RSV Diagnosis Not Based on Rapid or Viral Tests

Depend on history and exam to diagnose a disease that peaks in midwinter and early spring.

BY DOUG BRUNK
San Diego Bureau

LAS VEGAS — Respiratory syncytial virus infection is a clinical diagnosis based on patient history, physical exam, and the season of the year, Dr. Veda L. Ackerman said at a meeting sponsored by the American Academy of Pediatrics and its California Chapters 1, 2, 3, and 4.

"So if you try to tell me that you have a baby who is RSV positive on July 4th in your practice, I'm going to tell you that your RSV test has cross-reacted with another virus," said Dr. Ackerman, of the section of pulmonology and critical care in the department of pediatrics at the James Whitcomb Riley Hospital for Children, Indianapolis. "We do not see RSV in the summer in the United States. It peaks in midwinter and early spring."

You can use RSV rapid tests to make a diagnosis, but these "have both a high degree of false-negatives and a high degree of false-positives," she said. "You have to take that into consideration."

Even with viral cultures—which are traditionally the preferred method—there is a high false-negative rate due to the lability of the virus.

"So you can't take RSV positive or negative as a very good guideline for what you do," she explained. "As therapy is largely supportive, proving that the baby has RSV really shouldn't matter to you, except for potential infection control."

By age 2 years, 99% of children have been infected with RSV at least once and 36% have had a least 2 infections. This makes RSV "as contagious as varicella, and it has significant impact on missed days of school and missed days of work."

Factors that increase one's risk of acquiring RSV infection include maternal education of grade 12 or less, day care attendance, school-age siblings, lack of breast-feeding, two or more people sharing a bedroom, multiple births, passive smoke exposure, and birth within 6 months before onset of RSV infection.

Oximetry is one of the things that will help you tremendously in figuring out what to do with the child with asthma and the child with bronchiolitis.

"Obviously you're much better delivering your baby in March or April than you are in December," Dr. Ackerman said. "You're less likely to have that baby acquire RSV."

Clinical features of RSV infection include nasal flaring, chest wall retractions, tachypnea with apneic episodes, expiratory wheezing, prolonged expiration, rales and rhonchi, croupy cough, and hypoxemia and cyanosis. Tiny babies infected with RSV may present only with apnea.

In a study of 213 infants younger than 13 months who had bronchiolitis, the best predictor of more severe disease was an oxygen saturation level of less than 95% oximetry (Am. J. Dis. Child. 1991;145:151-5). "If you happen to not have [pulse] oximetry in your office, I urge you that it is one of the things that will help you tremendously, both in figuring out what to do with the child with asthma and what to do with the child with bronchiolitis," Dr. Ackerman said.

Treatment for RSV infection is mainly supportive and includes supplemental humidified oxygen, IV hydration if needed, proper nutrition, and ventilatory assistance for respiratory failure.

A trial of bronchodilators is appropriate, "but to continue them if there's no response is not appropriate," she warned.

Corticosteroids are not currently indicated for RSV infection but Dr. Ackerman said she would use them in a 9-month-old infant with a second or third episode of wheezing who happens to have RSV. "That's an asthmatic and that's a baby [in which] I would use corticosteroids."

She also would use them in a baby with RSV and congestive heart failure.

Efforts to delay RSV spread include limiting contact with infected people, enrolling your child in a day care facility with few children, and washing hands frequently.

The James Whitcomb Riley Hospital for Children is in the midst of a handwashing campaign. Parents are given a brochure on admission which urges them to ask, "Doctor, have you washed your hands?" every time they see a physician touch their child. "My answer is supposed to be, 'Yes, I have. Thank you for asking,' " Dr. Ackerman said.

Other efforts to prevent spread include disinfecting surfaces exposed to infectious secretions, grouping hospitalized patients with RSV, and promotion of breast-feeding.

One strategy to help prevent infection in high-risk premature infants is to administer palivizumab (Synagis), which has been shown to reduce RSV-related hospitalizations in this patient population by more than 50%. "The down side of Synagis is you have to give it before exposure and you have to give it every 30 days," Dr. Ackerman commented. "This is really a problem because you have to give it before you're ever exposed and you have to give it frequently."

She also noted that there are no data to address the use of palivizumab in children over 2 years of age or in those with cerebral palsy, neurologic disease, metabolic disease, or immunodeficiency.

