Health Alerts

Health Update #162 - Pertussis Update - February 15, 2006

New Vaccines and Treatment Guidelines for Pertussis

Pertussis is on the rise in the United States, particularly among adolescents and adults. Beyond infancy, pertussis infections can be mild. Studies have documented that pertussis infections in adolescents and adults are often the source of pertussis in young children.

The recent Advisory Committee on Immunization Practices (ACIP) recommendations for universal use of acellular pertussis vaccines (Tdap) in adolescents and adults may be the most effective measures in controlling pertussis. ACIP recommends:

- Routine Tdap at 11 to 18 years
  - universal Tdap at 11 to 12 years
  - catch-up Tdap at 13-18 years for missed does of Td/Tdap at 11 to 12 years
- Routine Tdap for adults
  - Special efforts to give Tdap to adults who have infant contact available at: www.cdc.gov/nip/vaccine/tdap/tdap_adult_recs.pdf.

In December 2005, the Centers for Disease Control and Prevention (CDC) published recommendations to broaden the spectrum of antimicrobial agents that are available for treatment and postexposure prophylaxis of pertussis (CDC. Recommended Antimicrobial Agents for the Treatment and Post-Exposure Prophylaxis of Pertussis. MMWR 2005;54(RR14):1-16. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm). These guidelines detail the epidemiology, diagnosis, treatment and prevention for pertussis. They include updated information on macrolide agents (azithromycin and clarithromycin) other than erythromycin and their dosing schedule by age group. See below.

Epidemiology

- 25,827 cases reported in the United States in 2004, the highest number of reported cases since 1959.
- Approximately 60% of cases are in adolescents and adults.
- Incubation period 5-21 days; usually 7-10 days.
- Highly contagious; 80% secondary attack rates among susceptible persons.

Clinical Findings

- Catarrhal period (1-2 weeks): illness onset insidious (coryza, mild fever, and nonproductive cough); infants can have apnea and respiratory distress.
- Paroxysmal period (2-6 weeks): paroxysmal cough, inspiratory "whoop," postrussive vomiting.
- Convalescent period (>2 weeks): paroxysms gradually decrease in frequency and intensity.

Laboratory testing (see additional comments below)

- Culture of nasopharyngeal aspirate of Dacron swab for Bordella pertussis on Regan Lowe or Bordet-Gengou culture medium.
- OR
- Detection of B. pertussis DNA by polymerase chain reaction (PCR) as qualified in comments (see below).
- Not helpful to test contacts without respiratory symptoms.

Recommended treatment

TABLE 4. Recommended antimicrobial treatment and postexposure prophylaxis for pertussis, by age group

	Primary agents			Alternate agent*
Age group	Azithromycin	Erythromycin	Clarithromycin	TMP-SMZ
<1 month	Recommended agent. 10 mg/kg per day in a single dose for 5 days (only limited safety data available.)	Not preferred. Erythromycin is associated with infantile hypertrophic pyloric stenosis. Use if azithromycin is unavailable; 40–50 mg/kg per day in 4 divided doses for 14 days	Not recommended (safety data unavailable)	Contraindicated for infants aged <2 months (risk for kernicterus)
1–5 months	10 mg/kg per day in a single dose for 5 days	40–50 mg/kg per day in 4 divided doses for 14 days	15 mg/kg per day in 2 divided doses for 7 days	Contraindicated at age <2 months. For infants aged ≥2 months, TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days
Infants (aged ≥6 months) and children	10 mg/kg in a single dose on day 1 then 5 mg/kg per day (maximum: 500 mg) on days 2–5	40–50 mg/kg per day (maximum: 2 g per day) in 4 divided doses for 14 days	15 mg/kg per day in 2 divided doses (maximum: 1 g per day) for 7 days	TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days
Adults	500 mg in a single dose on day 1 then 250 mg per day on days 2–5	2 g per day in 4 divided doses for 14 days	1 g per day in 2 divided doses for 7 days	TMP 320 mg per day, SMZ 1,600 mg per day in 2 divided doses for 14 days

* Trimethoprim sulfamethoxazole (TMP–SMZ) can be used as an alternative agent to macrolides in patients aged ≥2 months who are allergic to macrolides, who cannot tolerate macrolides, or who are infected with a rare macrolide-resistant strain of *Bordetella pertussis*.

Postexposure prophylaxis

- Administer course of antibiotic to close contacts within 3 weeks of exposure, especially in high-risk settings; same doses as in treatment schedule.

Prevention and Surveillance

- Vaccinate children aged 6 weeks - 6 years with diphtheria, tetanus toxoid and acellular pertussis vaccine (DTaP) and adolescents 11-18 years with tetanus toxoid, diphtheria, and acellular pertussis vaccine (Tdap).
- Report all cases to local and state health departments.

Comments

- The clinical case definition is appropriate for endemic or sporadic cases. In outbreak settings, a case might be defined as a cough illness lasting > 2 weeks.

- No assay in the United States is validated and standardized. Although these PCR assays might meet the state and CLIA requirements for analytical and clinical validation, no data is available on interlaboratory validation, including clinical sensitivity and specificity. For all these reasons and because in general PCR is less specific than culture, PCR-positive cases with cough < 14 days duration should not be reported as confirmed.
- Because some studies have documented that direct fluorescent antibody (DFA) testing of nasopharyngeal secretions has low sensitivity and variable specificity, DFA testing is not a criteria for laboratory confirmation of a case for national reporting purposes.
- Serologic testing for pertussis is commercially available but is not approved by the U.S. Food and Drug Administration for diagnostic use and, therefore, generally should not be used and relied on as a criterion for laboratory confirmation for national reporting purposes.