Organizing Outpatient Data for Care of HIV-Infected Patients

Steven J. Eisenstein, MD, and George C. Coleman, MD
Park Ridge, Illinois, and Newport News, Virginia

It is estimated that up to 1.5 million Americans may be infected with the human immunodeficiency virus (HIV).[1] This number will undoubtedly continue to grow despite current efforts being made to curb the spread of this infection. Major medical centers in every state have been forced to face the challenges of acquired immunodeficiency syndrome (AIDS). The response of physicians in smaller communities to the AIDS epidemic has been understandably slower because of the lower prevalence of HIV-infected individuals in their practices. Eventually all primary care physicians will have to attend to the needs of the overwhelming number of patients who will develop evidence of HIV infection.[2,3]

Recommendations for the management of HIV-seropositive patients are in constant flux as a result of the growing body of knowledge about HIV. The medical and social needs of HIV-infected patients are numerous and easily overlooked. In a small urban family practice, inconsistencies in the outpatient care and follow-up of HIV-infected patients were observed. Charts of HIV-seropositive patients in a family practice were reviewed according to recently published standards of outpatient management,[4-6] and a flowsheet was devised to improve the care of these individuals.

METHODS

The Riverside Family Practice Residency Program, located in Newport News, Virginia (population 150,000), serves primarily middle- to low-income families and is staffed by 40 physicians (36 residents and 4 attending physicians). HIV-infected patients in the community are referred to the practice on a rotating basis, alternating with other family practices in the area. Sixteen HIV-seropositive patients were identified in the practice as of April 1989. All patients had repeatedly positive immunoassays for HIV and a confirmatory Western blot test. Each patient's chart was reviewed by the authors using the criteria listed in Table 1. Review criteria were evaluated as being present or absent on the basis of having been clearly documented in the chart, either by progress note or by inclusion in the laboratory results section.

RESULTS

The results of the chart review are displayed in Table 2. The majority of the HIV-seropositive patients were homosexual men who had stage 2 to 3 HIV infection by recent Centers for Disease Control (CDC) guidelines.[7] Only one patient met the criteria for AIDS (stage 4). For the laboratory studies reviewed, 50% or less of the charts had clear documentation of results, with the exception of T cell studies (63% documented). Evidence of counseling on the appropriateness of zidovudine treatment was found in 70% of charts where T cell studies were documented but was not found in the charts without documentation of T cell studies. Evidence of counseling on the prevention of viral transmission was absent in one half of the charts. Only one chart (6%) contained documentation for all of the review criteria that were examined.

In response to the inadequacies in charting that were demonstrated, a flowsheet was devised to organize important patient data (Figure 1). This flowsheet was incorporated into patients' charts subsequent to the study and used as a method of instructing family practice residents in the outpatient management of HIV-infected patients.

DISCUSSION

Keeping track of the many important aspects of HIV-infected patients' disease is a difficult task. In a rural or

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From the Department of Family Practice, Riverside Regional Medical Center, Newport News, Virginia. Requests for reprints should be addressed to Steven J. Eisenstein, MD, Division of Family Practice, Lutheran General Hospital, 1775 Dempster St, Park Ridge, IL 60068.

FLOWSHEET FOR HIV-INFECTED OUTPATIENTS

Risk factor(s) for HIV infection _____

Date of positive HIV antibody test/Western blot _____

Initial Patient Data

Clinical	HIV stage	_____
	Symptoms	_____
	Physical findings	_____
	Opportunistic infections	_____
	Suicide potential	_____
	Social support	_____
Laboratory	Hemoglobin	_____
	White cell count	_____
	T-cell studies	_____
	Sedimentation rate	_____
	HBsAg, serologic test for	_____
	Syphilis, serologic test for	_____
	Toxoplasma, serologic test for	_____
	Tuberculosis exposure	_____
	HIV p^{24} antigen	_____
	β_2-microglobulin	_____
	G6PD enzyme level	_____
	Lactic dehydrogenase (LDH)	_____
Vaccinations	Pneumovax (one time)	_____
	Influenza (yearly)	_____
Counseling	HIV transmission	_____
	Zidovudine therapy	_____
	Pneumocystis prophylaxis	_____

