Perioperative Guidelines for Elective Surgery in the Human Immunodeficiency Virus–Positive Patient

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Background: Human immunodeficiency virus (HIV)–positive patients with changes in body morphology can be challenging for the plastic surgeon. Uncertainty about the advisability of elective procedures for these patients and fears of infection transmission may cause trepidation. Plastic surgeons are likely to encounter these patients in increasing numbers. The authors provide an overview of HIV lipodystrophy and treatment options. Clinical parameters are established that must be met before elective procedures on HIV-positive patients. In addition, ethical and legal considerations are discussed.
Methods: A literature review was conducted to identify articles reporting specific, identifiable factors influencing operative risk in HIV-positive patients. Legal and ethical experts were consulted.
Results: Specific risk factors influencing operative morbidity include an absolute CD4 count of less than 200 cells/cc^3 or viral load greater than 10,000 copies/ml. Patients with CD4 counts greater than 200 cells/cc^3 and a low viral load have a risk of postoperative complications similar to that of the general population and should therefore be evaluated on established preoperative parameters (e.g., American Society of Anesthesiologists class, nutrition, and age).
Conclusions: Patients with HIV-associated body morphology changes can be safely treated by the plastic surgeon, provided that a thorough preoperative workup is performed. There is minimal risk of disease transmission. There is an ethical and legal obligation to treat these patients if the patient is suitable and the procedure in question falls under the expertise of the consulting surgeon. (*Plast. Reconstr. Surg.* 121: 1831, 2008.)

Acquired immunodeficiency syndrome (AIDS), defined by the Centers for Disease Control and Prevention, is diagnosed when the CD4$^+$ count is less than 200 cells/cc^3 *or* with acquisition of an AIDS-defining illness. Normal CD4$^+$ counts are greater 1000 cells/cc^3.[1] Highly active antiretroviral therapy has decreased the number of AIDS deaths from approximately 70,000 in 1995 to 43,000 in 2002 and provided AIDS patients with improved health and longer life expectancies.[1–3] Unfortunately, highly active antiretroviral therapy is also associated with many adverse effects, including the lipodystrophy syndrome.

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Received for publication March 13, 2007; accepted September 25, 2007.

DOI: 10.1097/PRS.0b013e31816b143b

THE PATIENT

Body Composition Alterations

The term lipodystrophy describes several morphologic (fat atrophy and hypertrophy) and metabolic (dyslipidemia and insulin resistance) abnormalities in HIV-infected persons. The syndrome consists of distinct patterns of lipoatrophy of the face, arms, legs, and buttocks. Central fat accumulation occurs in the abdomen, breasts, and dorsocervical region. Mixed fat redistribution incorporates a combination of lipoatrophy and central fat accumulation[1,4] (Figs. 1 and 2). Lipodystrophy is prevalent in patients receiving protease inhibitors, with a direct relationship to duration of therapy. However, protease inhibitor–naive patients being

Disclosure: *None of the authors has any financial conflicts of interest to declare.*

