

The Best Papers of 2004: The ID Oscars Go To ...

Infectious disease studies may change practice in gram-positive infections, varicella vaccinations.

BY SHARON WORCESTER
Tallahassee Bureau

BAL HARBOUR, FLA. — One of the most interesting pediatric infectious disease papers in the past year—according to Ralph D. Feigin, M.D.—suggests that cephalosporins are superior to penicillin for the treatment of group A beta-hemolytic streptococcal tonsillopharyngitis in children.

But take a closer look at the meta-analysis before changing your approach to the treatment of this common condition, Dr. Feigin advised at the annual Masters of Pediatrics conference sponsored by the University of Miami.

The authors included 35 trials involving 7,125 patients in their study, and found that the overall odds ratios for bacteriologic and clinical cure rates significantly favored cephalosporins.

They concluded that the likelihood of treatment failure is less if an oral cephalosporin is used for treatment (*Pediatrics*. 2004;113:866-82).

However, the failure to exclude group A beta-hemolytic streptococcus (GABHS) carriers in some of the clinical trials included in the metaanalysis is of concern, said Dr. Feigin, chairman of the department of pediatrics at Baylor College of Medicine, Houston.

Cephalosporins have been shown to be superior to penicillin for eradicating the GABHS carrier states, so the inclusion of a high proportion of carriers would skew the results in favor of cephalosporins in those studies; the statistical analysis used in the metaanalysis fails to adequately ad-

dress this issue, he said.

Furthermore, only 6 of the 35 studies included were double blinded, and only 9 were investigator blinded. Eleven studies did not include typing of organisms to determine if positive follow-up cultures represented new infection.

The numerous cephalosporins represented in the studies—11 were used in the 35 studies—and lack of compliance testing in 9 of the studies, were also items of concern, Dr. Feigin said.

Penicillin has a narrower spectrum and

much lower cost than many of the cephalosporins included in the metaanalysis, and it is effective for shortening disease course and limiting suppurative sequelae and transmission. Studies have shown that penicillin is effective for preventing acute rheumatic fever—even when it is initiated 9 days after onset of

acute illness. Therefore, it should not be discounted as a drug of choice for GABHS tonsillopharyngitis, he said.

Other topics among Dr. Feigin's picks for the most interesting papers of the year were:

► **Linezolid vs. vancomycin for treatment-resistant gram-positive infections in children.** Linezolid was shown in this study of more than 300 hospitalized children with serious gram-positive infections to be effective and well tolerated (*Pediatr. Infect. Dis. J.* 2003;22:677-85).

The children were randomized to receive either 10 mg/kg of intravenous linezolid every 8 hours followed by oral linezolid, or to receive 10-15 mg/kg every 6-24 hours followed by an oral agent as appro-

priate. The pathogen eradication rates for methicillin-susceptible *S. aureus* and for methicillin-resistant coagulase-negative staphylococci were high in both groups and did not differ significantly.

Significantly more days of IV therapy were required with vancomycin (10.9 vs. 8.0 days) and significantly more patients had adverse drug-related events with vancomycin (34% vs. 19% of patient).

But if this study has you thinking about using linezolid instead of vancomycin—think again, Dr. Feigin advised. To postpone development of resistance to this newer drug for as long as possible, reserve it for use only in patients with infections for which other agents cannot be used, he said.

► **Human metapneumovirus and lower respiratory tract disease.**

A new RNA virus known as human metapneumovirus was identified in 2001, and this 2004 study showed that the virus might be the cause of a considerable number of respiratory illnesses in children. Of 248 specimens from children from whom no virus was previously isolated, 49 were found to be associated with metapneumovirus. About 25% of the infections were in children under age 6 months, and 49% were in those ages 6 months to 1 year (*N. Engl. J. Med.* 2004;350:443-50).

The findings suggest that this is a relatively frequent cause of lower respiratory tract infection in children. It was also found in 15% of children with upper respiratory infections, Dr. Feigin noted.

► **Monkeypox detection.** A series of cases of monkeypox in children and adults in 2003 was traced to prairie dogs, which were shown in an epidemiological investigation to have been infected by exposure to giant Gambian rats. The human infections, as shown in this 2004 study, were associated with direct contact with sick prairie dogs kept or sold as pets (*N. Engl. J. Med.* 2004;350:342-50).

The study involved five males and six fe-

males ranging in age from 3 to 43 years, but a total of 35 cases were confirmed in a 2003 outbreak and another 36 were suspected, Dr. Feigin said.

