Medical News

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

Intravascular Catheter-Related Infections

Central venous catheters have become essential devices for the management of critically and chronically ill patients; however, their use is often complicated by catheter-related bloodstream infections (CRBSIs), many of which could be prevented. A review article has recently been published on this topic. The article is based on a review of more than 100 published articles on intravascular catheter–related infections. The article focuses on the most recent advances in the methods of diagnosis of CRBSI as they relate to its pathogenesis and on novel preventive techniques and approaches to management.

CRBSIs may be diagnosed by different methods, including simultaneous quantitative blood cultures, with the central blood culture yielding at least fivefold colony-forming units greater than the peripheral blood culture, and simultaneous blood cultures, whereby the catheter-drawn blood culture becomes positive at least 2 hours before the peripheral blood culture. Novel preventive techniques include the use of ionic silver, an anticoagulant–antimicrobial flush solution, a new aseptic hub, and antimicrobial impregnation of catheters and dressings. The management of a CRBSI should be based on whether the infection is complicated or uncomplicated.

Novel technologies that have been proved to aid in the diagnosis and prevention of CRBSIs should be considered in clinical practice. The management approach should be based on the type of microorganism causing the infection and on whether the infection is complicated or uncomplicated.

FROM: Raad II, Hanna HA. Intravascular catheter-related infections: new horizons and recent advances. *Arch Intern Med* 2002;162:871-878.

Anthrax as a Biological Weapon: Updated Recommendations for Management

The Working Group on Civilian Biodefense of the Johns Hopkins Center for Civilian Biodefense Strategies met recently to review and update consensus-based recommendations for medical and public health professionals following a *Bacillus anthracis* attack against a civilian population. The Working Group included 23 experts from academic medical centers, research organizations, and governmental, military, public health, and emergency management institutions and agencies. The group also met to develop consensus-based recommendations for measures to be taken by medical and public health professionals if hemorrhagic fever viruses (HFVs) were used as biological weapons against a civilian population (see related story below).

MEDLINE databases were searched from January 1966 to January 2002, using the Medical Subject Headings anthrax, *Bacillus anthracis*, biological weapon, biological terrorism, biological warfare, and biowarfare. Reference review identified work published before 1966. Participants identified unpublished sources.

Through a consensus process, the final recommendations include diagnosis of anthrax infection, indications for vaccination, therapy, postexposure prophylaxis, decontamination of the environment, and suggested research. This revised consensus statement presents new information based on the analysis of the anthrax attacks of 2001, including developments in the investigation of the anthrax attacks of 2001; important symptoms, signs, and laboratory studies; new diagnostic clues that may aid future recognition of this disease; current anthrax vaccine information; updated antibiotic therapeutic considerations; and judgments about environmental surveillance and decontamination.

FROM: Inglesby TV, O'Toole T, Henderson DA, et al. Anthrax as a biological weapon, 2002: updated recommendations for management. *JAMA* 2002;287:2236-2252.

Public Health Management of Hemorrhagic Fever Viruses Used as Biological Weapons

The Working Group on Civilian Biodefense of the Johns Hopkins Center for Civilian Biodefense Strategies met recently to develop consensus-based recommendations for measures to be taken by medical and public health professionals if hemorrhagic fever viruses (HFVs) were used as biological weapons against a civilian population. The Working Group included 26 representatives from academic medical centers, public health, military services, governmental agencies, and other emergency management institutions.

MEDLINE was searched from January 1966 to January 2002. Retrieved references, relevant material published prior to 1966, and additional sources identified by participants were reviewed. Through a consensus process, final recommendations were developed. The Working Group agreed that weapons disseminating a number of HFVs could cause an outbreak of an undifferentiated febrile illness 2 to 21 days later, associated with clinical manifestations that could include rash, hemorrhagic

diathesis, and shock. The mode of transmission and clinical course would vary depending on the specific pathogen. Diagnosis may be delayed given clinicians' unfamiliarity with these diseases, heterogeneous clinical presentation within an infected cohort, and lack of widely available diagnostic tests. The initiation of ribavirin therapy in the early phases of illness may be useful in the treatment of some of these viruses, although extensive experience is lacking. There are no licensed vaccines to treat the diseases caused by HFVs.

