Medical News

EDITED BY GINA PUGLIESE, RN, MS; MARTIN S. FAVERO, PHD

First Case of VRSA Identified in Michigan

by Judene Bartley, MS, MPH, CIC

In June 2002, the first clinical isolate of *Staphylococcus aureus* fully resistant to vancomycin was obtained from the tip and the exit site of a catheter of a Michigan resident with chronic renal failure who received dialysis.[1] Previously, in Michigan and elsewhere, vancomycin-intermediate *S. aureus* had been recovered in a similar clinical setting of long-term hemodialysis. Similar to previously described cases of glycopeptide-intermediate *S. aureus* (GISA), the current patient had been recently treated with vancomycin for a bloodstream infection with methicillin-resistant *S. aureus* (MRSA). In addition, the patient had diabetes mellitus and a chronic diabetic foot ulcer.

Previous strains of GISA that had been recovered had minimum inhibitory concentrations (MICs) of 8 to 16 for vancomycin. The current isolate was frankly resistant, with a vancomycin MIC of 128 µg/mL or greater. The phenotype was vanA, conveying high-level resistance to both vancomycin and teicoplanin. The patient was found to harbor both vancomycin-resistant *S. aureus* (VRSA) and vancomycin-resistant *Enterococcus faecalis* in the chronic foot ulcer, leading to speculation that the VRSA may have acquired the vancomycin resistance gene from enterococci through mating.

The patient had been hospitalized for several weeks prior to the discovery of the VRSA infection for reasons unrelated to infection. Epidemiologic investigations to date at the dialysis center and the hospital have not revealed spread of the organism, suggesting that routine infection control measures have been adequate.

The VRSA remained susceptible to several drugs approved by the Food and Drug Administration, including linezolid and trimethoprim–sulfamethoxazole. The infection at the site of the catheter resolved with removal of the catheter. The foot wound is being treated aggressively. The patient remains stable and is continuing outpatient treatment.

Since VRSA was first demonstrated in the laboratory setting in 1992,[2] clinicians and clinical microbiology laboratories have been on the lookout for the first clinical case. Tammy Lundstrom, MD, hospital epidemiologist and chief quality and safety officer at the Detroit Medical Center, commented, "This first case appears to have been the result of known risk factors for infection combined with long-term antimicrobial use and reinforces the importance of the many CDC and state initiatives already under way to control antimicrobial use, such as Michigan's Antibiotic Resistance Reduction Coalition." (Information on the Michigan Antibiotic Resistance Reduction Coalition can be found at www.mi-marr.org.). Dr. Lundstrom also noted, "Even if the VRSA in this index patient is eradicated, the organism is likely to surface again in any patient with similar risk factors, emphasizing the need for judicious antimicrobial usage."

REFERENCES

1. *Staphylococcus aureus* resistant to vancomycin—United States, 2002. *MMWR* 2002;51:565-567.
2. Noble WC, Virani Z, Cree RG. Co-transfer of vancomycin and other resistance genes from *Enterococcus faecalis* NCTC 12201 to *Staphylococcus aureus*. *FEM Microbiol Lett* 1992;93:195-198.

Needlestick Transmission of Hepatitis C

Transmission of hepatitis C virus (HCV) following a needlestick is an important threat to healthcare workers. Sulkowski and colleagues from Johns Hopkins School of Medicine published a case report of a 29-year-old medical intern who sustained a needlestick injury from a source patient known to be infected with both human immunodeficiency virus and HCV. The case-patient subsequently developed acute HCV infection.

The optimal strategy for diagnosing HCV infection after occupational exposures has not been defined. At a minimum, HCV antibody and alanine aminotransferase testing should be done within several days of exposure (to assess whether the healthcare worker is already infected with HCV) and 6 months after percutaneous, mucosal, or nonintact skin exposure to blood or infectious body fluids from an HCV-infected patient. Currently, it is not possible to prevent HCV infection after exposure. However, recent data suggest that early treatment of acute HCV infection with interferon alpha may be highly effective in preventing chronic HCV infection.

These data underscore the importance of identifying individuals with acute HCV infection and promptly referring them to experienced clinicians who can provide updated counseling and treatment.

FROM: Sulkowski MS, Ray SC, Thomas DL. Needlestick transmission of hepatitis C. *JAMA* 2002; 287:2406-2413.