Check Antibody Levels Before Revaccinating Adopted Kids

BY ROBERT FINN
San Francisco Bureau

SAN FRANCISCO — Records for most vaccines from most countries of origin for children adopted internationally are trustworthy, Dr. Bindy Crouch said in a poster presentation at the annual meeting of the Pediatric Academic Societies.

For this reason, Dr. Crouch of the State University of New York at Stony Brook and her colleagues recommend that antibody titers should be tested before revaccinating adopted children who have documentation of vaccines given in their countries of origin.

The study involved a retrospective chart review of 219 internationally adopted children seen between January 2003 and December 2004. Of those children, 72 came from China, 87 from Russia, 28 from Korea, 19 from Guatemala, 4 from Ethiopia, 2 each from Belarus, Colombia, and the Philippines, and 1 each from India, Kazakhstan, and Romania. At the time of adoption, 73% were under the age of 2 years.

With the exception of hepatitis B among children adopted from Korea and mumps among all children, the percentages of positive antibody titers were similar to rates reported in U.S. vaccine studies.

Of the children with records of DTP vaccine, 99% were titer positive for diphtheria antibody and 88% were titer positive for tetanus. Children with records of polio vaccine were 95% titer positive, those with records of measles vaccine were 92% titer positive, and those with reported rubella vaccine were 92% titer positive.

On the other hand, of children adopted from Asian countries other than China (28 of 31 of these children came from Korea), only 63% of those who had records of hepatitis B vaccine were titer positive.

The investigators suggested that the lower percentage of positive hepatitis B titers in children from Korea may be due to the manufacturing, storage, or administration of vaccine, but it is also plausible that Korean children have poorer responses to the vaccine.

Only 67% of all the adopted children with records of mumps vaccine had positive titers, which the investigators said was significantly lower than the percentage reported in U.S. vaccine studies. Investigators said that this may be attributable to issues with vaccine handling and storage, inaccurate record keeping, or an impaired immune response to the mumps vaccines used.

The meeting was sponsored by the American Pediatric Society, Society for Pediatric Research, Ambulatory Pediatric Association, and American Academy of Pediatrics. ■

Antibiotic Avoidance Averts *E. coli*–Related Complications

BY KATE JOHNSON
Montreal Bureau

CHICAGO — Aggressive fluid management and avoidance of medication are key in preventing the development of hemolytic uremic syndrome in children with *Escherichia coli* diarrhea, said Dr. Marianne Gausche-Hill at a meeting sponsored by the American College of Emergency Physicians.

Although other types of diarrhea may require antibiotic therapy, *E. coli* O157:H7 infection can be distinguished from them by its hallmarks: acute, bloody diarrhea; abdominal pain out of proportion to diarrhea; and pain on defecation, said Dr. Gausche-Hill, who is director of emergency medical services and pediatric emergency medicine fellowships at Harbor-UCLA Medical Center and professor of medicine at the University of California, Los Angeles.

"Children with *E. coli* also tend to be afebrile vs. those with other forms of diarrhea, such as Shigella, who are often highly febrile. So, although they could have a fever, the absence of a fever would be another clue." Despite being afebrile on presentation, about half of children with *E. coli* have a history of fever before presentation, she added.

In addition to elderly people, children younger than 5 years are the highest-risk group for *E. coli* infection. And although 2%-7% of adult *E. coli* infections result in hemolytic uremic syndrome (HUS), 15% of infected children are at risk for this potentially fatal complication, she said.

Avoidance of antibiotics is key in this population, based on a prospective study showing higher rates of HUS among *E. coli*–infected children receiving antibiotic therapy (56%), compared with those who did not receive antibiotics (8%)—a relative risk of 14 (N. Engl. J. Med. 2000;342:1930-6). The increased risk is likely due to the antibiotic's liberation of shiga toxin, she noted.

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DR. GAUSCHE-HILL

Antimotility agents should also be avoided, based on the theory that they keep the toxin in the intestine. Narcotic opioids should be avoided because they have an antimotility effect and can increase the risk of neurologic complications.

Aggressive fluid management offers nephroprotection and should be started as soon as possible, she said. "Oral rehydration is not enough—they need intravenous fluid resuscitation. We highly recommend they receive saline boluses … and then they should be carefully watched for early signs of HUS," she said. ■

Test for Inducible Clindamycin Resistance Necessary in MRSA

BY KATE JOHNSON
Montreal Bureau

CHICAGO — The "D test" is a critical second-step test when methicillin-resistant *Staphylococcus aureus* cultures come back showing erythromycin resistance and clindamycin susceptibility, according to Dr. Jeffrey Starke.

