



INVESTIGATION OF PATIENTS POTENTIALLY EXPOSED TO AN HIV-INFECTED HEALTH CARE WORKER

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This article describes the methods used in, and the results of, an investigation to determine whether there was evidence of transmission of human immunodeficiency virus (HIV) to patients from an HIV-infected health care worker who had performed exposure-prone procedures.

The health care worker (HCW) sustained a needlestick injury while working in the obstetric unit of a Sydney hospital. On the day of the injury, in the first half of 1994, routine baseline blood samples were taken from the HCW and the patient for HIV and hepatitis B serology. The results, which became available four days after the injury, showed the worker was HIV antibody positive, while the patient was HIV antibody negative. The HCW immediately ceased work.

An expert committee was convened to review the evidence for potential HIV transmission from the HCW to patients and advise on the optimal response. Because the HCW had been infected for an unknown period and had been performing exposure-prone procedures, the committee recommended that a "lookback" case-finding investigation be undertaken to determine the potential risk for former patients.

Exposure-prone procedures were defined as those "characterised by the potential for direct contact between the skin (usually finger or thumb) of the health care worker and sharp surgical instruments or needles in body cavities and confined sites".

INVESTIGATION METHODS

Identifying the patients at risk

The period of risk was assessed by determining from the HCW and the HCW's physicians whether there were any previous documented HIV tests, evidence of a seroconversion illness, or clear episodes of exposure (occupational or otherwise) likely to have caused infection. The HCW was asked whether s/he had had blood samples taken for any reason since the last negative HIV test, in case any stored blood was available for testing. The HCW's initials and date of birth were cross-matched with the NSW HIV notification register.

The HCW had been HIV antibody negative at the beginning of 1992. While it was not possible to determine an exact date of infection, the HCW's specialist physician believed it was most likely to have occurred around mid-1992, based on current tests of immune function and a possible seroconversion illness at that time. A thorough exposure history did not suggest a likely date of infection. No match was found between the HCW's identifiers and the NSW HIV register.

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Potential HIV transmission

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The HCW's work history was determined from personnel records and checked by interviewing the HCW. The types of exposure-prone procedures which the HCW may have undertaken were listed by reviewing relevant chapters from the International Classification of Diseases and Causes of Death, 9th Revision, Clinical Modification², and interviewing the HCW and the HCW's department head. Relevant procedures, performed since June 1992, were perineal and vaginal repairs following delivery, and caesarean sections. If the HCW was the main operator, all such procedures were considered to be exposure-prone. If the HCW was operating as an assistant, they were considered exposure-prone only if the operation was an emergency, conducted after hours, or associated with excessive bleeding.

Computerised and paper hospital records were searched to identify patients who had had exposure-prone procedures in which the HCW was involved. A case-by-case review of medical records identified 149 women as having undergone an exposure-prone procedure that involved the HCW during the period of risk.

The HCW was also interviewed regarding his/her infection control practices.

Patient follow-up

Ten teams of senior nurses and experienced HIV counsellors were assembled to contact the 149 women by telephone and then in person. Staff from the Multicultural HIV Project were used for communication with patients whose main language was not English. An HIV test was offered to each woman at the time of contact, and arrangements were made with a large hospital laboratory so results could be obtained within hours of specimen collection.

Three days after this phase began, the investigation was publicised, advertisements were placed in all NSW newspapers and a telephone hotline was set up to assist in the effort to trace the patients. Other information sources were also used in the search for further contact details.

RESULTS

Most of the effort to contact and offer tests to the 149 women took place between Friday, July 29 and Sunday, July 31, 1994. By the time of writing two weeks later, 136 (91 per cent) of the 149 patients had been contacted and 134 (90 per cent) had been tested for HIV. Of those tested, 133 were HIV antibody negative, and one was HIV antibody positive. Further testing of a stored specimen from the HIV antibody positive woman revealed she had been positive at the time of the obstetric procedure which involved the HCW.

Of the 136 women contacted, two refused HIV testing.

Thirteen women (9 per cent) could not be contacted, of whom six were known to be overseas. Efforts to contact the 13 women are continuing.

DISCUSSION

It is reassuring that no instance of HCW-to-patient HIV transmission was observed in this instance. Further HIV testing of potentially exposed individuals was considered unnecessary because the time elapsed between the last possible exposure and the investigation was beyond the "window period".

Overseas experience indicates the risk of HCW-to-patient transmission of HIV is extremely small.^{2,3,4,5,6,7,8} Despite this, several factors made this investigation imperative. These included the nature of the procedures performed by the HCW, the potentially high infectivity of the HCW, the potential for infection of infants through breast feeding, and the lack of Australian information on the risk to patients. In addition, the availability of good quality computerised and paper hospital records made the investigation feasible.

The investigation was costly, not only because of the personnel and laboratory work involved, but also because it created anxiety for a large number of women and potentially infringed the privacy of the HIV positive HCW.

The NSW Health Department is reviewing its guidelines in relation to HCWs and HIV infection in the light of this incident. Decisions about any investigations of this type in future should be based on an assessment of factors specific to each instance, including risks, costs and benefits.

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