# Medical News

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## Outbreak of *Mycobacterium xenopi* After Spinal Infections

Astagneau and coinvestigators from Paris report on an outbreak of *Mycobacterium xenopi* spinal infections diagnosed in 1993 in patients who had undergone surgical microdiscectomy for disc hernia, by nucleotomy or microsurgery, in a private hospital. Contaminated tap water, used for rinsing surgical devices after disinfection, was identified as the source of the outbreak. Several cases were recorded in the 4 years after implementation of effective control measures because of the long time between discectomy and case detection. The national health authorities decided to launch a retrospective investigation in patients who were exposed to *M xenopi* contamination in that hospital. Mailing and media campaigns were undertaken concurrently to trace exposed patients for spinal infections. Patients were screened by magnetic resonance imaging (MRI), and the scans were reviewed by a radiologist who was unaware of the diagnosis. Suspected cases had discovertebral biopsy for histopathological and bacteriological examination.

Of 3,244 exposed patients, 2,971 (92%) were informed about the risk of infection, and 2,454 (76%) had an MRI. Overall, 58 cases of *M xenopi* spinal infection were identified (overall cumulative frequency, 1.8%), including 26 by the campaign (mean delay in detection, 5.2 years; standard deviation, 2.4; range, 1-10 years). Multivariate analysis showed that the risk of *M xenopi* spinal infection was related to nucleotomy and a high number of patients per operating session. The authors' interpretation was that failures in hygiene practices could result in an uncontrolled outbreak of nosocomial infection. Patients who have been exposed to an iatrogenic infectious hazard should be screened promptly and receive effective information.

FROM: Astagneau P, Desplaces N, Vincent V, Chicheportiche V, Botherel A, Maugat S, et al. *Mycobacterium xenopi* spinal infections after discovertebral surgery: investigation and screening of a large outbreak. *Lancet* 2001;358:747-751.

## Contamination of Tourniquets Used for Venipuncture

Rourke and colleagues, from Royal Hallamshire Hospital in the United Kingdom, conducted a study on microbial contamination of tourniquets. Previous studies have indicated that tourniquets may act as reservoirs of pathogenic organisms and therefore could pose a risk to patients through cross-infection. In this study, 200 tourniquets were sampled from health professionals working in a large teaching hospital. A parallel survey of control of infection also was undertaken.

*Staphylococcus aureus* was isolated from 10 (5%) of the tourniquets sampled. Methicillin-resistant *S aureus* (MRSA) was not isolated. Seventy-five (37.5%) of the tourniquets sampled had visible blood stains. House officers (72.7%) and laboratory phlebotomists (69.2%) had the highest proportion of blood-stained tourniquets. Tourniquets were owned on average for 1.86 years, with most respondents only obtaining a new tourniquet when the old tourniquet was lost. Three percent of respondents used a separate tourniquet for patients with known infective risk factors (eg, human immunodeficiency virus, MRSA). Twenty-seven percent of respondents did not wear gloves for venepuncture or did so only occasionally. Only 42% washed their hands both before and after venepuncture.

The study survey revealed poor infection control practice, but a relatively low frequency of *S aureus* contamination of tourniquets.

FROM: Rourke C, Bates C, Read RC. Poor hospital infection control practice in venepuncture and use of tourniquets. *J Hosp Infect* 2001;49:59-61.

## MRSA in Patients Undergoing Major Amputation

Grimble and coinvestigators from the Royal Berkshire Hospital, Reading, United Kingdom, conducted a study to examine the impact of methicillin-resistant *Staphylococcus aureus* (MRSA) infection on patients undergoing major amputation. The study included patients having had major amputation and positive MRSA cultures during the period January 1995 through December 1999. Outcomes were compared with a randomly chosen group of patients who had major amputation but no positive MRSA culture from the same time period.

Overall, 21% of patients undergoing amputation were MRSA-positive. Twenty-eight patients (30 amputations) with MRSA-positive cultures were compared with 44 patients (54 amputations) who did not have positive cultures for MRSA. MRSA was isolated from the wound in 17 of 30 amputations. More patients in the control group had a below-knee amputation (38/54 compared with 12/30; $P<.02$). Mortality in MRSA-positive patients was higher than controls (12/28, 43%, vs 4/44, 9%; $P<.01$). Primary healing was achieved in only 4 of 17 (24%) amputations where MRSA was isolated from the wound, compared with 31 of 54 (57%) controls ($P<.05$). Delayed healing due to chronic infection also was more likely in MRSA-positive patients ($P<.01$).

The authors concluded that, in view of the high morbidity and mortality in patients with MRSA-positive isolates, specific antibiotic prophylaxis against MRSA should be considered in patients undergoing major amputation.

FROM: Grimble SA, Magee TR, Galland RB. Methicillin-resistant *Staphylococcus aureus* in patients undergoing major amputation. *Eur J Vasc Endovasc Surg* 2001;22:215-218.

