mothers, for example through vaccination, then the antibodies will transmit very efficiently to infants and, hopefully, protect them at that most vulner- able period in the first few months of life before they begin their primary series of immunizations,” she said in an inter- view at the meeting.

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

“Hispanic women, especially adoles- cent of 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 pri- mary vaccination series at ages 2, 4, and 6 months. The annual incidence of per- tussis in the United States increased fivefold since 1980 despite childhood immuniza- tion rates above 80%, mainly due to de- crease 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, His- panics made up 19% of children in 2003, according to U.S. Census data. The rea- sons 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 prena- tal 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 25-28 years, and 30% aged 30 years or older.

The investigators quantified pertussis antibody levels using enzyme-linked im- munosorbent assay (ELISA). The geo-

metric mean concentration of pertussis toxin-specific IgG was 8.45 ELISA U/mL for all infants and 4.63 ELISA U/mL for in- fants of adolescent mothers, which was a significant difference, Dr. Healy said.

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

BY SHARON WORCESTER
Southeast Bureau

CHARLESTON, S.C. — Sexu- ally transmitted diseases and bac- terial vaginosis are known to be as- sociated with elevated cervical proinflammatory cytokines in pregnancy, and interim results from an ongoing study suggest that vaginal flora that are oppor- tunistic pathogens also have such an effect.

Candida albicans, Escherichia coli, and group B streptococci are very frequent colonizers in asymptomatic women—women who are free of endocervical infection. However, these mi- croorganisms appear ready to start an inflammatory process, even when by local vaginal crite- ria they seem to be nonpathogen- ic 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 a pathogenic po-

ential by being associated with el- evated proinflammatory cytokines, she noted.

The women were sampled be- fore 16 weeks’ gestation, and some of them also were sampled later in pregnancy.

Cervical proinflammatory cyto- kines were considered elevated if they were at or above the 75th percentile on any sample, said Dr. Krohn of the University of Pitts- burgh.

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

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

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

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

Vaginal Flora Tied to Proinflammatory Cytokines in Pregnancy, Study Shows

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