Follow-up laboratory data every 3-6 months (dates)

Hemoglobin	_____	_____	_____	_____
White cell count	_____	_____	_____	_____
T_4 cell count	_____	_____	_____	_____
Sedimentation rate	_____	_____	_____	_____
HIV p^{24} antigen	_____	_____	_____	_____
β_2-microglobulin	_____	_____	_____	_____

Figure 1. Flowsheet for outpatients infected with human immunodeficiency virus (HIV). HBsAg—hepatitis B surface antibody, G-6-PD—glucose-6-phosphate dehydrogenase.

TABLE 1. CHART REVIEW CRITERIA FOR DOCUMENTATION OF HIV-INFECTED PATIENTS

Review Criterion	Description
HIV risk factor	Mode of infection
HIV stage	By CDC criteria[7]
T cell studies	T_4 count, T_4/T_8 ratio
Hepatitis B serology	Hepatitis B surface antigen (HBsAg)
Syphilis serology	RPR and/or FTA
Tuberculosis exposure	PPD test or history of treatment for tuberculosis
β_2-microglobulin	Serologic assay
Zidovudine therapy	Documentation of treatment or counseling on treatment
Prevention of transmission	Counseling on risks for HIV infection

HIV—human immunodeficiency virus; CDC—Centers for Disease Control; RPR—rapid plasma reagin test; FTA—fluorescent treponemal antibody test; PPD—tuberculin test (purified protein derivative).

TABLE 2. RESULTS OF A CHART REVIEW OF HIV-SEROPOSITIVE PATIENTS (N = 16)

Clinical Data	No. (%)
Risk factor for HIV infection	16(100)
Homosexual contact	12(75)
Heterosexual contact	3(19)
Blood transfusion	1(6)
HIV infection stage	
Stage 2	8(50)
Stage 3	7(44)
Stage 4	1(6)
T cell studies documented	10(63)
HBsAg serology documented	7(44)
Syphilis serology documented	8(50)
Tuberculosis exposure documented	7(44)
β_2-microglobulin documented	4(25)
Counseling on zidovudine therapy documented	
All patients (N = 16)	7(44)
T cell studies documented (n = 10)	7(70)
T cell studies not documented (n = 6)	0(0)
Counseling on prevention of HIV transmission documented	
All patients (N = 16)	8(50)
Stage 2 (n = 8)	5(63)
Stage 3 (n = 7)	2(29)
Stage 4 (n = 1)	1(100)

HIV—human immunodeficiency virus; HBsAg—hepatitis B surface antibody.

small urban setting, the physician may have only limited experience in dealing with the needs of HIV-seropositive persons.[8] It is critical to maintain an organized approach to collecting patient data for the medical record when an individual has serologic evidence of HIV exposure.

A flowsheet for inclusion in charts of HIV-infected patients may be a useful tool to help organize pertinent data. Such a form should include space for clinical and social data as well as for documentation of laboratory results and patient counseling. Other issues addressed by the flowsheet should include the predictors for progression of asymptomatic individuals to AIDS,[8–11] the use of zidovudine in asymptomatic patients,[12] the prophylaxis for *Pneumocystis carinii* pneumonia,[13,14] and the prevention of suicide.[15] Monitoring laboratory variables for disease progression in asymptomatic individuals allows for the timely institution of therapies that may prolong and improve quality of life. Centralizing patient data pertinent to HIV infection may also afford the physician some protection against the medicolegal consequences of inadequate documentation.

This study clearly demonstrates the need for primary care physicians to improve their organization and documentation of care of HIV-infected patients. More emphasis should be placed on the outpatient management of HIV-infected patients in the education of family practice residents. The use of practice aids such as a flowsheet may improve the care of HIV-seropositive patients by physicians at all levels of training.

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