Mix-Ups Are Occurring Among Several Vaccines

BY PATRICE WENDLING
Chicago Bureau

MIAMI BEACH — Inadvertent misadministration can occur with several new vaccines that are commonly used, Dr. Larry Pickering said at the annual Masters of Pediatrics conference sponsored by the University of Miami.

One potential source of confusion involves the two new tetanus toxoid, diphtheria toxoid, and acellular pertussis (Tdap) vaccines licensed in 2005 for adolescents and adults, and the diphtheria, tetanus, and pertussis (DTaP) vaccine licensed in 1991 for children 6 weeks to 6 years of age.

One of the reasons for the confusion is that the labeling and packaging are very similar for Adacel (Tdap) and Daptacel (DTaP), Dr. Pickering said.

Sanofi Pasteur, maker of Adacel and Daptacel, confirms it has received reports of misadministration, more commonly involving adults being given the pediatric formulation, Donna K. Cary, director of public relations for Sanofi, said in an interview.

"For many years, DTaP was just a pediatric product, and it wasn't until just recently that we had Adacel for adults and adolescents, and GlaxoSmithKline has Boostrix," Ms. Cary said. "I think it's that there is a new vaccine. The packaging is actually quite different."

The company has started tracking reports of misadministration and is looking at ways to make the two products more distinct, such as noting on the label that Daptacel is for infants, she said. The Adacel label already states it is for adolescents and adults.

Until such changes are made, Dr. Pickering said, he keeps the two vaccines straight in his mind by remembering that Adacel and adult both begin with the letter A.

Dr. Pickering is unaware of any reports of mix-ups occurring with GlaxoSmithKline's Boostrix (Tdap) and Infanrix (DTaP) vaccines. No reports of misadministration of its products have been reported to GlaxoSmithKline, spokeswoman Liad Diamond said in an interview.

If an adolescent or adult inadvertently receives DTaP, the vaccine doesn't have to be repeated, although the patient may have increased reactions because the antigen contents are higher, Dr. Pickering said. If Tdap is given to an infant or child, the antigen contents are much lower and the dose will have to be repeated.

The labeling and packaging for Adacel (the Tdap vaccine for adolescents and adults) is very similar to that of Daptacel (the DTaP vaccine for children aged 6 weeks to 6 months), and misadministration has been reported.

A second kind of vaccine mix-up has been reported involving the meningococcal polysaccharide vaccine that has been used subcutaneously for decades in the United States. The newer tetravalent meningococcal conjugate (MCV4) vaccine, licensed in the United States in January 2005, is for intramuscular use only.

The different routes of administration create an "automatic opportunity for confusion," said Dr. Pickering, professor of pediatrics at Emory University and senior advisor to the director of the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention, both in Atlanta.

Indeed, 101 people in seven states have reportedly received subcutaneous administration of the MCV4 vaccine, according to an investigation by the CDC (MMWR 2006;55:1016-17).

There were 12 nonserious adverse events, including 11 local reactions and a report of fever for 1 day among 54 people queried by providers as a result of the investigation. Serology results from 38 people vaccinated by the subcutaneous route indicate that although their titers were lower than those of patients vaccinated by the intramuscular route, the subcutaneously vaccinated patients were sufficiently protected and didn't need revaccination.

Finally, the Advisory Committee on Immunization Practices recently received reports of adults accidentally receiving the new adult zoster (Varivax) vaccine used to prevent the varicella zoster virus in patients 12 months of age and older, and of infants receiving the Zostavax vaccine used to prevent herpes zoster in adults 60 years of age or older.

Even though all varicella products are made from the same varicella-zoster bulk lots, the zoster vaccine concentration is 14 times higher than the varicella vaccine concentration, Dr. Pickering noted.

If the varicella vaccine is given to an adult, it might not work because of the lower vaccine content, he said. In case of such a mix-up, an adult should then receive the correct zoster vaccine.

