Medical News

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HIV Transmission From Surgeon to Patient

The French National Public Health Network recently reported an investigation of HIV transmission from an orthopedic surgeon to a patient in Saint Germain en Laye (outside of Paris).

In October 1995, after the HIV seropositive status of the orthopedic surgeon was announced in the medical press, the French Director of General Health decided to inform, and offer testing to, the patients operated on by this surgeon.

An epidemiological investigation was conducted jointly by the hospital of Saint Germain en Laye, the National Public Health Network, and the Coordinating Center for Combating Nosocomial Infections of Northern Paris. The investigation involved three phases: a review of the medical history of the surgeon; identification of, and offering HIV testing to, patients operated on by the surgeon during a period when the patients may have been at risk; and assessing the surgeon's practice, in conjunction with the surgeons and infection control personnel of the hospital. An information center was established at the hospital to handle telephone calls, arrange consultations with patients, and offer HIV testing, if appropriate.

Review of the medical history of the surgeon suggests that he most probably became infected with HIV in May 1983. The diagnosis of HIV seropositivity and AIDS were made simultaneously in March 1994.

The investigation identified 3,004 patients who had undergone at least one invasive procedure by the surgeon; 2,458 of these patients were contacted by mail. The serologic status of 968 patients was determined; 967 were seronegative (32.2% of the total population and 39% of patients contacted). Only one patient, who was seronegative before the operation performed by the surgeon in 1992, is seropositive. The records indicated that this patient's orthopedic procedure lasted 10 hours.

The laboratory of Luc Montagnier, Director of the National Center for Virology at the Pasteur Institute, performed the typing of the viral strains of the virus from the patient and the surgeon and compared nucleotide sequences. Phylogenetic trees obtained from different methods indicated that the viruses were closely related.

Assessment of the surgeon's surgical practices indicated that the surgeon did experience wounds and cuts during surgery that may have exposed patients to his blood, although no injury was documented during the procedures on this specific patient. It also notes that the surgeon's exposures seemed to be related more to orthopedic surgical technique than to the practice of the surgeon himself.

The infection control procedures in effect in the operating room were in accordance with recommendations for prevention of accidental exposures to blood, standard techniques for orthopedic surgery, and sterilization of medical equipment.

The report concludes that several epidemiological arguments are in favor of nosocomial HIV transmission. The patient was seronegative before the operation performed by the surgeon and had no other risk factors for HIV infection; the patient had a particularly prolonged duration of exposure to the risk (surgery for over 10 hours); and the surgeon's viral load could have been elevated at the time of operation on the patient. Finally, the epidemiological investigation, confirmed by the viral sequencing comparisons of the patient's and surgeon's virus, indicated that this transmission is "highly probable." The Director General of Health reinforced the recommendations that Universal Precautions be followed and that these recommendations be disseminated once again to all healthcare settings.

Representatives of the US Centers for Disease Control and Prevention (CDC) have been in communication with the French investigators and believe that the clinical and epidemiological information that is available suggests that the patient acquired HIV infection from the surgeon during an operation.

This is only the second reported case of an HIV-infected healthcare worker (HCW) transmitting HIV to a patient during an invasive procedure, the first case being the widely publicized 1991 Florida dental case investigation that indicated HIV was transmitted from a dentist with AIDS to a total of six patients.

FROM: National Public Health Network (France)/ Reseau National de Sante Publique. Report on HIV transmission from an infected surgeon to one patient in France, January 17, 1997; and

Simons M. French doctor with AIDS reportedly infects patient in surgery. *New York Times* January 17, 1997:A4.

Nosocomial Malaria

A cluster of acute *Plasmodium falciparum* malaria (AFM) cases in a hospital in Riyadh, Saudi Arabia, prompted an epidemiological investigation to determine mode of transmission. Researchers from the Saudi Arabia Ministry of Health and the CDC assisted with the investigation, which included reviewing all AFM patients admitted to one pediatric hospital from December 1991 to April 1992.

