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# The Surgical Infection Society's Policy on Human Immunodeficiency Virus and Hepatitis B and C Infection

## The Ad Hoc Committee on Acquired Immunodeficiency Syndrome and Hepatitis

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● **The Ad Hoc Committee on Acquired Immunodeficiency Syndrome and Hepatitis of The Surgical Infection Society has outlined its policy regarding three deadly blood-borne viral infections. The risk of transmission of these microbes, the role of preoperative testing, the problem of the human immunodeficiency virus-infected surgeon, and conduct in the operating room are discussed.**  
(*Arch Surg.* 1992;127:218-221)

In the spring of 1990, the Ad Hoc Committee on AIDS and Hepatitis was formed by President Robert E. Condon, MD, of the Surgical Infection Society to draft a policy with respect to three deadly, blood-borne viral infections: human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). The Committee was to study and make recommendations regarding, but not restricted to, the following: the risk of HIV transmission, the role of preoperative testing, the HIV-infected surgeon, conduct in the operating room, and the risk of hepatitis transmission.

Many states have specific regulations outlawing discrimination against patients who test positive for HIV. The Society firmly supports these laws and condemns any conduct that would have a negative impact on patient care. Additionally, if the result of a patient's HIV test is positive, the physician must provide the patient with appropriate counseling and follow-up medical care.

If a patient's blood contaminates a health care worker

(HCW), that patient's HIV status should be obtainable without any legal restriction. This proviso would allow HCWs to know their potential risk of acquiring HIV from the contaminating blood.

### THE RISK OF HIV TRANSMISSION

As reported previously, the rate of positive HIV serologic testing in the population is low, approximately four per thousand,<sup>1,2</sup> and there is little risk of transmission of HIV in the operating room either from the patient to the surgeon or from the surgeon to the patient. Only 28 HCWs have undergone *proven* seroconversions following exposure to patients infected with HIV.<sup>3</sup> None of these seroconverts were surgeons; neither were they exposed in the operating room or injured with solid-bore needles. Seroconversion occurred in only six of 1538 HCWs suffering 1607 needlestick injuries. Many of these exposures were with solid-bore needles.<sup>4</sup>

### THE ROLE OF PREOPERATIVE TESTING

The main problem regarding HIV testing has been the "politicalization" of this test. Since its use is legally restricted, epidemiologic information about HIV infections, which might otherwise be forthcoming, is limited. We suggest that the legal restrictions of this accurate test be lifted. Such a change can only benefit those individuals who are HIV-infected, since enzyme inhibitors of reverse transcriptase (zidovudine and didanosine) have proven therapeutic efficacy. The public would benefit by the increased knowledge gained about this disease.<sup>5-7</sup>

Since it is unlikely that the legal restrictions will ever be altered based on this report, we recommend that HIV testing be considered in all adult patients who are entering the medical system for the first time. Subsequent testing is recommended as indicated. Testing also should be performed following high-risk behavior. We do not specifically advocate testing before a surgical procedure as it relates to the surgeon's protection, but as it relates to the provision of high-quality health care to the patient.

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## THE HIV-INFECTED SURGEON

When three health care professionals (a dentist, a cardiac surgeon, and an oncologic surgeon) continued to practice after they knew they were HIV-infected, the propriety of their activities became an issue openly debated in the press. Subsequent to these widely publicized cases, the HIV serologic testing of several hundred patients operated on by surgeons who tested positive for HIV has been reported. The only probable cases of transmission occurred in the dentist's practice. However, the public has become aware of a *potential* health risk, especially as it relates to the surgical environment (*The New York Times*, January 22, 1991:C3).<sup>8</sup>

The Committee believes that it is inconsistent to selectively perform HIV tests on surgeons without any data to show that an HIV-infected surgeon poses a *significant* health risk to his or her patients. There has never been a documented record of transmission of HIV from a surgeon to a patient, and the cases apparently transmitted in the dentist's office occurred where universal precautions<sup>9</sup> were ignored.<sup>8</sup> The Ad Hoc Committee on AIDS and Hepatitis does not advocate the limitation of a surgeon's professional activity based exclusively on a positive HIV serology. *Testing* is recommended in doctors and patients alike, only as these test results may benefit and direct the individual's subsequent health care.

The Committee recommends that universal precautions be strictly enforced and, if necessary, education programs reinitiated.

Additionally, the Committee recognizes a need for additional data regarding the risk of spreading of HIV infection in the surgical setting, either patient to doctor or doctor to patient. The Committee calls for specific investigations by the Centers for Disease Control to ascertain this risk.