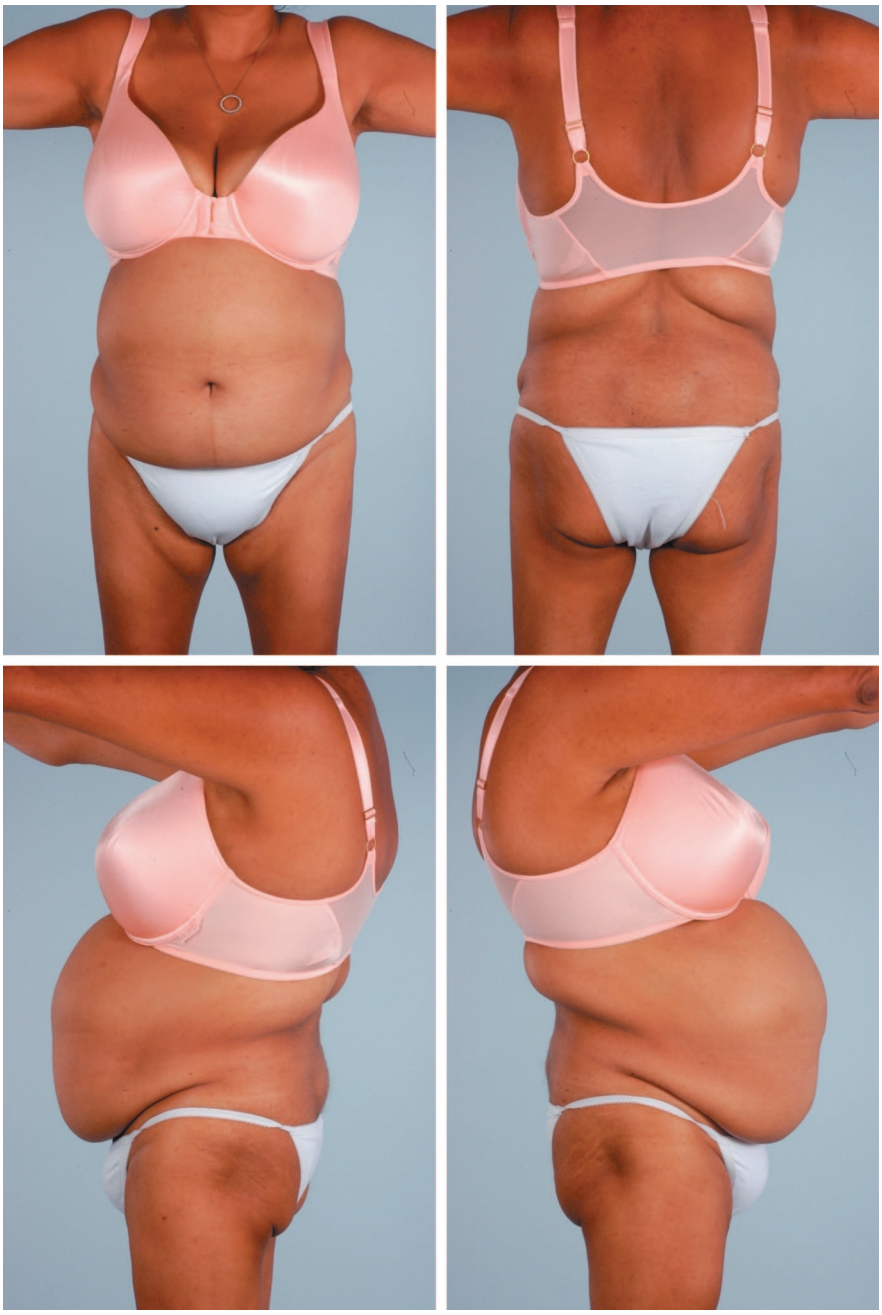

Fig. 1. HIV lipodystrophy. Note the centripetal fat deposition, protuberant abdomen, and wasted buttocks and thighs.

treated with reverse transcriptase inhibitors may also have lipodystrophy.[5] Similarly, a positive association between baseline $CD4^+$ cell count and an increase in truncal fat, independent of any highly active antiretroviral therapy regimen, has been demonstrated,[6] indicating that HIV alone plays a causative role.

Psychological Impact

Many lipodystrophy patients feel their physical appearance is a visible stigma of HIV. They experience reduced libido, perceived rapid aging, depression, low self-esteem, increased self-consciousness, and social isolation.[7]

The Assessment of Body Change and Distress questionnaire, developed by Guaraldi et al.,[8] was shown to reliably discriminate between HIV-positive patients with and without lipodystrophy. It has been proposed for use in identifying patients at risk for nonadherence to highly active antiretroviral therapy or who may benefit from plastic