Malaria was considered acquired locally (LAFM) if during the month before the onset the patient had not visited a malaria area and as hospital-acquired (HAFM) if the LAFM patient had been admitted to the hospital during that

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month. Exposures of HAFM cases were compared with those of other patients sampled from the same wards. Nursing practices were observed, and an anonymous questionnaire was issued to assess methods for administration of parenteral drugs.

Of the 21 LAFM cases, 20 (95%) had a previous hospital admission (exposure admission) compared with 15 (25%) of 61 other patients ($P<.001$). During the exposure admission, all HAFM patients had occupied the same room as, or a room adjacent to, an AFM patient; 14 (23%) of the 60 other patients occupied the same room or rooms adjacent to an AFM patient ($P<.001$). Ninety percent of the HAFM patients received infusions through a heparin lock during the exposure admission, compared with 49% of 120 general patients ($P<.001$). Ten percent of the nurses admitted to using one syringe for more than one heparin lock, and 50% filled syringes with enough heparin for 3 to 10 heparin locks.

Investigators concluded that *P falciparum* was transmitted between patients when single syringes were used on heparin locks of sequential patients. They note that nosocomial bloodborne transmission of malaria is less likely to occur than transmission of hepatitis B, HIV, viral hemorrhagic fevers, or other bloodborne agents. To transmit malaria, transfer of intact erythrocytes is needed, thus the link to heparin: the blood must be fresh.

Concern was expressed by the investigators that this practice of using one syringe, with or without a needle, on the intravenous device of more than one patient might be a widespread practice. Nurses and doctors that staff this hospital come from a variety of Asian, Middle Eastern, and African countries. Use of a single syringe for injection into the intravenous lines of multiple patients for administration of anesthesia has led to nosocomial infections in the United States. Fluid in an intravenous device represents a direct conduit to the patient's blood, and only rigid adherence to correct use of devices that access this fluid will prevent transfer of infectious agents.

FROM: Abulrahi HA, Bohlega EA, Fontaine RE, et al. *Plasmodium falciparum* malaria transmitted in hospital through heparin locks. *Lancet* 1997;349:23-25.

Nosocomial Infections in High-Risk Nurseries

The CDC's National Nosocomial Infection Surveillance (NNIS) System recently published data on the epidemiology of nosocomial infections among neonates in 99 hospitals with Level III high-risk nurseries that participate in NNIS. All 99 hospitals use standard surveillance protocols and nosocomial infection site definitions. The data included information on, and risk factors for, infection such as device exposure, birth-weight category (<1,000 g, 1,001 g through 1,500 g, 1,501 g through 2,500 g, and >2,500 g), mortality, and the relationship of nosocomial infection to death.

From October 1986 through September 1994, these hospitals submitted data on 13,179 nosocomial infections. The bloodstream was the most frequent site of nosocomial infection in all birth-weight groups. Nosocomial pneumonia was the second most common infection site, followed by the gastrointestinal and eye, ear, nose, and throat sites. The most common nosocomial pathogens among all neonates were coagulase-negative staphylococci, *Staphylococcus aureus,* enterococci, *Enterobacter* species, and *Escherichia coli.* Group B streptococci were associated with 48% of bloodstream infections that were acquired maternally; coagulase-negative staphylococci were associated with 58% of the bloodstream infections that were not acquired maternally, most of which (88%) were associated with umbilical or central intravenous catheters.

The CDC recommends that bloodstream infections, the most frequent nosocomial infections in all birth-weight groups, should be a major focus of surveillance and prevention efforts in high-risk nurseries. Within the nursery, bloodstream infection surveillance should focus on umbilical or central intravenous catheter use, a major risk factor for infections.

FROM: Gaynes RP, Edwards JR, Jarvis WR, et al. Nosocomial infections among neonates in high-risk nurseries in the United States. *Pediatrics* 1996;98:357-361.

Additional news items in this issue: Dramatic Drop in AIDS Deaths, page 164; Influenza Vaccination of Workers Reduces Mortality in Elderly Patients, page 182; Risk Factors for Nursing Home Outbreaks, page 208; Foege Named Professor, page 214.

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