

Surgeon and Human Immunodeficiency Virus Infection

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Abstract: HIV infection has attained extraordinary attention among surgeons and other health care workers as a potential source of occupational infection. Disease is usually blood-borne and transmissible, and due to the nature of surgical work, surgical community has become involved and is developing sterile surgical barriers, and improved surgical techniques and procedures.

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Introduction

Surgeons have the same responsibility and ethical obligations to render care to HIV-infected patients as they have to care for other patients. ⁽¹⁾ Knowledge of the HIV infection status of the individual is not to be used in the determination of suitability of the surgeon for surgical practice.

Source of infection

The principal route of acquired HIV infection in healthcare workers is by skin perforation with a hollow needle from HIV-infected blood, ⁽²⁾ although infection has been reported after solid needle injury, the risk is about 10-fold less than with hollow needle perforation. ⁽³⁾ The surgeon is regularly exposed to blood, which is the most infective medium for HIV transmission ⁽⁴⁾. The risk is greater where there are more HIV particles in the blood and this occurs during the earliest and later stages of the disease. The extent of risk to the surgeon depends on the prevalence of HIV in the patient population, the number of procedures carried out by the surgeon, and the length of the period of risk.

Risk After Exposure

The risk of HIV transmission after injury with a hollow needle contaminated with HIV-infected blood is 0.3%. ^(5,6) Increased risk of transmission are associated with several specific circumstances: 16-fold if the hollow needle injury was a deep soft tissue penetration, 5-fold if there is either visible blood on the needle or the procedure involved placement of the needle in an artery or vein, and 6-fold if the patient has advanced AIDS (and presumably a high viral titer). ^(7,8)

Precautions and Advice to Theatre Staff

Screening of all patients for HIV infection before routine surgery would identify a substantial proportion of patients, this has not, been accepted because of political and social constraints.

Theater environment

The most important operative precaution is to carry out the procedure in an orderly manner. Surgical assistants should be kept to a minimum and should be instructed not to move while the operation is proceeding. It would be prudent not to use inexperienced personnel to assist in the operation. Unnecessary instruments should

be removed from the theatre in order to avoid contaminating these instruments and also in order to make the operating theatre less cluttered so that the staff will be able to concentrate better. Any blood spilled in the theatre should be decontaminated as soon as possible. The use of disposable surgical instruments in the theatre would be of great help. Well marked disposable bags should be used for the collection of waste from the theatre and the waste should be incinerated

Surgeon and Assisting Staff

The staff involved in the operation should wear double gloves, plastic aprons, boots, eye goggles and masks. ^(2,4,9) Skin contamination from glove perforation can be reduced approximately fivefold by wearing two pairs of gloves ⁽³⁾ {It is usually more comfortable if the larger-sized glove is worn on the inside next to the skin and a half-size, smaller glove is worn as the outer second layer. ⁽⁹⁾ Sharps should not be passed hand to hand. ⁽¹⁰⁾ All instruments are passed from the scrub nurse to the surgeon and back to the scrub nurse in a dish, thereby reducing the risk of injury while passing instruments. ⁽³⁾ Needles should not be guided with fingers and hand needles should not be used in the operation. Needle-stick injuries to the hands most frequently occur on the index finger and palm adjacent to the thumb of the nondominant hand. ⁽³⁾ For the purpose of wound drainage, closed apparatus should be used. The operation should proceed in a slow and methodical manner with meticulous attention to haemostasis, taking care to avoid unexpected rapid bleeding which changes the tempo of the procedure and increases the risk of inadvertent injury to the operators.

Management and Precautions in the Ward

Risk to other patients in the ward is minimized by putting the patient into a single room after the operation. Only trained staff should be used and they should be instructed on the use of techniques which minimize contamination with the patient's blood, body fluids, secretions and excretions, in particular measures to prevent percutaneous injuries. Masks would not be necessary except for procedures such as endotracheal aspiration or changing the drainage bottle, where there is risk of splashing. Plastic gloves should be worn at all times and any cuts and bruises covered

adequately. Extra care must be observed if blood is to be taken from this patient using venepuncture so that needle stick injuries are avoided. The same vigilance applies to the insertion of IV lines. The used needle and waste material taken from the patient, such as wound dressings should be discarded into well marked leak-proof disposal bags and incinerated, autoclaved or microwave-treated.

⁽¹¹⁾ Soiled linens should be placed in a labelled bag, the usual hot-wash cycle would be sufficient for disinfection. Autoclaving may be used for heavily contaminated linens.

Procedure in the Event of Contamination with Infected Blood

A surgeon who has been contaminated with HIV-infected blood should immediately clean the contaminated area by washing under running water. Where the source patient comes from a high-risk group and the HIV status is unknown, it is important that postexposure prophylaxis to HIV should be offered. ⁽¹²⁾ This should be started within 1 hour of the injury where possible, so it is inappropriate to await the result of an HIV antibody test in a high-risk patient before commencing the prophylaxis. A baseline HIV test should be carried out immediately since seroconversion will not have occurred immediately after injury. The HIV test should then be repeated approximately 12 weeks after contamination to determine whether seroconversion has occurred. ⁽³⁾ Where a medical practitioner discovers that he or she is HIV positive, the requirement is that 'if their duties involve performing or assisting in surgical or invasive procedures, they must seek and act upon occupational advice on any modifications or limitations to their duties which may be necessary for the protection of patients'.

To conclude, the highest level of discipline should be observed in the theatre and in the ward in order to minimize the risk of accidents involving blood and other body fluids from the patient.

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