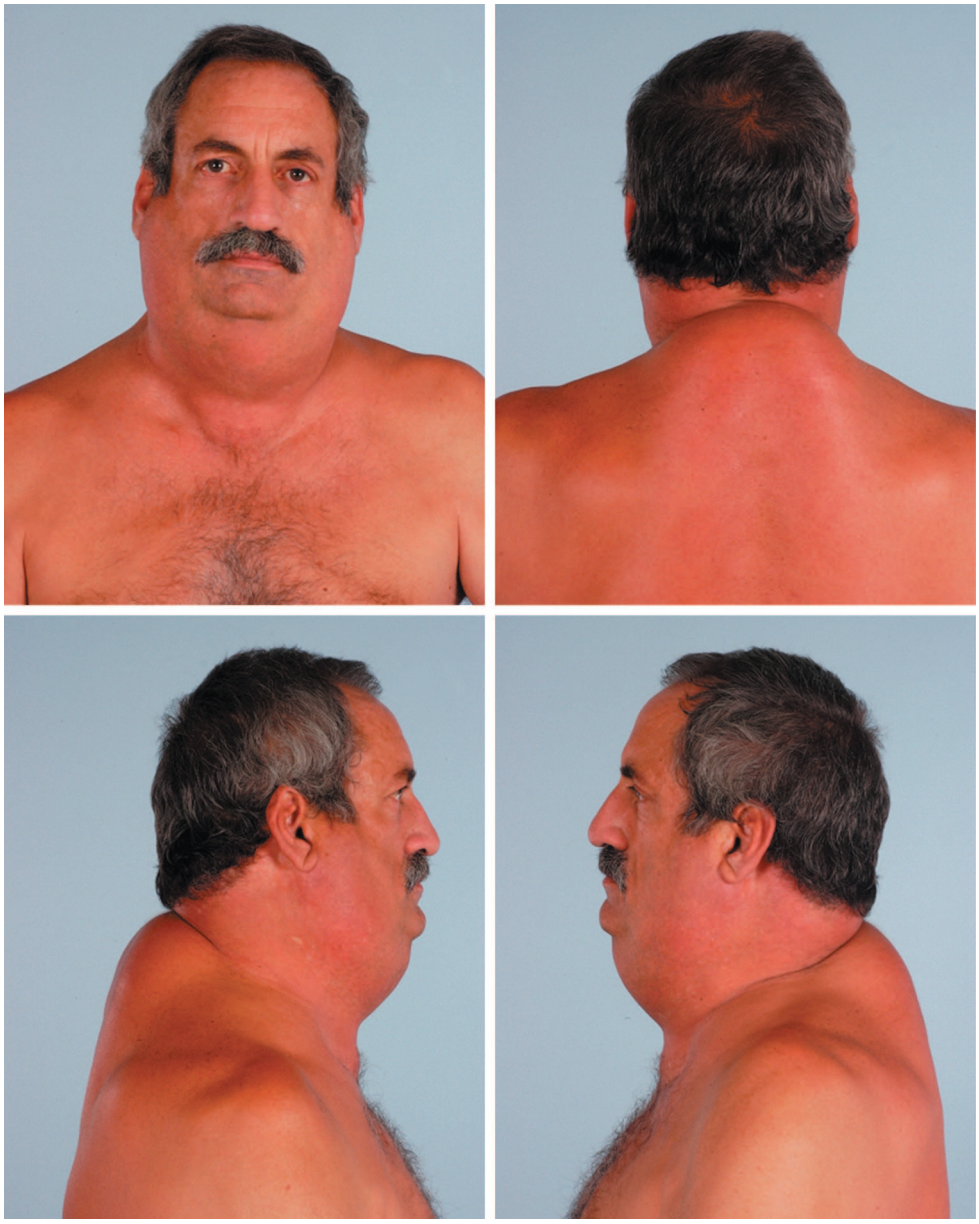

Fig. 2. HIV lipodystrophy. Note the parotid enlargement, neck lipodystrophy, facial wasting, and cervical fat deposition.

surgery. It has been postulated that at least 40,000 HIV-positive patients will seek plastic surgery within the next 20 years.[9]

Elective Treatment Options

Lipoatrophic HIV-positive patients present with a classic pattern of facial wasting. There is prominence of the orbicularis oris and oculi, levator alae nasi, and zygomaticus muscles. Three triangles can be appreciated, one above the zygomaticus major, another below it, and the third based at the zygomatic arch and extending superiorly (Fig. 3). There is buccal and temporal fat pad wasting. Fatty and cystic degeneration of the parotid produces a broad-based triangle at the angle of the mandible. These changes cause skin laxity and a prominent nasolabial fold.[10]

Surgical facial fillers (Table 1) have become the mainstay of cosmetic management of facial lipoatrophy. The benefits of face lifts are generally modest and short-lived. Biodegradable agents have a limited lifespan and require "refilling" to maintain effect. Examples include polylactic acid (2 to 3 years' duration), hyaluronic acid (6 to 12 months), bovine collagen and human collagen (4