## *Staphylococcus aureus* Bacteremia Associated With Pacemakers and Implantable Defibrillators

Although cardiac device infections (CDIs) are a devastating complication of permanent pacemakers or implantable cardioverter-defibrillators, the incidence of CDI in patients with bacteremia is not well defined. Chamis and coinvestigators, from the Duke University Medical Center, Durham, North Carolina, conducted a study to determine the incidence of CDI among patients with permanent pacemakers or implantable cardioverter-defibrillators who develop *Staphylococcus aureus* bacteremia (SAB).

A cohort of all adult patients with SAB and permanent pacemakers or implantable cardioverter-defibrillators over a 6-year period was evaluated prospectively. The overall incidence of confirmed CDI was 15 of 33 (45.4%). Confirmed CDI occurred in 9 of the 12 patients (75%) with early SAB (<1 year after device placement). Fifteen of 21 patients (71.5%) with late SAB (≥1 year after device placement) had either confirmed (6/21, 28.5%) or possible (9/21, 43%) CDI. In 60% of the patients (9/15) with confirmed CDI, no local signs or symptoms suggesting generator pocket infection were noted.

The authors concluded that the incidence of CDI among patients with SAB and cardiac devices is high. Neither physical examination nor echocardiography can exclude the possibility of CDI. In patients with early SAB, the device is usually involved, and approximately 40% of these patients have obvious clinical signs of cardiac-device involvement. Conversely, in patients with late SAB, the cardiac device rarely is the initial source of bacteremia, and there is a paucity of local signs of device involvement. The cardiac device is involved, however, in 28% or more of these patients.

FROM: Chamis AL, Peterson GE, Cabell CH, Corey GR, Sorrentino RA, Greenfield RA, et al. *Staphylococcus aureus* bacteremia in patients with permanent pacemakers or implantable cardioverter-defibrillators. *Circulation* 2001;104:1029-1033.

## Influenza Outbreak in a Transplant Unit

Although there is a strong body of evidence in favor of influenza virus immunization in solid-organ recipients, little attention has been devoted to other reservoirs, such as the patients' relatives and, at the time of hospital admission, healthcare workers. Malavaud and coinvestigators from France report on an analysis of the epidemiology of an outbreak of nosocomial influenza A in a solid-organ transplant unit. Four cases of influenza A virus infection were reported during a short 4-day outbreak in a 12 single-room transplant unit. None of the patients had been immunized against influenza. Three patients had not been visited by their relatives between admission and influenza infection. Three nurses, among the 27 healthcare workers, presented with clinical flu symptoms at times consistent with nosocomial transmission.

Because the prevention of influenza infection by vaccination warrants a global strategy to target the different reservoirs, the authors suggest that the modern policy of vaccinating solid-organ patients should be extended both to their relatives and to the healthcare workers of transplant units.

FROM: Malavaud S, Malavaud B, Sandres K, Durand D, Marty N, Icart J, et al. Nosocomial outbreak of influenza virus A (H3N2) infection in a solid organ transplant department. *Transplantation* 2001;72:535-537.

## Risk Factors for Mortality and Nosocomial Infections in Elderly Cardiac Surgery Patients

Rady and coinvestigators, from the Cleveland Clinic Foundation, conducted an inception cohort study to determine perioperative predictors of morbidity and mortality in patients ≥75 years of age after cardiac surgery. The setting was a 54-bed, tertiary-care, cardiothoracic intensive care unit (ICU); the study included all patients aged ≥75 years admitted over a 30-month period for cardiac surgery. Data were collected on preoperative factors, operative factors, postoperative hemodynamics, and laboratory data obtained on admission and during the ICU stay.

Postoperative death, frequency rate of organ dysfunction, nosocomial infections, length of mechanical ventilation, and ICU stay were recorded. During the study period, 1,157 (14%) of 8,501 patients ≥75 years of age had a morbidity rate of 54% (625/1,157 patients) and a mortality rate of 8% (90/1,157 patients) after cardiac surgery. Predictors of postoperative morbidity included preoperative intraaortic balloon counterpulsation, preoperative serum bilirubin of >1.0 mg/dL, blood transfusion requirement of >10 units of red blood cells, cardiopulmonary bypass time of >120 minutes (aortic cross-clamp time of >80 minutes), return to operating room for surgical exploration, heart rate of >120 beats/min, requirement for inotropes and vasopressors after surgery and on admission to the ICU, and anemia beyond the second postoperative day.

Predictors of postoperative mortality included preoperative cardiac shock, serum albumin of <4.0 g/dL, systemic oxygen delivery of <320 mL/min/$m^2$ before surgery, blood transfusion requirement of >10 units of red blood cells, cardiopulmonary bypass time of >140 minutes (aortic cross-clamp time of >120 minutes), subsequent return to the operating room for surgical exploration, mean arterial pressure of <60 mm Hg, heart rate of >120 beats/min, cen-