Dr. Ackerman disclosed that she is on the speakers' bureau for GlaxoSmithKline Inc., maker of Zovirax (generic name acyclovir) and for AstraZeneca. ■

ProQuad May Be Second-Dose MMR, MMRV

BY HEIDI SPLETE
Senior Writer

A combination MMR-varicella vaccine can be substituted for the second dose of the MMR vaccine or for the second doses of coadministered MMR and varicella vaccines in children aged 4-6 years, reported Dr. Keith S. Reisinger of Primary Physicians Research in Pittsburgh, and his associates.

Dr. Reisinger and his colleagues found postvaccination seropositivity rates of nearly 100% for the combination measles, mumps, rubella, and varicella vaccine (ProQuad) in a randomized, double-blind multicenter study sponsored by Merck & Co., including 799 healthy children (Pediatrics 2006;117:265-72).

Dr. Reisinger serves as a speaker for Merck and receives research money from the company.

The children had received their primary doses of the measles, mumps, and rubella vaccine (Merck-brand MMRII vaccine) and the varicella vaccine (Varivax) at age 12 months or older at least 1 month before their enrollment in the study.

A total of 399 children received ProQuad as a single injection, plus a placebo, while 205 children received the standard MMRII plus a placebo, and 195 received MMRII plus Varivax. About half the children (53%) were male, most (79%) were white, and their mean age was 4 years.

Overall, the immune responses to all four viruses, as measured by geometric mean titers (GMTs), in children who received ProQuad were statistically similar to those in children who received the other vaccines, although there were differences in GMTs with respect to the individual viruses. The GMTs of antibodies to mumps alone were statistically lower in the ProQuad group, compared with the other groups, but the GMTs of antibodies to rubella and varicella in the ProQuad group were higher, compared with the other groups, Dr. Reisinger and his associates wrote.

No severe vaccine-related adverse events were reported, and the percentages of any adverse events were similar among the groups. The most common problems were fever, nasopharyngitis, and cough. There were no significant differences in injection-site adverse experiences in the ProQuad group, compared with the other groups.

The concentration of varicella vaccine virus was higher in the ProQuad vaccine than in the current Varivax varicella vaccine, but the concentrations of measles, mumps, and rubella viruses were the same as those in the current MMRII vaccine.

Dr. Reisinger said in an interview that the development of a combined vaccine to provide protection against four diseases—measles, mumps, rubella, and varicella (MMRV)—is an important step in children's health for a number of reasons. Although the utilization rates for MMR are approximately 93%, the rates for varicella vaccination have been significantly lower.

"The use of MMRV will increase varicella protection in a similar fashion that MMR did for lagging mumps and rubella vaccine utilization in the early '70s. Secondly, some parents and physicians are concerned about the high number of injections that infants receive in the first 2 years of life. The use of MMRV will be helpful in reducing the number of shots," he said.

"Although the above factors are important, the largest issue to me is the need [for the United States] to move toward a two-dose varicella policy. Every vaccine has a primary failure rate. For MMR this primary failure rate is corrected through the recommendation of two doses.

"The combination of lower utilization rates of varicella with the primary vaccine failure rate may allow many children to reach adulthood with susceptibility to varicella. Adults have a much higher rate of morbidity and mortality from a varicella infection.

"If the United States adopts a second varicella dose recommendation (as surely it must), then the combined MMRV administered at 4-6 years of age will be the vaccine of choice to accomplish this," he said. ■

Teethers Recalled For Bacterial Contamination

The First Years has recalled six liquid-filled teethers for infants age 3 months and older due to possible bacterial contamination.

The liquid inside the teethers may contain *Pseudomonas aeruginosa* and *Pseudomonas putida*, which can cause serious illness in children if the teether is punctured and the liquid is ingested. No illnesses have been reported to date in connection with this problem.

The six teethers affected include: Disney Days of Hunny Soft Cool Ring Teether (style #Y1447), Disney Soft Cool Ring Teether (style #Y1470), Disney Soft Cool Ring Teether (style #Y1490), The First Years Cool Animal Teether/Fish, Zebra, and Dinosaur designs (style #Y1473), The First Years Floating Friends Teether (style #Y1474), and Sesame Beginnings Chill & Chew Teether (style #Y3095).

The teethers were sold nationwide by major retailers and grocery, drug, and specialty stores from July 2005 to January 2006. Consumers are advised to stop using the recalled products immediately and can contact The First Years by visiting www.thefirstyears.com or by calling 866-725-4407.

—Kerri Wachter