Medical News

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Outbreak of Highly Contagious Tuberculosis

Researchers from the Centers for Disease Control recently reported a large community outbreak of tuberculosis (TB) in a rural area at the foothills of the Smoky Mountains along the Tennessee-Kentucky border. Dr. Sarah Valway, the lead investigator and chief of the epidemiology section in the TB section at the CDC, commented that this strain had increased virulence and had not been identified before this outbreak, and its extreme contagiousness is unexplained. Twenty-one TB cases (15 culture-positive) were identified from 1994 to 1996, compared with less than one TB case per year for the prior 10 years. Thirteen of the available isolates were DNA fingerprinted, and all were found to be identical.

To determine the extent of transmission, an investigation was conducted among close and casual contacts of the cases. The source case, diagnosed in 1994, case B, diagnosed in 1995, and case C, diagnosed in 1996, were the sources of infection for the other 18 cases. Five secondary cases became infected and developed active disease with only very limited, casual exposure to the source case, case B, or case C. Extensive transmission from these three cases to close and casual contacts also was found; 337 (73%) of 461 contacts had positive TB skin tests, and 86 had documented skin-test conversions.

Virulence studies using mouse models also were conducted on the outbreak strain of *Mycobacterium tuberculosis*. Mouse studies found that, after 10 days, a virulent Erdmann strain of *M tuberculosis* grew to 10^6 bacilli/lung and after 20 days grew to approximately 10^4 bacilli/lung. In contrast, the outbreak strain grew $2x10^6$ bacilli/lung after 10 days and approximately 10^8 bacilli/lung after 20 days. The extraordinary rate and extent of growth of the outbreak strain of *M tuberculosis* greatly exceeds that seen with other clinical isolates of *M tuberculosis. These* data suggest increased transmission was a feature of the strain of *M tuberculosis,* eg, increased virulence, rather than an environmental factor or patient characteristics.

Standard anti-TB medications are effective against this strain, and this outbreak appears to be under control through use of directly observed therapy and other prevention initiatives.

FROM: Valway S, Sanchez S, Shinnick T, Orme I, Agerton T, Onorato I. Extensive transmission of *Mycobacterium tuberculosis* due to increase virulence. Presented at the 35th Annual Meeting of the Infectious Disease Society of America; September 14-16, 1997; San Francisco, California. Abstract 35; and, Grady D. New strain of highly contagious tuberculosis identified in the Smokies. *New York Times* September 23, 1997; B1009.

Disease Transmitted Through Food Supply

The CDC recently published its annual update of infectious and communicable diseases that are transmitted through handling the food supply. Since the last publication of the list, on August 15, 1996, in the *Federal Register,* the CDC has received no further information to indicate that additional unlisted diseases are transmitted through handling the food supply. The contamination of raw ingredients from infected food-producing animals and cross-contamination during processing are more prevalent causes of foodborne disease than is contamination of foods by persons with infectious or contagious diseases. However, some pathogens frequently are transmitted by food contaminated by infected persons. Pathogens that can cause diseases after an infected person handles food include hepatitis A virus, Norwalk and Norwalk-like viruses, *Salmonella typhi, Shigella* species, *Staphylococcus aureus,* and Streptococcus *pyogenes.* Other pathogens occasionally are transmitted by infected persons who handle food, but usually cause disease when food is intrinsically contaminated or cross-contaminated during processing or preparation. Pathogens in this category include *Campylobacter jejuni, Entamoeba histolytica,* enterohemorrhagic *Escherichia coli,* enterotoxigenic *E coli, Giardia lamblia,* non-typhoidal *Salmonella,* rotavirus, *Taenia solium, Vibrio cholerae* 01 and *Yersinia enterocolitica.*

FROM: Centers for Disease Control and Prevention. Infectious and communicable diseases transmitted through handling the food supply. *Federal Register* September 22, 1997:62:49519.

Antiseptic- and Antimicrobial-Coated Catheters Reduce Bloodstream Infection Risk

Two recent studies published in the *Annals of Internal Medicine* provide additional evidence to support the clinical application of antiseptic or antimicrobial coating of central venous catheters (CVCs). The studies evaluated the predictors of catheter-related infections (catheter colonization and microbial colonization of the skin at the catheter insertion site) and assessed the impact of impregnated catheters in reducing the risk of catheter-related bloodstream infection.

Dr. Dennis Maki and colleagues recently conducted a randomized, controlled clinical trial in a medical-surgical intensive-care unit of a 450-bed university hospital to determine the efficacy of a noncuffed, multilumen CVC impregnated with chlorhexidine and silver sulfadiazine compared to a triple-lumen polyurethane catheter in preventing CVC-

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