If zoster vaccine is inadvertently given to a small child, the dose should count, but reactions might be greater and could include local skin reactions, low-grade fever, and the development of vesicular lesions around the injection site. ■

Allergies to Other Drugs May Predict Penicillin Allergy

SAN DIEGO — People who report allergies to other drugs were more than 27 times as likely to report a penicillin allergy as people who reported no other drug allergies, Dr. Andrea J. Apter reported in a poster presentation at the annual meeting of the American Academy of Allergy, Asthma, and Immunology.

Other statistically significant predictors of penicillin allergy were a family history of penicillin allergy and a personal history of asthma, allergic rhinitis, or atopic dermatitis, wrote Dr. Apter of the University of Pennsylvania, Philadelphia, and her colleagues.

The study involved 24 adults with penicillin allergies and 39 age-matched controls with no allergies to penicillin.

Patients were judged to have a penicillin allergy if they responded positively to the questions, "Are you allergic to penicillin or its derivatives (for example, amoxicillin, Augmentin, ampicillin, dicloxacillin, piperacillin, ticarcillin)? By allergic reaction, did you have hives, angioedema, wheeze, hypotension, or anaphylaxis following a dose of this antibiotic?"

The patients completed a questionnaire on health-related matters, such as whether they had asthma, allergic rhinitis, or eczema; were currently taking more than two medications; or had more than two current medical diagnoses.

After controlling for age and atopy, the researchers found statistically significant associations between penicillin allergy and allergies to other drugs (odds ratio, 27.4) and between a personal history of penicillin allergy and a family history of penicillin allergy (OR, 8.8). After controlling for age, they found a statistically significant association between penicillin allergy and atopy (OR, 3.5).

—Robert Finn

FDA Warning Ties Linezolid Use to Mortality From Catheter Infections

BY ELIZABETH MECHCATIE
Senior Writer

The Food and Drug Administration has issued an alert about a higher rate of deaths associated with the antibiotic linezolid in a recent study of patients with catheter-related bloodstream infections.

For patients infected with gram-positive organisms, there was no difference in death rates between patients on linezolid (Zyvox) and patients on a comparator antibiotic. "In contrast, mortality was higher in patients treated with linezolid who were infected with gram-negative organisms alone, with both gram-positive and gram-negative organisms, or who had no infection when they entered the study," according to the FDA advisory.

Linezolid is not approved for treating catheter-related bloodstream infections, catheter-site infections, or for treating infections caused by gram-negative bacteria, the FDA cautioned.

The open-label trial enrolled 726 seriously ill patients aged 13 years and older with intravascular catheter-related bloodstream infections, including those with catheter-site infections. Almost half the patients were in an intensive care unit, and 26% were intubated. Patients were randomized to either linezolid 600 mg intravenously or orally every 12 hours, or to 1 g of vancomycin administered every 12 hours for 7-28 days. Those on vancomycin could be switched to oxacillin or dicloxacillin if the pathogen was methicillin susceptible, and could also receive concomitant therapy for gram-negative infections.

Up to 84 days after receiving the first dose of the drug, mortality was 21.5% in patients on linezolid and 16% in patients on a comparator antibiotic. In patients with gram-positive infections only, mortality was similar for patients on linezolid and those on a comparator (16.7% vs. 17.2%, respectively).

But among those with gram-negative organisms only, 27% of patients taking linezolid died, vs. 9% of those on a comparator. Among patients with gram-positive and gram-negative pathogens, 35% of those on linezolid died, vs. 18% of those on a comparator. Among patients with no infection at baseline, 26% of those on linezolid died, vs. 13% of those on a comparator.

The FDA cautioned that the advisory is based on a preliminary analysis of the data, and that the agency has not come to any final conclusions about the implications of this new study. ■

Information for health care professionals is available at www.fda.gov/medwatch/safety/2007/safety07.htm#Zyvox. Serious adverse reactions can be reported to FDA's MedWatch program at 800-332-1088 or www.fda.gov/medwatch.