Epitomes

Important Advances in Clinical Medicine

Preventive Medicine and Public Health

The Scientific Board of the California Medical Association presents the following inventory of items of progress in preventive medicine and public health. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in preventive medicine and public health that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Preventive Medicine and Public Health of the California Medical Association and the summaries were prepared under its direction.

Reprint requests to Division of Scientific and Educational Activities,
California Medical Association, 44 Gough Street, San Francisco, CA 94103

Preventing Influenza in the Elderly

STUDIES HAVE consistently shown that the elderly and those with certain medical conditions are at the highest risk for morbidity and mortality due to influenza virus infections. Influenza and pneumonia remain the fourth leading cause of death in the elderly. The US Public Health Service's Advisory Committee on Immunization Practices recommends that the elderly and other high-risk groups be vaccinated annually against influenza infection. However, the recommendation has been based primarily on extrapolated efficacy data from younger populations, rather than on data directly documenting vaccine efficacy in elderly populations. Also, the recommendation is generally not followed. In national surveys, only about 20% of high-risk patients are vaccinated annually.

Vaccination of nursing home elderly patients may be particularly important. Epidemics of influenza in nursing homes are associated with high morbidity and mortality, and more data have accumulated regarding vaccine efficacy in this setting. In a recent study of the influenza A epidemic in Michigan between December 1982 and March 1983, vaccinated nursing home residents were less likely to become ill, have development of pneumonia, be admitted to hospital or die. Although the reported vaccine efficacy of 28% to 37% inferred from attack rates was considerably lower than usual estimates of efficacy, these results suggest that, at least in nursing home patients, influenza vaccination may attenuate infection even if it does not prevent it. These data also show significant noncompliance. Even though physicians routinely ordered flu shots for the Michigan nursing home patients, 46% of patients were not vaccinated because they refused or because relatives did not give consent.

In a recent longitudinal, prospective study of attitudinal risk factors for noncompliance, patients' attitudes about influenza vaccine effectiveness, vaccine side effects and their physicians' opinion of influenza vaccination strongly predicted compliance with flu shots in two consecutive flu seasons. Overall, patients' behavior regarding flu vaccination was consistent during the two flu seasons. Compliance changed in 10% to 15% of patients, primarily associated with changes in attitudes about side effects of influenza vaccine. A combination of physician counseling and efforts to identify and contact high-risk patients may improve compliance. Annually mailing letter reminders combined with physician counseling have gradually increased a clinic's vaccination rates to more than 70%.

DAVID M. BUCHNER, MD, MPH
Seattle

REFERENCES

Buchner DM, Carter WB, Inui TS: The relationship of attitude changes to compliance with influenza immunization: A prospective study. Med Care 1985 Jun; 23:771-779

Prevention and control of influenza—Recommendation of the Immunization Practices Advisory Committee. MMWR 1984 May 18; 33:253-260, 265-266

Patriarca PA, Weber JA, Parker RA, et al: Efficacy of influenza vaccine in nursing homes. JAMA 1985 Feb; 253:1136-1139

Clinical Basis for Treating Presumptive Chlamydial Infection

Chlamydia trachomatis is our most common sexually transmitted pathogen and is responsible for an estimated 3 million cases of infection annually in the United States. The most common presentation is nongonococcal urethritis in men, but the most important consequences of chlamydial infection—acute salpingitis, tubal factor infertility and probably ectopic pregnancy—occur in women. *C trachomatis* also causes inclusion conjunctivitis and pneumonia in young infants.

The accurate diagnosis of chlamydial infection, not available in most clinical settings, depends on expensive tissue culture isolation procedures. Because chlamydial infections

occur at high rates in certain clinical conditions, the Centers for Disease Control recommend antichlamydial therapy—500 mg of tetracycline four times a day for seven days—for persons with those findings and for their sex partners.

Heterosexual patients with gonorrhea and their partners should be treated for chlamydial infection because about 20% of men and 40% of women with gonococcal infections also have chlamydial infection.

Other conditions that call for presumptive therapy in men are nongonococcal urethritis and epididymo-orchitis; treatment should be given for at least ten days. For women, mucopurulent endocervicitis or acute salpingitis call for antichlamydial therapy, salpingitis requiring multiple drug therapy to cover all pathogens. Again, therapy should be given for at least ten days.

Infants with inclusion conjunctivitis or *Chlamydia* pneumonia and their parents should also be treated. Erythromycin is the drug of choice for treating infants and pregnant women.

Chlamydial cultures should be used preferentially for testing persons who would not be treated on a presumptive basis. Groups benefiting from screening include young, particularly adolescent, sexually active women and pregnant women in socioeconomic circumstances that suggest a high risk for sexually transmitted disease.

Recently introduced nonculture methods may make chlamydial diagnosis more widely available and less expensive. More experience is needed, however, to assess the performance profiles of these tests to best determine how they can be used. Because all nonculture methods have some false-positive results, they should not be used for screening in low prevalence settings.

