

# Petechial Rash May Mask Bacterial Infection

BY BRUCE JANCIN

VAIL, COLO. — When is it time to worry about a child or adolescent with a petechial rash?

Three potentially lethal yet treatable bacterial infections often produce a petechial rash: *Staphylococcus aureus* sepsis, meningococcal disease, and Rocky Mountain spotted fever, Dr. Samuel R. Dominguez noted at a conference on pe-

diatric infectious diseases sponsored by the Children's Hospital, Denver.

He worries more about one of these possibilities if the patient appears ill on physical examination; has generalized petechiae, purpura, prolonged capillary refill; and/or an abnormal CBC, C-reactive protein, or other laboratory tests. He worries less if the youth looks well and has normal lab values.

Petechiae confined to a distribution

north of the nipple line are a somewhat reassuring but less than conclusive indicator that the child doesn't have invasive bacterial disease. In his review of four large published studies of children presenting to emergency departments with a petechial rash, two studies totaling 408 patients concluded that no one with petechiae located only above the nipple line had invasive bacterial disease. In the other two studies, however, the distribution

of petechiae wasn't predictive of serious disease, said Dr. Dominguez of the University of Colorado, Denver.

Once the findings of these four studies are combined, roughly 10% of children with a petechial rash who present to the emergency department have underlying meningococcal disease, he added.

Dr. Dominguez said that any seriously ill youth with a petechial rash ought to be treated empirically with ceftriaxone to address a possible *Neisseria meningitidis* infection, vancomycin to cover methicillin-resistant or methicillin-sensitive *S. aureus*, or doxycycline to cover *Rickettsia rickettsii* if the time of year and locale are right for Rocky Mountain spotted fever.

Even in the modern era of intensive care units, overall mortality of meningococcal disease in the United States is about 10%, climbing to 25% in infected adolescents. In individuals older than 11 years of



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\* Eligible referrals must have used Elidel for a combined total of 42 days/6 weeks during the 6 months prior to enrollment (among other requirements).



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**This photo shows the rash associated with Rocky Mountain spotted fever.**

age, 75% of cases are due to serogroups C, Y, and W-135, all covered by the single-dose meningococcal quadrivalent conjugate vaccine (Menactra) recommended for vaccination of 11- to 18-year-olds.

Rocky Mountain spotted fever, a tick bite-transmitted summer illness, is considerably more common in the Mississippi River basin than in the Rocky Mountain states. Ninety percent of cases occur in April through September; two-thirds are in children under age 15 years, peaking at 5-9 years. Twenty percent of untreated cases are fatal.

The clinical syndrome begins with sudden-onset fever and malaise after a mean 7-day incubation period. The rash appears 2-5 days after the fever. It initially takes the form of small, blanching macules on the ankles and wrists that spread to the palms and soles, then centripetally to the arms and legs, and finally to the trunk. Within a week the rash is maculopapular with central petechiae.

Children at high risk for infective endocarditis with *S. aureus* sepsis are those with congenital heart disease, hospitalized neonates, and patients with an indwelling central venous catheter, according to Dr. Dominguez.

Although Waterhouse-Friderichsen syndrome (adrenal gland failure due to massive adrenal gland hemorrhage) in children is usually associated with fulminant meningococcemia, it's now clear *S. aureus* sepsis also can cause the syndrome (N. Engl. J. Med. 2005;353:1245-51). ■