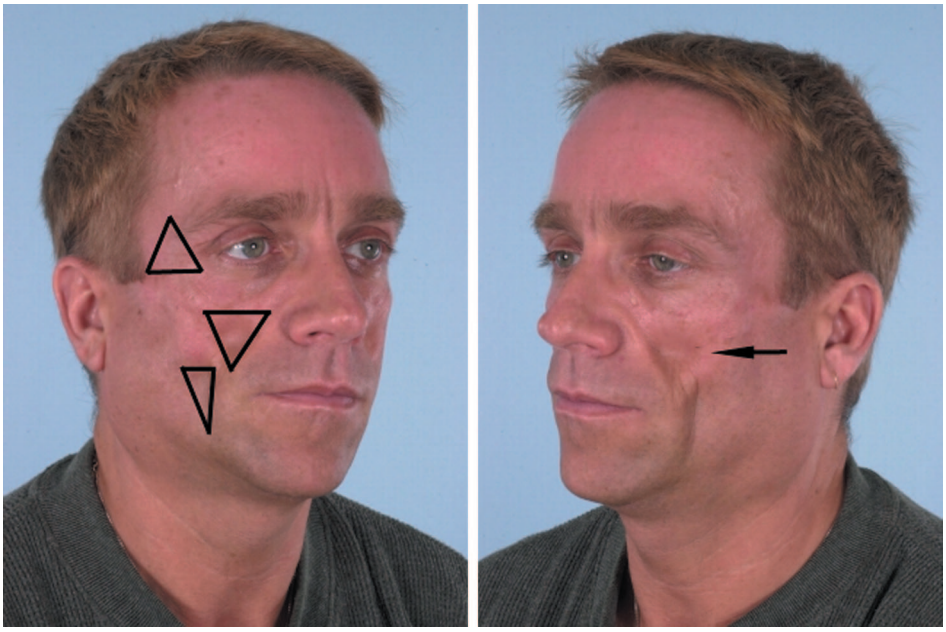

Fig. 3. Pattern of facial wasting. Three triangles can be appreciated: above the zygomaticus major, below the zygomaticus, and based at the zygomatic arch and extending superiorly. The *arrow* points to the zygomaticus. (Adapted from Davison, S. P., Timpone, J., Jr., and Hannan, C. M. Surgical algorithm for management of HIV lipodystrophy. *Plast. Reconstr. Surg.* 120: 1843, 2007.)

Table 1. Surgical Facial Fillers: Temporary versus Permanent

Temporary biodegradable
Polylactic acid
Hyaluronic acid
Bovine and human collagen
Cadaveric dermis/fascia
Isolagen
Autogenous dermal fat
Permanent nonbiodegradable
Silicone
Expanded polytetrafluoroethylene
Calcium hydroxylapatite
Polymethylmethacrylate
Polyacrylamide gel (not FDA approved)

FDA, U.S. Food and Drug Administration.

to 6 months), cadaveric dermis and fascia (1 to 3 months), Isolagen (autologous fibroblasts obtained at biopsy, two to three treatments persist beyond 1 year), and autogenous dermal fat grafting (6 to 24 months).[11] Autologous facial fat grafting remains an option, especially combined with liposuction of the dorsocervical hump.[12] Permanent agents include silicone, expanded polytetrafluoroethylene implants, calcium hydroxylapatite, polymethylmethacrylate, and polyacrylamide gel (not U.S. Food and Drug Administration approved).[11] They provide stable long-term augmentation but carry a high risk of extrusion and infection. Liposuction of the dorsocervical hump, mastectomy for gynecomastia, superficial parotidectomy, and autologous facial fat grafting are other options for the plastic surgeon in managing lipodystrophy.[10]

Risks to the Patient

A perception exists that HIV-positive patients have poor wound healing. The literature does not support this in otherwise healthy patients.[13–15] As with the seronegative patient, normal serum albumin levels have a beneficial affect on surgical outcome.[16] Variables affecting surgery in HIV-positive patients include age, gender, number of medications, and presence of antiretroviral therapy.[17] HIV positivity alone is not an independent risk factor for complications.[17–20]

Indicators of disease state include absolute $CD4^+$ T-lymphocyte count, percent $CD4^+$ lymphocyte count, and plasma viral load. Tran et al.[17] determined postoperative percent CD4 less than or equal to 18 ± 3 and a preoperative to postoperative change in percent CD4 of 3 to be independent risk factors for postoperative morbidity. Emparan et al.[21] found that a severe depression in absolute CD4 count (<200 cells/mm^3) may increase the risk of atypical wound infections (specifically *Mycoplasma tuberculosis*).

Jones et al.[18] determined that the most important risk factor for postoperative complications in HIV-positive patients is the American Society of Anesthesiologists class. American Society of Anesthesiologists risk class is a measure of general health status. They found that HIV seropositivity is not an independent risk factor. Avidan et al.[22] also name American Society of Anesthesiologists status as a prognosticator of surgical outcome in HIV-positive patients. They add Centers for Disease Control and Prevention categories A through C (Table 2) and absence of opportunistic infection or neoplasm as good prognosticators. In summary, a patient's American Society of Anesthesiologists class, postoperative percent CD4, preoperative to postoperative change in percent CD4, and Centers for Disease Control and Prevention category are all possible predictors of complication risk, and a CD4 count of less than 200 cells/mm^3 is associated with increased postoperative infection.

