

EXPERT COMMENTARY

Let's Reexamine the Treatment of URIs

The data from three studies should prompt us to reexamine our approach to the management of upper respiratory infections in children.

Guidelines from the American Academy of Pediatrics recommend antimicrobial treatment for children with upper respiratory symptoms lasting longer than 10-14 days or for those with severe symptoms, including a high fever and toxicity (Pediatrics 2001;108:798-808).

The Sinus and Allergy Health Partnership Guidelines—to which I contributed—also advised antimicrobial treatment for children with signs and symptoms of viral upper respiratory infection (URI) for more than 10 days or worsening symptoms after 5-7 days (Int. J. Pediatr. Otorhinolaryngol. 2002;63:1-13).

Now data suggest that we perhaps should consider antibiotic treatment only for children whose symptoms are worsening after 10 days.

The recommendation to treat rhinorrhea beyond 10 days with antibiotics as presumptive bacterial sinusitis requires a subjective judgment, and is based on small data sets. This is problematic when we're trying to limit antimicrobial use to times when there is definite benefit. It's also been difficult to follow in practice, because parents often bring in a child who has had symptoms for fewer than 10 days. We're not supposed to treat at that point unless they have acute toxicity, but there can be a lot of real or perceived pressure to prescribe.

In fact, the 10-day rule appears to derive from a 40-year-old study on rhinovirus in adults (JAMA 1967;202:494-500). It wasn't until earlier this year that good data became

available regarding the symptom profile of colds in otherwise healthy school-aged children. In that study, which utilized nasopharyngeal aspirates and symptom diaries, 73% of 81 children with colds continued to be symptomatic 10 days after onset (Pediatr. Infect. Dis. J. 2008;27:8-11).

These new findings suggest we've probably been overtreating a proportion of school-aged children—for bacterial sinusitis—when they actually have had mild to moderate upper respiratory symptoms. Further, these data should provide reassurance that we're not putting such patients at risk for invasive complications if we don't treat before 10 days of illness, as long as they do not fit the acute severe criteria or the symptoms aren't getting rapidly worse.

Data from another recent study suggest that children with acute sinusitis who are destined to develop subperiosteal orbital abscess (SPA) typically do so well before 10 days of rhinorrhea. In this 10-year retrospective chart review from a tertiary pediatric center, 39 children required operative drainage for SPA, with only a mean of 1.6 days of antibiotics prediagnosis in just 10 (26%). Of the 28 children presenting with fever, the mean duration was 2.5 days. Only 28 had rhinorrhea/mucoid discharge, and that for a mean duration of 3.9 days (Int. J. Pediatr. Otorhinolaryngol. 2007;71:1003-6). Thus, complications arose in the first days of symptoms, even among those children on antibiotics.

Since it's not feasible—or wise—to give antibiotics to every child with cold symptoms in order to prevent SPA, the authors concluded that "SPA may not be a pre-

ventable complication of acute sinusitis in children" using standard oral antibiotics. Indeed, this paper suggests that children destined to develop complications are by and large not the ones who appear in your office with mild symptoms at days 4 to 7.

If the child has high fever and facial pain or swelling, there's little question you're going to treat. But for those without clear signs of toxicity or rapidly progressing disease, complications seem unlikely after 4 days.

A third study, of pneumococcal mastoiditis complicating acute otitis media (AOM), suggests that severe complications of URIs in children are becoming more difficult to treat with our usual oral drugs because of the emergence of multidrug-resistant pneumococcal serotype 19A, a strain that is not included in the 7-valent pneumococcal conjugate vaccine (PCV7).

Of 41 children with pneumococcal mastoiditis (mean age 23 months, range 3 months–12 years) seen at Texas Children's Hospital, Houston, between January 2005 and June 2007, 19 cases were caused by 19A. That strain was responsible for all cases of pneumococcal mastoiditis seen in 2006 and 2007, compared with just three of six seen between 2004 and 2005, and just one of two in 2003 (Pediatrics 2008;122:34-9).

Even more worrisome, all of the children with 19A mastoiditis had SPA, compared with only 2 of the 22 children with non-19A mastoiditis. Mastoidectomy was required in 17 of the 19A group (89%) compared with just 10 (45%) of those with non-19A strains. Thirteen of the 19A isolates (68%) were resistant to all antibiotics tested routinely.

These data correspond to what I've been seeing at my institution. We're seeing less otitis and sinusitis overall since the introduction of PCV7 in 2000. A concern in the last 2-3 years is that the incidence of diffi-

cult-to-treat pneumococcal mastoiditis—nearly all due to 19A—has risen among the difficult-to-treat AOM that does occur. In fact, I'm now seeing as much serious invasive pneumococcal disease as before PCV7 was licensed, nearly half due to 19A.