Nearly half of the patients required hospitalization. Presentation included rash, fever, respiratory symptoms, and lymphadenitis, which all occurred in most of the patients. None of the U.S. cases were fatal, but there is a mortality rate of up to 10% associated with the infection in Africa.

Monkeypox can be differentiated from chickenpox by the fact that lesions in monkeypox are at the same stage at the same time, while chickenpox lesions can be seen in various stages at the same time as early as the second day of disease.

The smallpox vaccine can prevent monkeypox, and should be given to those with occupational exposures, and to close contacts of infected individuals.

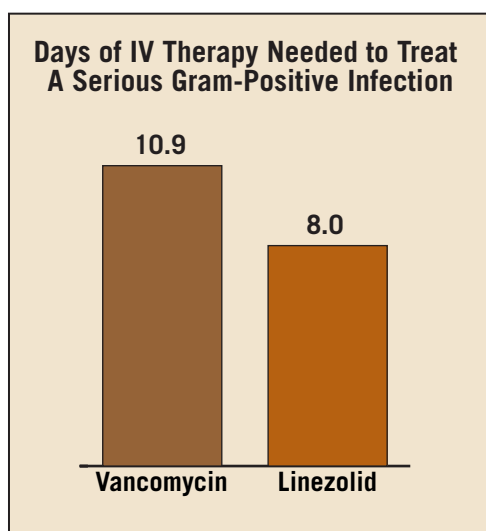
The moral of the story: Get a real dog, not a prairie dog, Dr. Feigin quipped.

► **Varicella vaccination.** Two doses of varicella vaccine are better than one, according to the results of this study.

In 2,200 children randomized to receive either one or two doses of vaccine and followed for 10 years, the rate of varicella infection and persistence of varicella antibodies were compared. A total of 71 cases (including 15 confirmed cases) of varicella were reported in the one-dose group, compared with 25 cases (including 4 confirmed cases) in the two-dose group. The differences were statistically significant.

The vaccine efficacy rate was 94% for one dose, and 98% for two doses (*Pediatr. Infect. Dis. J.* 2004;23:132-7).

The authors concluded that both one and two doses result in long-term protection against varicella, but that the two-dose regimen is more effective. Dr. Feigin noted that in those over age 12 years, two doses are currently recommended, because after one dose the seroconversion rate is 78%-82%, and after two doses it is 99%. ■



Catheter-Related Bacteremia Is Common in Hemodialysis

BY SHARON WORCESTER
Tallahassee Bureau

BAL HARBOUR, FLA. — Catheter-related bacteremia affecting catheter survival occurs frequently in children on hemodialysis, results of a recent study suggest.

A review of the charts of 60 children who had chronic hemodialysis catheters at the University of Miami between 1999 and 2003 showed that 188 catheter infections occurred in these patients; 49 (82%) of the children developed catheter-related bacteremia, Ali Mirza Onder, M.D., and colleagues at the University of Miami reported in a poster presentation at the annual Masters of Pediatrics confer-

ence sponsored by the university.

Of the 188 catheter infections, 67% were gram-positive infections, 14% were gram-negative infections, and 19% were polymicrobial. Of the gram-positive infections, 78% were oxacillin resistant.

Of the gram-negative infections, 22% were tobramycin resistant.

And of the polymicrobial infections, 88% were oxacillin resistant, and 72% were tobramycin resistant, the investigators found.

The occurrence of two or more catheter infections in a patient in 1 year was associated with increased risk of multiple episodes of catheter-related bacteremia, they noted.

Catheter replacement occurred 118 times; 63% of the replacements were due to infection, with catheter malfunction and cuff extension accounting for the remaining cases. Of the 118 replacements, 81 were wire-guided exchanges, as opposed to replacements following removal.

Catheter survival was not significantly

different between those who had replacements and those who had exchanges (267 days vs. 249 days).

Systemic antibiotic therapy was effective for clearing infections in 60% of cases.

Catheter-related bacteremia affecting catheter survival is an important problem among children on maintenance hemodialysis.

Given the frequency of oxacillin- and tobramycin-resistant organisms seen in this study, regional prevalence of such resistance should be considered when selecting initial empiric therapy for catheter-related bacteremia, the investigators concluded.

When feasible, permanent vascular access should be considered, they added. ■

Regional prevalence of resistant organisms should be considered when selecting initial empiric therapy for catheter-related bacteremia.