Infectious Diseases

Invasive MRSA May Require Vancomycin Therapy

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WARSAW — Community-acquired meticillin-resistant Staphylococcus aureus infections in children are on the increase around the world, and while most cases involve the skin and soft tissue and are susceptible to trimethoprim-sulfamethoxazole, severe invasive infections requiring treatment with vancomycin also are being reported, Sheldon L. Kaplan, M.D., said.

Infections are being seen in children who have no traditional risk factors, such as recent hospitalization, underlying illness, or frequent exposure to antibiotics. It appears that a number of different clones of S. aureus have acquired resistance genes, and most isolates contain a gene that codes for a toxin called Panton-Valentine leukocidin (PVL). This toxin causes leukocyte destruction and tissue necrosis, and has been associated with particularly severe forms of infection including hemorrhagic pneumonia, Dr. Kaplan said at an international congress of the World Society for Pediatric Infectious Diseases.

“In our hospital at the moment, S. aureus is the most common cause of pneumonia with empyema,” he said. “I don’t think we missed these infections prior to MRIs. The organism just has more ability to invade muscle tissue,” said Dr. Kaplan, professor of pediatrics and infectious disease at Baylor College of Medicine, Houston.

Other infections that have been seen include extensive epidural abscesses, septic shock, and necrotizing fasciitis.

Almost all of the methicillin resistant Staphylococcus aureus (MRSA) isolates are susceptible to vancomycin, gentamicin, and trimethoprim-sulfamethoxazole. Rates of susceptibility to clindamycin vary somewhat, but in general are in the 92%-95% range.

“In our area, clindamycin has been used quite a bit for community-acquired MRSA, and we are starting to see an increase in resistance,” Dr. Kaplan said. Once resistance rates reach 10%-15%, clindamycin would not be an appropriate drug to use for initial empiric treatment, he added.

When asked about possible reasons why some children develop fulminant, overwhelming infections with MRSA, Dr. Kaplan said it may be host related. “Is it related to polymorphisms in toll-like receptor 2, or some other immune factor? We can’t explain it. Many have not had an obvious site of skin infection that preceded their invasive infection.”

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