FROM: Borio L, Inglesby BL, Peters CJ, et al. Hemorrhagic fever viruses as biological weapons: medical and public health management. *JAMA* 2002;287:2391-2405.

OSHA Prohibits Needle Removal and Phlebotomy Tube Holder Reuse

On June 12, 2002, the Occupational Safety and Health Administration (OSHA) issued a long awaited letter of interpretation to clarify its position on the prohibition of removing contaminated needles from phlebotomy blood tube holders and reusing the tube holders, citing a risk to workers from this practice. The letter of interpretation notes that all tube holders with needles attached must be immediately discarded into a sharps disposal container after the safety feature has been activated. OSHA has explained that this practice helps to prevent potential worker exposure to the contaminated hollow bore needle at both the front and the back ends.

For those facilities that already use single-use blood tube holders, this new interpretation will have little impact. However, facilities that will be affected and that will need to change their practice include those that use phlebotomy safety devices in which the safety mechanism is built into or is part of the needle and that remove the needle after activation of the safety feature and reuse the holder. Many hospitals that are removing needles and reusing tube holders have expressed concern that compliance will increase costs. Others have expressed concern over increased amounts of medical waste and related increased disposal costs. Although this is a new interpretation for OSHA at the federal level, some state OSHA plans (eg, California) have been prohibiting needle removal and phlebotomy holder reuse for some time.

FROM: U.S. Department of Labor/Office of Public Affairs. OSHA clarifies position on the removal of contaminated needles [press release]. June 12, 2002. Available at www.osha.gov.

Serratia marcescens Bacteremia Traced to an Infused Narcotic

The Centers for Disease Control and Prevention's Division of Healthcare Quality Promotion, National Center for Infectious Diseases, conducted an investigation of an outbreak of *Serratia marcescens* bacteremia among several patients in a surgical intensive care unit between June 30, 1998, and March 21, 1999. The outbreak was traced to extrinsic contamination of the parenteral narcotic fentanyl by a healthcare worker.

To identify risk factors, patients with *S. marcescens* bacteremia were compared with randomly selected controls. Isolates from patients and from medications were evaluated by pulsed-field gel electrophoresis. The hair of one employee was tested for fentanyl.

Twenty-six patients with *S. marcescens* bacteremia were identified; 8 (31%) had polymicrobial bacteremia, and 7 of these had *Enterobacter cloacae* and *S. marcescens* in the same culture. According to univariate analysis, patients with *S. marcescens* bacteremia stayed in the surgical intensive care unit longer than did controls (13.5 vs 4.0 days, $P < .001$), were more likely to have received fentanyl in the surgical intensive care unit (odds ratio, 31; $P < .001$), and were more likely to have been exposed to two particular respiratory therapists (odds ratios, 13.1 and 5.1; $P < .001$ for both comparisons). In a multivariate analysis, receipt of fentanyl and exposure to the two respiratory therapists remained significant. One respiratory therapist had been reported for tampering with fentanyl; his hair sample tested positive for fentanyl. Cultures of fentanyl infusions from two case patients yielded *S. marcescens* and *E. cloacae*. The isolates from the case patients and from the fentanyl infusions had similar patterns on pulsed-field gel electrophoresis. After removal of the implicated respiratory therapist, no further cases occurred.

This investigation underscores the risk of complications in patients that is associated with illicit narcotic use by healthcare workers.

FROM: Ostrowsky BE, Whitener C, Bredenberg HK, et al. *Serratia marcescens* bacteremia traced to an infused narcotic. *N Engl J Med* 2002;346:1529-1537.