Study looks at impact of different PCV13 schedules for preterm infants
by Melissa Jenco, News Content Editor

Several schedules for pneumococcal vaccination provide protection for preterm infants, but they do so at different times, according to a new study.


Compared to term infants, premature infants are at twice the risk of invasive pneumococcal disease and have shown lower immunoglobulin G concentrations for some serotypes after receiving 13-valent pneumococcal conjugate vaccine (PCV13), according to the study.

The Academy and Centers for Disease Control and Prevention recommend infants receive PCV13 at 2, 4, 6 and 12-15 months. However, other countries use different schedules. Researchers tried to assess the immunogenicity of three different schedules.

They randomly assigned about 200 preterm infants to receive PCV13 on a reduced schedule at 2 and 4 months; an accelerated schedule at 2, 3 and 4 months; or an extended schedule mirroring the Academy's at 2, 4 and 6 months. All children received a booster at 12 months.

After receiving the primary doses, roughly 75% of reduced schedule, 88% of accelerated schedule and 97% of extended schedule infants showed seroprotection for more than half of the PCV serotypes.

At 12 months of age, those on the extended schedule showed higher antibody concentrations than the other infants.

However, after all infants received a booster, those on the extended schedule had lower geometric mean concentrations than the other groups.

The finding suggests "that the higher pre-booster antibody concentrations at 12 months may have interfered with booster responses," according to the study.
Infectious Diseases, Vaccine/Immunization

Meanwhile, the reduced schedule produced "superior antibody concentrations," after the booster, authors said. There were no significant differences in adverse effects.

“Our results indicate that most preterm infants can achieve seroprotective antibody concentrations for the serotypes in PCV13 regardless of the primary schedule administered, especially after the 12-month booster, but the magnitude of their immunological response is dependent on the primary schedule they receive,” authors wrote.

In a related commentary, Mark H. Sawyer, M.D., FAAP, and Mobeen Rathore, M.D., FAAP, members of the AAP Committee on Infectious Diseases, said creating a vaccine schedule is complex.

“Vaccine schedules vary between countries, in part based on when disease risk is highest, the available vaccines, the population for which the recommendation is intended, programmatic considerations such as the timing of health visits, and in some cases, but not always, a detailed understanding of the immune response,” they wrote. "As illustrated in the current study of conjugated pneumococcal vaccine in preterm infants, there is room to learn more about the immune response to vaccines to refine our vaccine policies, and we won't all come up with the same answers.”

Resources

- AAP Red Book chapter on pneumococcal infections
- Information for parents on pneumococcal infections
- Information for parents on pneumococcal conjugate vaccine