Maternal Influenza Vaccination Benefits Baby

BY BETSY BATES

When women receive an influenza vaccine during pregnancy, their babies benefit, according to a series of studies presented at the annual meeting of the Infectious Diseases Society of America in Philadelphia.

Three separate studies highlighted during a press conference all reached the same conclusion: that maternal vaccination enhances the well-being of newborns and infants when pregnancies coincide with influenza season.

The "Mother's Gift Study," led by Dr. Mark C. Steinhoff of Cincinnati Children's Hospital Medical Center, tracked birth weights of infants born to 340 Bangladeshi mothers who were randomized to receive inactivated trivalent influenza (study group) or pneumococcal 23v vaccine (control) during the third trimester of pregnancy.

Efficacy of vaccination was determined by comparing flu-like respiratory illnesses with fever in the two groups over time, as the spread of the influenza virus waxed and waned.

During late 2004 and early 2005, little difference was seen in flu-like illnesses between the two groups. But during a peak period of flu infection—February 2005 to November 2005—there was a 49% reduction in such illnesses among vaccinated women.

Infants born to mothers immunized during flu season were significantly larger than those born to mothers who received the control vaccine during the same period—a mean 3,186 g compared with a mean 2,972 g for infants born to nonimmunized mothers.

The striking difference in birth weights suggests that, in addition to those who were overtly ill, many unvaccinated mothers were exposed to mild cases of influenza that may have had an effect on the nutrition delivered to the placenta, said Dr. Steinhoff.

The theory makes sense because many other mild infections, including urinary tract infections, have been known to have a similarly detrimental effect on the developing fetus, he said.

Evidence of healthier birth weights from a randomized controlled trial provide "very strong evidence that receiving the vaccination makes a difference," said Dr. Steinhoff.

Further support for maternal seasonal influenza vaccination came from Saad B. Omer, Ph.D., of Emory University's Rollins School of Public Health in Atlanta.

He presented results of a retrospective study of health records from the Georgia Pregnancy Risk Assessment Monitoring System (PRAMS) designed to calculate the impact of maternal influenza immunization on prematurity and birth weight in a U.S. population.

A total of 6,410 births occurred between June 2004 and September 2006, with just 15% of infants born to mothers who were immunized for influenza during their pregnancies.

Immunized mothers were 70% less likely to deliver prematurely during widespread influenza activity periods, with an odds ratio of 0.3 (0.1-0.7), he said.

When controlling for potential confounders, the likelihood of delivering a baby small for gestational age (SGA) was reduced by 70% as well, Dr. Omer reported at the press conference.

The study results remained significant even after controlling for maternal age, race, insurance status, and prepregnancy maternal weight.

In a third study, Yale University researchers investigated the impact of maternal immunization during pregnancy and the health of their infants from birth to 1 year of life. Preliminary results of a matched case-control study (157 cases, 195 matched controls) found a 79% reduction in hospitalization among the infants ages 0-12 months when their mothers were vaccinated during pregnancy, reported Dr. Mariette Vázquez, a pediatrician.

Protection appeared greatest (an 85% reduction in hospitalization) among the most vulnerable infants, those 6 months or younger.

Dr. Steinhoff reported that he has received research grants from Wyeth and Sarnoff-Aventis, companies that manufacture vaccinations. ■