Preoperative Workup

The preoperative analysis of an HIV-positive patient should help determine the risk of postoperative complication. A detailed history of opportunistic infection, prophylactic antibiotic treatment, and highly active antiretroviral therapy regimen(s) (assessing for resistance strains) should be taken. The following risk factors[23] should be addressed:

- Sexually transmitted infection
- Cardiovascular status
- Insulin resistance, hyperlipidemia
- Viral hepatitis
- Tuberculosis
- Drug/alcohol abuse
- Nutrition
- Disease status (by means of absolute CD4 count and viral load within 3 months)

Absolute CD4 counts are used to determine the staging of HIV disease and the need for prophylaxis against opportunistic infections. Viral load assays help determine the effectiveness of a patient's highly active antiretroviral therapy. Higher complication and mortality rates have been independently associated with absolute CD4 counts less than or equal to 200 cells/mm^3 and postoperative viral load greater than 10,000 copies/ml.[15–17,19,24] Absolute CD4 count less than or equal to 200 cells/cc^3 indicates a progression to AIDS, and viral load greater than 10,000 copies/ml suggests that highly active antiretroviral therapy is no longer effective. These values are the strongest predictors of postoperative risk and are therefore important in assessing the disease status of the patient. We recommend obtaining absolute CD4, percent CD4, and viral load counts within 3 months of the procedure. Follow the percent CD4 count in addition to the absolute CD4 count. A significant change in absolute CD4 in the setting of a stable percent CD4 demonstrates immunologic stability.[25] Acute medical conditions may transiently increase viral load or decrease CD4$^+$ counts, so significant changes from previous studies should be interpreted cautiously.[23] Consultation with infectious disease specialists can assist in the preoperative evaluation.

Prophylactic antibiotic therapy has not been evaluated adequately in immunocompromised patients. HIV-positive patients should be regarded in the context of defined factors that are associated with increased risk for surgical infection (Table 3). Prophylaxis is acceptable, but not strongly indicated, for patients with two or more risk factors. It may be advisable, given the lipid and insulin derangements common in patients with lipodystrophy, to provide prophylaxis on this basis alone. Orthognathic procedures require coverage of aerobic cocci, usually with either penicillin or cephalosporins.[26]

Perioperative Considerations

Highly active antiretroviral therapy medications should be continued throughout the peri-

Table 2. Centers for Disease Control and Prevention Clinical Categories of HIV Infection*

Category A
Nonspecific signs of acute viral infection such as fever, chills, general malaise
Generalized lymphadenopathy followed by an asymptomatic period varying from several months to decades
Category B
Development of the AIDS-related complex defined by the following symptoms:
Bacillary angiomatosis
Candidiasis
Cervical dysplasia
Hairy leukoplakia
Herpes zoster
Listerosis
Pelvic inflammatory disease
Peripheral neuropathy
Constitutional symptoms lasting >1 month
Idiopathic thrombocytopenic purpura
Category C
Development of at least one of the 26 AIDS-defining clinical conditions or an absolute CD4 count <200 cells/mm^3
Equivalent to a diagnosis of clinical AIDS

*From Centers for Disease Control and Prevention. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. *M.M.W.R. Recomm. Rep.* 41: 1, 1992.

Table 3. Factors Associated with Increased Risk of Infection*

Systemic factors
Diabetes
Corticosteroid use
Obesity
Extremes of age
Recent surgery
Massive transfusion
ASA class 3–5
Local factors
Foreign body
Electrocautery
Epinephrine injection
Wound drains
Hair removal with razor
Past irradiation to the site

ASA, American Society of Anesthesiologists.
*Adapted from Woods, R. K., and Dellinger, E. P. Current guidelines for antibiotic prophylaxis of surgical wounds. *Am. Fam. Physician* 57: 2731, 1998.

operative period to avoid the development of resistant viral strains.[27] If the patient cannot tolerate oral medications following the procedure, highly active antiretroviral therapy should be held and parenteral alternatives for antimicrobial prophylaxis should be used.[23]

Postoperative Management

Most complications occur in patients with advanced disease (absolute CD4 count ≤200 cells/mm^3), poor nutritional status (low serum albumin), and/or neutropenia. A nutritional consult should be sought if a patient cannot maintain adequate caloric intake postoperatively. Clinical adrenal insufficiency occurs in 5 percent of HIV-positive patients and up to 20 percent of AIDS patients postoperatively. Cardiovascular and pulmonary status should be monitored in patients with preoperative risk factors, particularly those patients with lipodystrophy.[28]

THE HEALTH CARE TEAM

Transmission of HIV to the surgeon is a common concern. With the institution of prophylactic precautions, U.S. Occupational Safety and Health Administration standards, and postexposure antiretroviral regimens, seroconversion is rare. As of December of 2001, the Centers for Disease Control and Prevention had received reports of 57 documented cases of HIV seroconversion from occupational HIV exposure among U.S. health care personnel. *Not one documented case of the 57 known seroconversions has occurred in a surgeon.* There were an additional 139 seroconversions considered as possible occupational transmissions.[29] Six of the 139 possible seroconversions are surgeons.[30] No new documented cases, and one possible occupational transmission of HIV/AIDS, have been reported since.

