highly virulent. RAPD typing was found to be a simple, rapid, and effective method for the epidemiological investigation of this outbreak, and performance of typing by this method was simpler and less time-consuming than that of typing by PFGE. RAPD typing may have more general application for the study of *S aureus* infections in hospitals.

FROM: Tambic A, Power EG, Talsania H, Anthony RM, French GL. Analysis of an outbreak of non–phage-typeable methicillin-resistant *Staphylococcus aureus* by using a randomly amplified polymorphic DNA assay. *J Clin Microbiol* 1997;35:3092-3097.

Reuse of Angioplasty Catheters

Investigators from a Florida clinic have evaluated the reuse of percutaneous transluminal coronary angioplasty (PTCA) balloon catheters, restored under a strict manufacturing process, in patients with coronary artery disease. Most countries outside the United States routinely reuse disposable medical equipment, resulting in substantial cost savings. Because of quality and legal concerns, reuse in the United States has been limited.

The catheters were restored by a process strictly controlled for bioburden and sterility. Used PTCA balloon catheters were shipped to a central facility and were decontaminated, cleaned, and tested for endotoxin using the limulus amebocyte lysate gel-clot method. Physical testing and quality assurance were performed. The products were packaged and sterilized with ethylene oxide. Catheter performance was assessed in a pilot study powered (beta=0.8) to detect a 5% difference in the angiographic failure rates of new and reused balloons.

Of the 107 patients enrolled, 106 had a successful laboratory outcome, and 1 required coronary artery bypass graft surgery after failed rescue stenting. Stenting was performed in 37 patients (29 planned, 8 rescue). The angiographic failure rate was 7% (95% confidence interval, 2%-12%), comparable to the 10% rate seen with new balloons in other studies.

The investigators concluded that the restoration of disposable coronary angioplasty catheters using a highly controlled process appears to be safe and effective, with success rates similar to those of new products and no detectable sacrifice in performance. Cost analysis suggests that implementation of reuse technology for expensive disposable equipment may offer cost savings for US hospitals.

FROM: Browne KF, Maldonado R, Telatnik M, Vlietstra RE, Brenner AS. Initial experience with reuse of coronary angioplasty catheters in the United States. *J Am Coll Cardiol* 1997;30:1735-1740.

Outbreak of Adenovirus in Psychiatric Facility

Outbreaks of acute respiratory disease caused by adenovirus rarely are documented in civilian populations, and adenovirus 35 is an uncommon serotype best recognized as a cause of serious disease in immunocompromised patients. The CDC recently investigated an outbreak of adenovirus 35 pneumonia among residents and staff of a chronic-care psychiatric facility. Fourteen (26%) of 53 residents and 4 (2%) of approximately 200 staff had radiographically confirmed pneumonia. Thirteen (93%) of 14 residents with pneumonia were hospitalized; 5 (36%) required mechanical ventilation, and 1 (7%) died. One staff member was hospitalized. Adenovirus infection was diagnosed in 17 of 18 persons with pneumonia by culture or serology and was confirmed as adenovirus 35 infection in 8 persons. Residents with pneumonia had resided at the facility longer than other residents. Chronic illness was not a risk factor for severe disease.

The researchers concluded that crowding and poor hygienic behaviors probably facilitated transmission among residents.

FROM: Sanchez MP, Erdman DD, Torok TJ, Freeman CJ, Matyas BT. Outbreak of adenovirus 35 pneumonia among adult residents and staff of a chronic care psychiatric facility. *J Infect Dis* 1997;176:760-763.

Nosocomial *Fusarium* Infections

Despite increasing reports of life-threatening *Fusarium* infections, little is known about its pathogenesis and management. Researchers from the University of Texas MD Anderson Cancer Center, Houston, conducted a retrospective study of invasive fusarial infections over a 10-year period (1986-1995) in patients with hematologic malignancy. Forty patients with disseminated infection and three patients with invasive lung infection were included in the analysis; all were immunocompromised and were diagnosed antemortem.

Thirteen patients responded to therapy, but two relapsed. Response was associated with granulocyte transfusions, amphotericin B lipid formulations (four patients each), and an investigational triazole (two patients). Resolution of infection was seen only in patients who ultimately recovered from myelosuppression. Portal of entry was the skin (33%), the sinopulmonary tree (30%), and unknown (37%). *Fusarium* causes serious morbidity and mortality, and may mimic aspergillosis.

The authors note that these infections seem to respond to newer therapeutic approaches, but only in patients with ultimate recovery from myelosuppression, and may relapse if neutropenia recurs.

FROM: Boutati EI, Anaissie EJ. *Fusarium,* a significant emerging pathogen in patients with hematologic malignancy: ten years' experience at a cancer center and implications for management. *Blood* 1997;90:999-1008.