"It should be automatic—every hospital in the country should know about this test. If you are not running it, you have to start," cautioned Dr. Starke, professor and vice chairman of pediatrics at Baylor College of Medicine, Houston.

As the number of methicillin-resistant *Staphylococcus aureus* (MRSA) infections has escalated to epidemic proportions at Texas Children's Hospital, discordance in the bacteria's response to erythromycin and clindamycin has become a red flag for the organism's potential to develop "inducible resistance" to clindamycin, Dr. Starke said at a meeting sponsored by the American College of Emergency Physicians.

"If it's erythromycin and clindamycin susceptible initially, or resistant to both initially, there is no issue," he explained. "But it's when there is discordance—when it shows erythromycin resistance but clindamycin susceptibility—that this test needs to be done."

The clindamycin disk induction test, or D test, will determine if the organism is truly susceptible to clindamycin or if there is a risk of inducible clindamycin resistance, he said.

"When an isolate has inducible clindamycin resistance, treatment failures often occur when clindamycin is used—especially if the infection is serious or deep-seated," Dr. Starke said.

The current epidemic of community-acquired MRSA infection differs from the traditional disease in terms of both the risk factors and the aggressiveness of the infection, he said.

"Patients are almost exclusively normal hosts," he said, listing current risk factors as race (African Americans have significantly increased risk, compared with whites), prior infections, infected household contacts, day care, and competitive athletics.

Unlike the traditional MRSA involvement of skin and soft tissue (and sometimes muscle, bone, or joints), current infections can involve all these areas simultaneously and continue to progress. "We are seeing a large number of complicated necrotizing pneumonias and empyemas, we are seeing *S. aureus* meningitis, sepsis, and septic venous thrombosis," he said. "If you are not seeing this yet, it is coming," he warned.

In the case of such deep, acute involvement, the role of surgical intervention is equal to, if not more important than, that of antibiotics, Dr. Starke emphasized. ■

HPV Vaccine Expected to Prevent Most Vulvar and Vaginal Cancers

BY SHARON WORCESTER
Southeast Bureau

ATLANTA — The recently approved quadrivalent human papillomavirus vaccine shown to be effective for preventing most HPV-related cervical cancers is also expected to prevent most vulvar and vaginal cancers, Dr. Jorma Paavonen reported at the annual meeting of the American Society of Clinical Oncology.

The vaccine (Gardisil, Merck & Co.) received approval from the U.S. Food and Drug Administration in June, after winning unanimous support from an FDA advisory panel.

Gardisil targets HPV 6 and 11, which are associated with anogenital warts, and HPV 16 and 18, which cause most cervical cancers. HPV 16 and 18 are the most common causes of vulvar and vaginal cancers, said Dr. Paavonen of the University of Helsinki.

The FUTURE II study was a combined analysis of data from three randomized, placebo-controlled trials that studied the impact of the vaccine on rates of HPV 16– and 18–related vulvar and vaginal intraepithelial neoplasia grade 2/3. FUTURE II showed that the vaccine was 100% effective up to 2 years of follow-up for preventing these precancerous lesions, said Dr. Paavonen, who has served as a consultant to Merck & Co. and received research funding from the company.

A total of 18,150 women aged 16-26 were randomized in these trials to receive either the vaccine or placebo. Vaccination occurred at day 1 and at 2 and 6 months. Genital tract specimens were obtained at day 1 and then at 6- to 12-month intervals for up to 48 months, with colposcopy performed as needed following algorithm-based referrals.

On per-protocol analysis, there were 10 cases of vulvar intraepithelial neoplasia (VIN) 2/3 or vaginal intraepithelial neoplasia (VaIN) 2/3 in the placebo group, and none in the vaccine group, at an average of 18 months of follow-up. On modified intention-to-treat analysis, there were 24 histologically confirmed cases of VIN 2/3 or VaIN 2/3 in the placebo group, at an average of 2 years of follow-up.

"The burden of HPV disease is not restricted to the cervix. HPV is present in nearly 80% of the 6,000 cases of vaginal and vulvar cancers that are diagnosed in the United States each year," Dr. Paavonen said. ■