Risk of Exposure

The risk of HIV transmission is dependent on the type of exposure. Percutaneous transmission through hollow-bore needlesticks with the transfer of one drop of blood (1/30 cc) has been estimated to be 0.3 percent per occurrence.[31,32] The risk of transmission from suture needlesticks and other sharps is thought to be on the order of a magnitude lower than that, or 0.03 percent.[13] Mucous membrane exposure transmission risk is approximately 0.09 percent. The risk of transmission from nonintact skin exposure is estimated to be less. The risk of transmission from fluids or tissue other than blood is considered to be significantly lower than the risk of transmission from blood.[31]

Maas et al.[13] calculated the theoretical risk of infection to facial plastic surgeons performing approximately 1000 surgical hours of procedures per year. They assumed (1) a population of patients with an HIV prevalence of 0.4 percent (that of a high-risk population) and (2) all exposures occurred by means of hollow-bore needlestick at a rate of 0.3 percent. They concluded that of the 15,000 surgeons performing plastic surgery in the United States, two would become infected per year. The model is flawed, however, based on the higher rate of hollow-bore seroconversion compared with solid needlesticks.

In 2005, a Centers for Disease Control and Prevention retrospective case-control study found that health care workers have an increased risk of HIV transmission when exposed to larger quantities of blood, indicated by (1) a device visibly contaminated with blood, (2) a device that had been inserted into a vessel, or (3) a deep injury.[30] The inoculum needed for efficient transmission of HIV is unknown.

It should be noted that the average risk of hepatitis C seroconversion from occupational exposure is 1.8 percent, 10 times greater than HIV. The risk of seroconversion after exposure to hepatitis B is 37 to 62 percent.[33]

Prevention

There have been no reported cases of occupational infection from inhalation of aerosolized blood or secretions, intact skin contact, or sustained personal contact with HIV-positive patients.[13] We choose, however, to avoid dermabrasion and spinning of fat to minimize aerosolization of the virus. Sharps

transfer in the operating room is a source of particular risk. The use of a kidney basin as a "no-man's land" can help to minimize this. Use caution with dermal fillers, as multiple needles are required.

Postexposure Prophylaxis

Postexposure prophylaxis is associated with a reduction in the risk of HIV transmission by approximately 81 percent.[34,35] There is a window of opportunity in which treatment can prevent infection. Postexposure prophylaxis should be initiated within hours of exposure. The current Centers for Disease Control and Prevention[29] recommendations are as follows:

- Start a basic two-drug regimen immediately (zidovudine or stavudine or tenofovir plus lamivudine or emtricitabine).
- If the source blood is drug resistant or the injury involves an increased risk for transmission, a third drug (lopinavir/ritonavir) should be added.
- If the source is determined to be HIV-negative, postexposure prophylaxis should be discontinued.

The Centers for Disease Control and Prevention recommends 4 weeks of postexposure prophylaxis therapy.[31] Unfortunately, nearly 50 percent of health care personnel report adverse events while taking postexposure prophylaxis and approximately one-third stop taking the drugs.[29] The three-drug regimen should therefore be avoided when possible to decrease toxicity and increase compliance (Table 4 and Fig. 4).

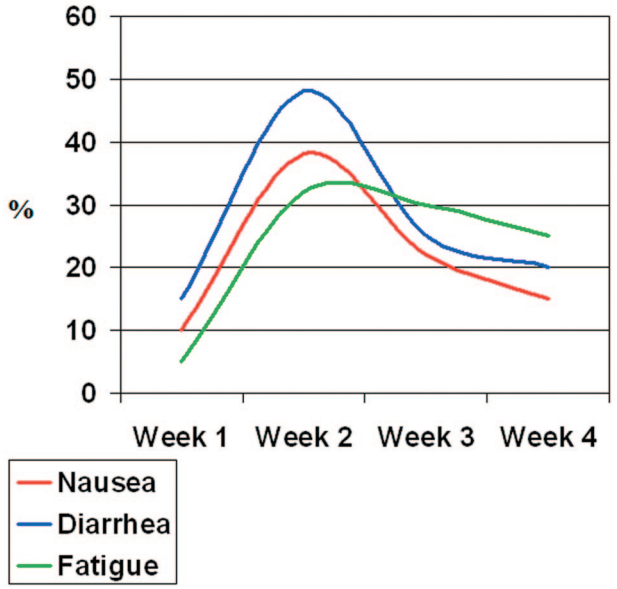

Fig. 4. Timing of onset of antiretroviral side effects. Most common side effects (by percentage) of antiretroviral therapy prophylaxis. (Extrapolated from Winston, A., McAllister, J., Amin, J., Cooper, D. A., and Carr, A. The use of a triple nucleoside regimen for nonoccupational HIV prophylaxis. *HIV Med.* 6: 191, 2005.)