JULIUS SCHACHTER, PhD
San Francisco

REFERENCES

Prepared by the participants at a CDC workshop: Sexually transmitted disease: Treatment guidelines, 1982. Rev Infect Dis 1984; 4(suppl):S729-S746

Schachter J: Chlamydial infections (three parts). N Engl J Med 1978; 298:428-435, 490-495, 540-549

Schachter J, Grossman M: Chlamydial infections. Annu Rev Med 1981; 32:45-61

Schachter J, Stoner E, Moncada J: Screening for chlamydial infections in women attending family planning clinics—Evaluation of presumptive indicators for therapy. West J Med 1983 Mar; 138:375-379

Tam MR, Stamm WE, Handsfield HH, et al: Culture-independent diagnosis of Chlamydia trachomatis using monoclonal antibodies. N Engl J Med 1984 May 3; 310:1146-1150

Polysaccharide Vaccine for Preventing *Hemophilus influenzae* Type b Disease

A POLYSACCHARIDE VACCINE for preventing invasive diseases caused by *Hemophilus influenzae* type b (Hib) was recently licensed by the US Food and Drug Administration (Hemophilus b polysaccharide vaccine; b-Capsa I, Mead Johnson).* *H influenzae* type b is the leading cause of bacterial meningitis in the United States and an important cause of other systemic illness. An estimated 20,000 cases of *H influenzae* type b occur annually; 1 out of 200 children will have an episode of invasive *H influenzae* type b before reaching their fifth birthday. In spite of antibiotic therapy, 5% to 10% of patients die and 25% of the patients with meningitis who survive will have neurologic sequelae. The incidence of this disease is highest in young children and declines rapidly with increasing age. In two recent studies, there was a significantly increased risk of primary *H influenzae* type b in children attending day care. Children with asplenia, sickle cell disease, Hodgkin's disease and antibody-deficiency syndromes are also at increased risk of this disease.

The recently licensed Hib vaccine consists of the purified polysaccharide capsule of the organism. Like other capsular polysaccharide vaccines (meningococcal and pneumococcal vaccine), the vaccine produces minimal adverse reactions, but it is poorly immunogenic in young children. The vaccine elicits an antibody response likely to be protective in children 18 to 20 months old; geometric mean antibody titers rise with age. A prelicensure clinical trial in Finland showed 90% efficacy in children 18 to 71 months of age, but no efficacy in children younger than 18 months. There were insufficient numbers in each age category in this study to assess efficacy in children 18 to 23 months of age, although no cases occurred in the four-year follow-up of 4,000 children in this age group who received the vaccine. An efficacy trial is currently under way on a new Hib vaccine consisting of a covalently linked polysaccharide protein conjugate that may be efficacious in young children; if effective, this vaccine could be available as early as 1988. In the interim, the 25% to 35% of cases of invasive *H influenzae* type b in older children is potentially preventable by using the polysaccharide vaccine. The US Public Health Service Advisory Committee on Immunization Practices therefore recommends the universal use of the vaccine at 24 months of age; vaccination at 18 months is suggested for children at high risk of disease, including those in day care. Additional information regarding the duration of antibody response is needed to define the possible need for and timing of a second dose of vaccine in children vaccinated at 18 to 23 months. The vaccine is not recommended for children younger than 18 months. Immunizing children older than 24 months who have not yet received the type b vaccine should be based on their risk of disease. The vaccine is not recommended for preventing otitis media or upper respiratory tract disease, since these are due predominantly to unencapsulated *H influenzae*.

CLAIRE BROOME, MD
Atlanta

REFERENCES

Cochi SL, Broome CV, Hightower AW: Immunization of US children with *Hemophilus influenzae* type b polysaccharide vaccine: A cost-effectiveness model of strategy assessment. JAMA 1985; 253:521-529

Istre GR, Conner JS, Broome CV, et al: Risk factors for primary invasive *Haemophilus influenzae* disease: Increased risk from day care attendance and school-aged household members. J Pediatr 1985 Feb; 106:190-195

Peltola H, Kayhty H, Virtanen M, et al: Prevention of *Hemophilus influenzae* type b bacteremic infections with the capsular polysaccharide vaccine. N Engl J Med 1984; 310:1561-1566

Centers for Disease Control Recommendations of the Immunization Practices Advisory Committee: Polysaccharide vaccine for prevention of *Haemophilus influenzae* type b disease. MMWR 1985; 34:201-205

*Use of the trade name does not constitute endorsement by the US Public Health Service.

Preventing Low Birth Weight

INFANTS WEIGHING 2,501 grams or less at birth are 40 times more likely to die during the first four weeks of life than are infants with a normal birth weight, and they have increased risks for major and minor handicapping conditions, as well. Unfortunately, the decline between 1965 and 1980 in the infant mortality rate in the United States (from 24.7 to 13.1 per 1,000 live births) was not accompanied by a parallel decline in the rate of low-birth-weight infants. Lower infant