There are two messages here. First, if you withhold antibiotics for 10 days in a nontoxic child with rhinorrhea, according to the guidelines, you probably aren't putting him or her at any greater risk for complicated sinus disease; even treating then is likely to overtreat a proportion of children. Second, we may need a new strategy for persistent or complicated AOM when 19A is the pathogen. These cases may not even respond to clindamycin or three doses of ceftriaxone and may require linezolid or a quinolone (JAMA 2007;298:1772-8) despite the new Food and Drug Administration black box warning on quinolones, usually along with a subspecialty consultation.

But there is some hope. Wyeth Pharmaceuticals, which partially funded the Texas mastoiditis study, said at the end of May that the FDA has granted fast-track designation to the company's investigational 13-valent pneumococcal conjugate vaccine for infants and toddlers. That vaccine contains 19A as well as serotypes 1 and 3, the most common causes of empyema.

It's becoming obvious that we will need to stay ahead of the game from now on. Ongoing surveillance will be critical as we move forward.

I have no current disclosures for any products mentioned in this article. ■

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BY CHRISTOPHER J. HARRISON, M.D.

One in Four Teen Girls Got At Least One HPV Vaccine Dose

BY LORINDA BULLOCK
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A survey providing the first estimates for a human papillomavirus vaccination found that 25% of girls aged 13-17 had received at least one dose of the vaccine, according to the Centers for Disease Control and Prevention.

"This was very good for a first-year measurement for a new vaccine," said Dr. Lance Rodewald, director of the division of immunization services at the CDC's National Center for Immunization and Respiratory Diseases.

But while coverage rates for routinely recommended vaccines among U.S. teens are increasing, the number of adolescents fully immunized against diseases such as pertussis and meningitis is not yet at the 90% goal set by a government-led initiative.

The Healthy People 2010 initiative set goals for youths 13-15 years of age with three doses of hepatitis B vaccine, two doses of measles, mumps, and rubella vaccine, one dose of tetanus-diphtheria or

tetanus, diphtheria, and acellular pertussis vaccine, and one dose of varicella vaccine for those who had not had chickenpox.

Healthy People 2010 did not include a goal for the HPV vaccine because it is still so new. The quadrivalent human papillomavirus (HPV4) is complete at three doses. Dr. Rodewald said an estimated 2.5 million 13- to 17-year-old girls have received the vaccine to date.

At a briefing, Dr. Rodewald presented results from the second National Immunization Survey (NIS-Teen), which he described as a national "report card on the implementation of the vaccines."

During the last quarter of 2007, parents of children between the ages of 13 and 17 were interviewed about their child's vaccination history. The survey included 3,000 adolescents as participants, split almost evenly between boys and girls. The 13- to 17-year-old age group was selected because, according to Dr. Rodewald, the vaccines are targeted to 11- and 12-year-olds.

For HPV in particular, Dr. Rodewald

said, 11- and 12-year-olds have a "very strong and robust" immune response that adds further protection that will last through the later, riskier periods. He also said the HPV vaccine can provide up to 6 years of protection.

"You always want to vaccinate before the period where there could be disease, and so it's very important to vaccinate before the onset of sexual activity, and [ages 11 and 12 years], of course, is before the onset of sexual activity, so this provides protection in anticipation of exposure later on in life," he said.

The numbers for the Tdap were also particularly encouraging, Dr. Rodewald said. Vaccinations increased from 10.8% in 2006 to 30.4%. For a "new vaccine in its second year of recommendation [30.4%] is very good because it usually takes 6 to 9 years to achieve the desired 90% coverage."

Compared with the 2006 estimates, Dr. Rodewald said, other areas of improvement included the following:

► Vaccination coverage levels for three or

more doses of hepatitis B and two or more doses of MMR vaccine were more than 80%, very close to the Healthy People 2010 goal.

► The one dose coverage of varicella vaccine, which protects against chickenpox, was 75.7%, but coverage with the new recommended two doses was low at 18.8% among preteens and teens without previous history of the disease.

► Of the adolescents surveyed, 32.4% received the meningococcal conjugate vaccination, compared with 11.7% in 2006.

Dr. Rodewald praised parents, doctors, and nurses for getting young children and adolescents vaccinated to improve the survey numbers, but he also encouraged them to continue to make sure these patients get the proper immunizations.

"The bottom line for the report card is we've got a great start for teens, but we need to keep this positive momentum going in order to provide the protection from infectious diseases that all teens should have." ■