ETHICAL CONSIDERATIONS

In the 1980s, the time of HIV emergence, there was no known treatment for this fatal disease. The ethical issues for physicians centered on the risks of exposure and transmission of the disease from the patient to the operating team. At that time, there was much discussion in the ethics literature about whether physicians had an ethical obligation to treat HIV/AIDS patients if it put them at risk.

It later became clear that the risk is only minimal. In the late 1980s and early 1990s, professional organizations affirmed the duty to treat HIV-positive patients. The task force report of the Board of the American Society of Plastic and Reconstructive Surgeons declared "Discrimination against HIV infected patients requesting

Table 4. Primary Side Effects and Toxicities of Antiretroviral Agents Used for HIV Postexposure Prophylaxis, by Class and Agent*

Class and Agent	Side Effect and Toxicity
Nucleoside reverse transcriptase inhibitors	
Zidovudine (AZT)	Nausea, headache, anemia, neutropenia, insomnia, muscle pain, weakness
Lamivudine (3TC)	Nausea, diarrhea, abdominal pain, rash, pancreatitis
Stavudine (d4T)	Headache, nausea, diarrhea, insomnia, anorexia, pancreatitis, peripheral neuropathy, elevated liver function tests, anemia, neutropenia
Emtricitabine (FTC)	Headache, nausea, vomiting, diarrhea, rash
Nucleotide analogue reverse transcriptase inhibitor	
Tenofovir (TDF)	Nausea, diarrhea, vomiting, flatulence, headache
Protease inhibitor	
Lopinavir/ritonavir (Kaletra; LPV/RTV)	Diarrhea, fatigue, headache, nausea, increased cholesterol and triglycerides

*Adapted from Panlilio, A. L., Cardo, D. M., Grohskopf, L. A., et al. Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for postexposure prophylaxis. *M.M.W.R. Recomm. Rep.* 54: 1, 2005.

elective plastic surgery should not be endorsed."[36] The Code of Medical Ethics of the American Medical Association echoes the same sentiment stating, "A physician may not ethically refuse to treat a patient whose condition is within the physician's current realm of competence solely because the patient is seropositive for HIV."[37] Both pronouncements mandate nondiscrimination and clearly affirm the principle of justice in treating patients seropositive for HIV. This same principle was held to be applicable to the participation of HIV/AIDS patients in zidovudine research.[38]

Some have sought to lessen the duty to perform elective surgery when the operation was for purely cosmetic reasons. For example, Goldwyn and Friedman contended that, even if the risk is small, the fear of transmission could relieve the surgeon of the duty to operate.[39,40] However, even if the surgeon were fearful, it could not count as a "rational" fear, given the lack of evidence of transmission to date from patient to surgeon.

If fear were a justifiable reason for the suspension of ethical obligations, physicians could claim exemption from treating any serious infectious disease. Such an exemption would undermine the ethical and historical obligation to practice a certain degree of suppression of self-interest as a mark of the profession. The social consequences would be disastrous. Were the fear to be so overwhelming that it impaired his or her competency, the physician should excuse himself or herself from all practice and seek assistance for emotional distress.

The obligation to treat without discrimination for reconstructive purposes, whether the need arises from HIV or other causes, is simply a part of being a plastic or reconstructive surgeon. If the need for plastic surgery is lipodystrophy, the surgery is therapeutic. In the case of purely cosmetic surgery, the criteria for operation should be the same as those for patients without HIV/AIDS. The physician's commitment to the good of the patient remains at the heart of clinical medicine for all medical specialties.[40]

The ethical obligations of the physician caring for HIV-positive patients are the same as those of any physician acting for the patient's best interests. The usual obligations are heightened by the nature of HIV infection, which confers special vulnerability on its victims. This requires special sensitivity to the sense of isolation, disfigurement, and depression experienced by AIDS patients. Caution in obtaining consent for cosmetic surgery and special sensitivity when refusing to perform surgery if it does not meet the criteria used for all patients are essential. The psychological effects of lipodystrophy may complicate or weaken the patient's capacity to make an informed, free, and uncoerced decision. Understandable overeagerness to appear "normal" may lead patients to unwise choices for, or against, indicated surgery.

