Data from a number of surveys have suggested there has been a decrease in antibiotic resistance since the introduction of the conjugate vaccine, but, said Dr. Kaplan, that may no longer be true. The rate of penicillin nonsusceptible infections may actually be increasing again. Although the number of cases caused by serotypes in the vaccine has declined, the number of cases caused by serotypes not in the vaccine has increased, and it is those serotypes that seem to be acquiring more resistance.

The incidence of invasive disease caused by penicillin nonsusceptible pneumococci in children younger than 2 years has increased since 2002. And, considering only isolates that are not in the vaccine, it has increased from 51% in 1999 to 68% in 2004, Dr. Kaplan said.

“It looks like these nonvaccine serotypes are more likely to be penicillin nonsusceptible today than they were 5 years ago,” he said.

A group from Salt Lake City has seen an increase in pediatric cases of pneumococcal pneumonia complicated with empyema since the introduction of the vaccine. Moreover, the serotypes associated with these cases tend to be serotypes 1, 3, and 19A, which are not in the vaccine.

Serotypes 3 and 19A became common after the introduction of the conjugate vaccine, he said. Since the introduction of the conjugate vaccine, serotypes 3 and 19A, which are not in the vaccine, represented only 17% of the cases of identified invasive pneumococcal disease seen at that center in the years before the vaccine was introduced, but 32% of the cases afterward (Pediatr. Infect. Dis. J. 2002:25-250-4). Serotype 1 was the most common serotype associated with the empyema both before (46%) and after (34%) the vaccine was introduced.

Serotypes 3 and 19A became common after the vaccine (20% and 14%, respectively).

“I can’t explain this, but they are seeing more cases with more nonvaccine types,” Dr. Kaplan said, noting that the vaccine may have to be updated with at least some of these emerging strains. “How will we address that down the road will have to be seen. It is an expensive vaccine.”

Adacel Shortage Should Resolve by 2007

A temporary shortage in the supply of Adacel—the tetanus-diphtheria-pertussis vaccine marketed by Sanofi-Pasteur—is expected to last until the end of the year. Bostrix, the Tdap booster vaccine manufactured by GlaxoSmithKline, is in good supply, according to the Centers for Disease Control and Prevention. Adacel (tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine adsorbed) is indicated as a booster for adolescents and adults aged 11-64 years, while Bostrix is indicated for adolescents aged 10-18 years. For information about Adacel availability, call Sanofi-Pasteur at 877-VACCINE.

The supply shortage of Adacel is expected to be resolved by the end of 2006, said Susan Watkins, a spokesperson for Sanofi-Pasteur.

Identify Risk Factors to Guide Pneumonia Therapy

BY MARY ELLEN SCHNEIDER
New York bureau

DALLAS — Selection of an antibiotic for the treatment of community-acquired pneumonia should be based on the severity of the illness, coverage of common pathogens, and presence of factors that increase the risk for aspiration and/or infection with antibiotic-resistant organisms. Dr. Horace M. DeLisser said at the annual meeting of the National Medical Association.

Physicians shouldn’t wait for culture results before treating. Instead, they should rely on the history to identify risk factors that will require modifying the treatment plan, said Dr. DeLisser of the pulmonary, allergy, and critical care division of the University of Pennsylvania, Philadelphia.

To determine whether the patient should be treated on an inpatient or outpatient basis, physicians can use the pneumonia severity index, a widely utilized and rigorously studied prediction rule, he said.

The index is based on 20 parameters that are commonly available at presentation, including demographic information, exam findings, and lab and imaging results. Each parameter is assigned a specific point value that allows physicians to stratify patients into five risk classes.

Classes 1-3 are low risk, class 4 is moderate risk, and class 5 is high risk. Generally, patients in risk classes 1 and 2 are treated on an outpatient basis, those in risk classes 4 and 5 are treated as inpatients, and those in class 3 may be treated as outpatients or admitted briefly, Dr. DeLisser said.

“You must always use judgment, particularly if there are other psychosocial or emotional factors,” he said.

Dr. DeLisser advised physicians not to wait for the culture to come back. Between 40% and 60% of patients will have no pathogens identified, and for inpatients, early administration of antibiotics decreases mortality, he said. Instead, physicians should take into account the modified risk factors for infections, such as residence in a nursing home, underlyng disease, and recent antibiotic therapy.

Several organizations in the United States, Europe, and Asia have developed guidelines for the treatment of community-acquired pneumonia. The following treatment recommendations are based on guidelines developed by the American Thoracic Society (www.thoracic.org/sections/publications/statements/pages/mtpi_commacq.html).

► In otherwise healthy adults without modifying risk factors, use an advanced-generation macrolide, such as azithromycin or clarithromycin. Another option for this group is treatment with doxycycline.

► For outpatients with comorbid disease or modifying risk factors, use a respiratory fluoroquinolone alone, or β-lactam plus an advanced-generation macrolide.

► For otherwise healthy inpatients who are not in the ICU, use an intravenous respiratory fluoroquinolone alone or intravenous β-lactam plus an intravenous azithromycin alone.

► For inpatients with comorbid disease or modifying risk factors, use intravenous respiratory fluoroquinolones alone or a combination of intravenous azithromycin plus intravenous β-lactam.

► Patients in the ICU who do not have risk factors for Pseudomonas aeruginosa infection can be treated with intravenous β-lactam plus an intravenous azithromycin.

When treating with intravenous an- tibiotics in the ICU, use intravenous respiratory fluoroquinolones alone.

► Those patients at risk for P. aeruginosa infection can be treated with intravenous antipseudomonal β-lactam plus intravenous antipseudomonal fluoroquinolone. Another option is treatment with intravenous antipseudomonal β-lactam plus intravenous aminoglycoside plus an intravenous azithromycin or intravenous antipseudomonal fluoroquinolone.

Most patients will become clinically stable within 5-7 days. Treatment is recommended for a minimum of 5-7 days and for at least 48 hours after reaching clinical stability, Dr. DeLisser said. Longer treatment—between 10 and 14 days—may be required for patients with infections caused by Staphylococcus aureus, P. aeruginosa, or Legionella species.

Infections can be discharged once their vital signs have been stable for a 24-hour period, they are able to take oral antibiotics, they can maintain adequate nutrition and hydration on their own, their mental status is back to baseline, and they have no other active clinical or psychiatric issues.

If the pneumonia does not resolve, consider microbial resistance to the initial antimicrobial regimen, supportive complications of the infection, or subsequent development of nosocomial pneumonia, Dr. DeLisser said.