CJD Update

In 1997, a nongovernmental surveillance group for Creutzfeldt-Jakob disease (CJD) in Japan reported to the Ministry of Health and Welfare its analysis of a 1996 mail questionnaire survey of neurological, psychiatric, and neuropathologic institutions throughout Japan. This analysis identified 829 patients with CJD diagnosed by physicians during January 1979 to May 1996, including a large number (43 patients) who had received a cadaveric dura mater graft during a neurosurgical (42 patients) or orthopedic (1

patient) procedure during 1979 to 1991. The findings indicate that an international outbreak of CJD associated with a single brand of dura mater grafts is larger than previously recognized and that recipients of contaminated grafts may remain at risk for CJD for at least 16 years following receipt of grafts.

Follow-up investigation of the 43 CJD cases associated with dura mater grafts revealed that at least 41 persons (95%) had received a single brand of dura mater graft, LYODURA, processed by B. Braun Melsungen AG. The grafts had been processed before May 1987, when the company revised its procedures for collecting and processing dura. The revised procedures, designed to reduce the risk for CJD transmission, included conversion from batch to individual processing of dura mater and treatment of each dura mater graft with 1.0 normal sodium hydroxide (NaOH). The 43 patients with CJD had onset of illness from September 1985 to May 1996. The mean age of the 43 patients was 53 years (8 were under 40 years) compared with 63 years for the other CJD cases identified in this survey ($P<.05$). The mean latency period between receipt of a dura mater graft and onset of CJD was 89 months (range, 16-193 months). Of the 43 CJD patients, 42 received their dura mater graft during 1979 to 1989. All but one of the 42 patients were reported to have received LYODURA that had been processed without exposure to NaOH. Thirty-three (77%) of the patients received their grafts during 1983 to 1987, when an estimated 100,000 patients may have received LYODURA in Japan (approximately 1 case of CJD per 3,000 LYODURA recipients). All of these 33 patients died of CJD within 12 years after receipt of the grafts.

Reports such as these, as well as those of spongiform bovine encephalopathy (mad cow disease) in Great Britain, have caused concern among central sterilization professionals, because laboratory studies have shown prions in tissue are relatively resistant to conventional sterilization procedures. A number of countries have incorporated extraordinary protocols for sterilization of medical devices and instruments. For example, in France, it is recommended that any surgical instrument exposed to brain or CNS tissue of any patient be autoclaved for at least 18 minutes at 134°C; in The Netherlands, it is recommended that instruments exposed to the brain or CNS of patients with documented or suspected CJD be autoclaved for 3 minutes at 134°C for six consecutive cycles. Other countries have similar recommendations. Some manufactures of lensed instruments have recommended that instruments be discarded if they are used on patients suspected of having CJD.

Dr. Lynne Sehulster and colleagues from the CDC's Hospital Infection Program recently proposed that the epidemiology of CJD, with emphasis on the modes of transmission and the tissue or body substance sources of the agent, as well as long-standing principles of disinfection and sterilization, be considered for a more rational approach to designing sterilization strategies. The prion content of tissues varies; brain and CNS contain the highest prion levels and, thus, are considered high-risk tissues. Strategies for reprocessing medical devices and surgical instruments and for decontaminating environmental surfaces that are potentially contaminated with prion agents should take into account both the epidemiology and prion content of the tissues involved. The ability to clean instruments and medical devices adequately after they have come in contact with tissues of the CNS is the key to further reprocessing. Those devices that are difficult or impossible to clean either should be discarded or sterilized by steam autoclaving at 132°C to 134°C for 18 minutes or by soaking in 1-N NaOH for 1 hour, and then cleaned and sterilized or disinfected by conventional means. Those devices that can be cleaned adequately to remove residual tissue and other patient material can be sterilized subsequently or disinfected using conventional protocols. Surfaces and medical devices that have not come in contact with CNS tissues and fluids, even if the device was used on a known or suspected CJD patient, may be cleaned and disinfected or sterilized using conventional protocols.

FROM: Sehulster LM, Favero MS, Bond WW. Prions and reprocessing: are we doing too much? Presented at the Association for Advancement of Medical Instrumentation and the US Food and Drug Administration Conference on Reprocessing Medical Devices: Designing, Testing, and Labeling; November 5-7, 1997; Dallas, Texas.

Additional news items in this issue: Anergy Testing and TB Preventive Therapy for HIV-Infected Persons, page 89; Update on Reuse of Hemodialyzers, page 93; TB Isolation Criteria, page 100; Toll-Free Hot Line for Treating Occupational Bloodborne Pathogen Exposures, page 105; Enterococci Intrinsically Resistant to Vancomycin, page 135; EPA Charges Illegal claim for Antibacterial-Impregnated Consumer Products, page 140.