The Committee advocates anonymous longitudinal studies be undertaken to assess the HIV serologic status in surgeons working in areas of high seroprevalence and recommends additional investigations to improve barrier techniques in the operating rooms and emergency departments.

Such studies are of critical importance to base future policy with regard to invasive medical procedures on fact rather than hypotheses and emotions.

## THE RISK OF HEPATITIS TRANSMISSION

Transmission of viral hepatitis from infected patients and HCWs to noninfected patients and HCWs has been a problem for several decades. This is especially true of surgeons and their patients. There are currently four major types of viral hepatitis that can infect such persons: hepatitis A, HBV, HCV, and non-A, non-B, non-C hepatitis.

Hepatitis A viral infections are primarily transmitted by the fecal and oral routes. As such, appropriate hand washing can prevent most cases of hepatitis A viral infections. When they occur, these infections are, in general, shorter in duration and less severe than the HBV and non-A, non-B (NANB) viral infections. Nonetheless, the disease can, on rare occasions, be fatal. Medical personnel who contract hepatitis A infections should refrain from patient care until the disease has run its course. Personnel who are placed at risk of developing hepatitis A infection should be offered immunoglobulin therapy. Al-

though such therapy is not universally successful in preventing infections, it decreases the incidence of hepatitis A viral infections.<sup>10,11</sup>

Hepatitis B viral infections remain a continuing problem for medical personnel, especially in surgical specialties. Those surgeons who appear to have an especially significant risk include gynecologists and oral surgeons.<sup>12-14</sup> There are a number of reasons for this, including the high degree of infectivity of the virus, the large numbers of HBV particles present in infected individuals, and the lack of proper precautions taken by individuals at risk to prevent transmission of the disease.

The HBV is present in blood and other body fluids of individuals suffering from chronic active hepatitis. Such fluid can transmit the disease from an infected individual to a noninfected individual. Transmission can occur from either an infected patient to a noninfected physician or from an infected physician to a noninfected patient. Since approximately 20% of clinically apparent HBV infections will lead to chronic active hepatitis, and since in some series 25% to 50% of such patients have been reported to die within 5 years, it is essential to take all possible precautions to prevent the transmission of this disease.<sup>15</sup>

The use of hepatitis B vaccines (available in a recombinant DNA form) has been demonstrated to be efficacious in preventing HBV infections.<sup>16</sup> This vaccine should appeal to those individuals previously reluctant to use the original vaccine that was prepared from blood obtained from infected individuals. The complete series of three vaccinations has been demonstrated to be efficacious, except in immunosuppressed individuals and in up to 5% of healthy individuals. There appears to be a decrease in the antibody titers elicited by the vaccine over a period of years.<sup>17</sup> This can leave one quarter of immunized individuals at risk of contracting HBV infection 5 years after completing the initial series of vaccinations. As such, it is recommended that all persons at risk of contracting HBV infections receive subsequent immunizations at least every 5 years.

Persons developing chronic active hepatitis who remain positive for the hepatitis B surface antigen are extremely contagious.<sup>18</sup> There are reports of up to a 19% transmission rate of the disease from a hepatitis-infected surgeon to noninfected patients; however, only those surgeons who are positive for both the hepatitis B surface antigen and hepatitis Be antigen have been shown to transmit the disease.<sup>19</sup> The use of isolation equipment, such as gowns, gloves, and masks, does not appear to be universally successful in preventing the transmission of the infection from an infected HCW to a noninfected patient.<sup>14</sup> This may, in part, be due to the significant incidence of inadvertent needlesticks, especially in the operating room.<sup>20</sup>

All HCWs who have not been immunized against HBV infections should be immunized immediately, unless there is a special medical contraindication to such immunization in that individual. Those HCWs who have not been immunized should avoid interaction with patients who are infected with HBV until they have completed the full HBV vaccine immunization series.

The HCV now has been identified and determined to represent approximately one half to two thirds of all NANB hepatitis viral infections.<sup>21</sup> There has yet to be an adequate interval since the development of the diagnos-

tic test for HCV infections to allow for an exact determination of the natural history of HCV infections.