Finally, medicine is a moral community and there is a mutual responsibility for the ethical behavior of one's colleagues. Observing that a colleague consistently refers HIV-positive patients requires some action—either through personal communication, or if that fails, through appropriate reporting mechanisms. This latter obligation is consistent with the second principle of the American Medical Association's Code, "A physician shall . . . strive to report physicians deficient in character or competence."[41] To not do so is to be complicit in an ethically wrongful act and to impose an unjust burden on those physicians faithful to the moral requirements of their profession.

The ethical consequences of unethical behavior with AIDS patients would redound to the dishonor of plastic and reconstructive surgeons, whose contribution to health care is essential. Given the questions raised in some quarters about cosmetic surgery, sensitivity to the care of HIV/AIDS patients and others is especially important at this time.

LEGAL CONSIDERATIONS

There are many legal issues when an HIV-positive patient seeks plastic surgery consultation, ranging from patient acceptance or rejection, added risks of certain procedures, and the effect of the Americans with Disabilities Act. The main issue is whether a health care provider must accept an HIV-positive patient for care and treatment. The complicated answer is no, but the provider cannot reject the patient solely because the patient is HIV-positive. The surgeon is not obligated to accept all patients seeking a surgical procedure. Risk managers advise assessment of patient goals to ensure they are realistic and to determine the patient's suitability for the procedures sought. Therefore, there are HIV-positive patients who properly should not be accepted for procedures that will not address their goals, who have unrealistic expectations, or who are otherwise unsuitable for anesthesia or the procedure in question. There must be documentation demonstrating that refusal of the patient is for appropriate reasons, not HIV status.

The surgeon can only use the explanation "they do not perform the procedures sought" if

they *actually do not* routinely perform them. If they perform said procedure for any other patient and refuse to accept an appropriate HIV-positive patient, that is a direct violation of the Americans with Disabilities Act. The Americans with Disabilities Act also prevents the provider from referring the HIV-positive patient to another provider if the referring provider also performs the same procedures. The Americans with Disabilities Act is federal antidiscrimination law protecting HIV-positive patients from actions or inactions solely because they are HIV-positive. The surgeon must be very careful in evaluating HIV-positive patients so as not to mislead or treat them differently from other patients, lest they risk the perception of discrimination.

The Americans with Disabilities Act provides that if the patient believes they were discriminated against because they are HIV-positive, they must first attempt to rectify the situation with the provider. Failing to achieve a satisfactory resolution usually results in a complaint filed with the U.S. Department of Justice, which will investigate and if necessary file a lawsuit against the provider. The dilemma occurs when a health care provider follows the law and evaluates the HIV-positive patient and makes the professional determination that he or she is not a suitable candidate for the desired procedure. Imagine how difficult it is to explain that the decision is not related to the person's HIV condition. Thorough documentation will be a significant help should there be an investigation. One can imagine a scenario in which an HIV-positive patient threatens the provider to perform what he is seeking or he will pursue a claim with the U.S. Department of Justice.

Another issue to be resolved is the potential that surgery may interfere with a patient's HIV immune status. I think it appropriate to discuss this theoretical effect with the patient's primary physician and obtain clearance for surgery.

The legal implications of providing care for a patient with HIV or AIDS includes all of the common risks that may lead to negligent care. A duty may be established once the patient is accepted for care. At that point, all care provided must be within a standard of care and appropriate for the patient. Substandard care or a critical omission of care can still lead to a medical liability claim of negligence (i.e., medical malpractice). The added component possibly enhancing a claim is a violation of the Americans with Disabilities Act. Although many plastic surgeons choose to care for HIV-positive patients, we must not reject a patient solely because of his or her HIV status. A well-documented consultation is always recommended for legal protection and claim avoidance.

CONCLUSIONS

1. The number of HIV-positive patients who still seek cosmetic surgery treatment for lipodystrophy is likely to increase.
2. HIV-positive patients are not at increased risk for complications unless their medical health indices are poor, their CD4 count is less than 200 cells/mm^3, their CD4 ratio is changing, or their viral load is greater than 10,000 copies/ml.
3. The relative risk for transmission is unknown but is probably 0.03 percent for surgical sharps, considerably less than for hepatitis.
4. Ethically, it is difficult to refuse an HIV-positive patient services if you provide those services to non–HIV-positive patients.
5. Medicolegal implications: Refusing an HIV-positive patient appropriate care based on HIV-positivity alone is malpractice for omission of care and is a violation of the Americans with Disabilities Act.

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