Non-A, non-B hepatitis (including type C) has been extensively studied. Non-A, non-B viral infections result in a 50% incidence of chronic liver disease.<sup>15</sup> Twenty percent of these patients go on to develop cirrhosis. As such, this disease has major implications for both medical personnel and their patients. The recent nature of the development of the hepatitis C diagnostic test and the lack of a diagnostic test for NANB (including type C) viral hepatitis has precluded an exact determination of the infectivity of the NANB hepatitis virus. Consequently, at this time, it is not possible to offer more than general guidelines for preventing NANB hepatitis viral infections. However, precautions should include the proper use of gowns, gloves, and masks when at risk of coming in contact with NANB hepatitis virus particles. Additionally, proper hand washing techniques should be used at all times. It is hoped that, as the natural history of type C viral infections is determined, more specific guidelines concerning restrictions on patient care can be determined.

Viral hepatitis also can be transmitted by blood transfusions.<sup>19</sup> Such infections present the same life-threatening complications when transmitted by transfusions as by other methods. As such, it is imperative to minimize the use of homologous blood transfusions by setting lower hematocrit values at which point blood transfusions are deemed necessary, and by the use of autologous predonation protocols<sup>22</sup> and blood-salvaging protocols.

#### CONDUCT IN THE OPERATING ROOM

Specific recommendations are outlined below which should serve as a guide for operating room personnel if the patient having surgery is known to have an HIV, HBV, or HCV infection; if the patient participates in activity considered high risk for HIV exposure; and if the surgical team's exposure to the patient's blood is likely.

1. The number of personnel participating in an operation on these patients should be kept to an appropriate minimum; only experienced personnel who are necessary for the procedure should be allowed to participate.

2. Inexperienced, nonessential, or pregnant personnel should be advised not to participate in operations on patients with HIV infections, HBV, or HCV, nor should residents perform operations with which they are not familiar.

3. Personnel with open wounds in areas that could easily be contaminated with the patient's serum or other body fluids should not be allowed to participate in the operation.

4. If more than minimal bleeding, loss of ascites, or other body fluids are anticipated, disposable plastic aprons should be worn under operating gowns to avoid gross contamination of clothing and skin.

5. Disposable "scrubs" and gowns should be worn so that they can be discarded at the end of the procedure. If regular "scrubs" are worn and they become contaminated, they should be placed in the cloth bag and given to operating room personnel for proper labeling before being returned to the laundry.

6. Eye shields or eyeglasses should be worn to prevent blood, sputum, or other body fluids from getting into the eyes.

7. Masks that become contaminated in any fashion should be changed immediately.

8. If underclothing or shoes become contaminated with blood or other fluids, they should be soaked in a 1:10 dilution of chlorine bleach to decontaminate them and then washed. For this reason, it is recommended that rubber-soled canvas shoes be worn in the operating room since they can be soaked in bleach before being washed.

9. Great care should be taken to avoid puncture by needles during injection of local anesthetics, starting of intravenous lines, or suturing of tissues. Needlestick injuries most commonly occur when attempts are made to replace the protective cap or shield on the needle. Once a cap or shield is removed from a needle, it should not be replaced. An uncapped needle provides less danger to personnel than the attempts to replace the cap. Rational use of suture material should be stressed. Suture needles should not be grasped with the fingers, only with needle holders, pickups, or other instruments.

10. The use of scalpels should be kept at a minimum. Disposable scalpels are recommended because the risk of occurrence of injury when placing and removing the blades from handles is eliminated. The use of scissors and cautery for dissection is recommended. The use of cautery to perform the incision also is recommended. This includes the skin, subcutaneous tissue, and fascia.

11. Sharp instruments should only be handled by the surgeon and the scrub nurse. Sharp instruments should be isolated from all other instruments. Whenever sharp instruments are being used by the surgeon, the remainder of the operating team should keep their hands clear of the area unless their help is required.

12. No member of the surgical team should remove instruments from or return instruments to the scrub nurse's tray. This increases the risk of injury. No sharp or pointed instruments should be left lying on the surgical sheets where they can inadvertently injure someone.

13. The Department of Pathology should be informed ahead of time if a biopsy specimen is to be obtained so that the specimen can be handled appropriately. All specimens should be labeled with a blood and body fluids precaution label.

14. All personnel should thoroughly wash their hands and arms at the end of the operation.

15. If there is any possibility of skin contamination with the patient's blood or other fluids, a warm shower should be taken immediately after the operation using an antimicrobial skin cleanser.

16. Consider scheduling procedures for the end of the operating room schedule to facilitate terminal cleaning procedures.

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### Surgical Anatomy Question

**Q** The Dartos muscle adheres to the skin and is supplied by sympathetic nerve fibers. [True or False?]

**A**

[True] Grant [CB. *A Method of Anatomy*. 5th ed. Baltimore, Md: Williams & Wilkins; 1952:221.

THE EDITOR