PSYCHIATRIC COMORBIDITY AND THE LONG-TERM CARE OF PEOPLE WITH AIDS

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ABSTRACT

Objectives. To examine the association of comorbid psychiatric disorders with admission and discharge characteristics for patients residing at a long-term care facility designated for acquired immunodeficiency syndrome (AIDS).

Methods. Demographic and clinical characteristics were obtained by systematic chart review for all patients (N = 180) admitted to the facility from its opening in October 1995 through December 1999. Lifetime history of severe and persistent psychiatric disorders (major depression, bipolar and psychotic disorders) was determined by current diagnosis on baseline clinical evaluation or a documented past history.

Results. Forty-five patients (25%) had comorbid psychiatric disorders. At admission, patients with comorbidity were more likely to be ambulatory (80% vs. 62%, $P = .03$) and had fewer deficits in activities of daily living (27% vs. 43%, $P = .05$). After controlling for human immunodeficiency virus (HIV) disease severity, patients with comorbidity had significantly lower discharge rates (relative risk = 0.43, 95% confidence interval 0.23–0.78, $P = .0001$) and death rates (relative risk = 0.53, 95% confidence interval 0.42–0.68, $P = .009$).

Conclusions. Patients with AIDS and comorbid psychiatric disorders at this facility had more favorable admission characteristics and were less likely to be discharged or to die. They may have been admitted earlier in their disease course for reasons not exclusively due to HIV infection. Once admitted, community-based residential alternatives may be unavailable as a discharge option. These findings are unlikely to be an anomaly and may become more pronounced with prolonged survival due to further therapeutic improvements in HIV care. Health services planners must anticipate rising demands on the costs

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of care for an increasing number of patients who may require long-term care and expanded discharge options for the comanagement of HIV disease and chronic psychiatric disorders.

KEY WORDS AIDS, Comorbidity, Long-Term Care, Psychiatric Disorders.

INTRODUCTION

Since 1995, the rate of new human immunodeficiency virus (HIV) infections has remained stable at approximately 40,000 per year. Since that time, acquired immunodeficiency syndrome (AIDS) diagnoses and deaths have decreased,¹ in large part a result of increased survival time due to improvements in therapy, including highly active antiretroviral therapy (HAART) using protease inhibitors.² These factors have resulted in an increasing prevalence of infection as more people live longer with HIV.³

While HAART has helped many people return to higher levels of autonomous functioning than was previously the case, this has not been achieved universally.^{4,5} Those unable to adhere to complex regimens due to socioeconomic, psychological, and medical reasons continue to require intensive, long-term interventions, including residential care.

Adhering to complex and potentially toxic medication regimens may be especially challenging to persons with AIDS and comorbid psychiatric disorders.⁶ Interactions between psychiatric and anti-HIV agents may affect the tolerability and efficacy of both.⁷ Such patients are at risk of either not receiving benefits from the new therapies or requiring more intensive interventions to do so. Psychiatric comorbidity has been shown to increase lengths of stay in the general hospital⁸ and, among patients with AIDS,^{9,10} to increase hospitalization rates,¹¹ as well as decrease medication adherence.¹²

Many studies have reported high levels of HIV infection among psychiatric populations.¹³ While substance use and psychiatric disorders commonly co-occur,¹⁴ psychiatric disorders have been shown to be an independent risk factor for infection.¹⁵ HIV prevention efforts targeted to this population have shown some efficacy; however, longer-lived effects and widespread acceptance have not been attained.¹⁶ As the HIV epidemic continues to expand, an increasing number of patients requiring long-term institutional care may also have psychiatric disorders.^{17,18}

This study examined the prevalence of severe and persistent psychiatric disorders among patients residing in a long-term care facility for people with AIDS. Admission and discharge data were obtained for all patients. We describe the relationship between psychiatric disorders, admission characteristics, length of stay, and discharge outcomes among this sample.

STUDY SETTING AND METHODS

Leeway, Connecticut's only long-term care facility dedicated to the care of persons with AIDS, opened in October 1995. Located in New Haven, a city with high rates of poverty, substance use, and AIDS, the facility's 30 beds have remained consistently at 90% or greater capacity. Leeway is staffed by 20 nurses and 10 nurse's aides on a 24-hour basis. Other providers include two part-time, on-site internists; a consultant psychiatrist; and a social worker.

Data for this study were collected by chart review for all patients ($N = 180$) admitted between October 1995 and December 1998. Trained reviewers collected data, including demographics, Mini-Mental State Examination (MMSE),¹⁹ Activities of Daily Living (ADL) Scale scores,²⁰ and Centers for Disease Control and Prevention HIV/AIDS stage classification.²¹ First admission information was used as baseline data. Patients were followed through June 1999, allowing a minimum 6-month observation.

Psychiatric disorder was determined by the presence of a current disorder on the Minimum Data Set, an assessment completed for all admissions to long-term care facilities in the US²²; a history of disorder documented in the chart; or a diagnosis made on admission by the facility's psychiatrist.

Because of the high prevalence of injection drug use (IDU; 61%) and AIDS dementia complex (32%) and difficulty in distinguishing some psychiatric disorders from HIV disease progression, only "severe and persistent" (psychotic, bipolar, and major depressive disorders) psychiatric disorders were used in these analyses. No disorder reached sufficient prevalence for analysis; an inclusive category was used for psychiatric disorders.

The outcomes of interest were length of stay, discharge, survival duration, and mortality, both in and out of the facility. Discharged patients were followed to determine subsequent mortality. Length of stay and person-time for discharge were accrued as the number of days residing at Leeway from first admission until discharge; for mortality, it was the number of days from first admission until death. Rates were calculated per 100 years of person-time.

The relative risk (RR) of discharge and death, as a function of psychiatric comorbidity and controlling for baseline differences in HIV disease severity, were calculated using Poisson regression. Because some patients had not completed their stay by study end, we calculated Kaplan-Meier product-limit estimates of survival times, controlling for baseline differences, and tested for significant differences in discharge and death rates between groups.²³

Chi-square tests were used to assess differences in proportions between groups. Continuous variables were compared using *t* tests. The level of statistical

significance for all comparisons was .05. All analyses were performed using SAS software, version 6.12 (SAS Institute, Cary, NC).

RESULTS

Between October 1, 1995, and June 30, 1999, 180 individuals were admitted to Leeway. Most ($n = 142$) had 1 admission, 34 had 2, and 4 had 3, for a total of 222 admissions. Follow-up was complete through June 30, 1999; no patients were lost to follow-up. At the end of the study, 69 patients (38%) were alive, and 20 (11%) were still resident.

Patients had a mean age of 41 years (range 17–72), were predominantly male (69%), and African-American or Latino (60%); 12% had not finished high school, and 66% reported never having been married (Table I). A history of IDU was reported by 61% and was reported as the primary risk factor for HIV infection by 57%. Many patients (57%) were admitted for 24-hour nursing/medical supervision, 23% for completion of acute medical treatment, 13% for terminal care, and 7% for respite or due to an unsafe home environment. Nearly all (88%) were classified as stage C3 (AIDS) by the Centers for Disease Control and Prevention system.

Of the patients, 26% had an MMSE score below 20, indicating cognitive impairment (median MMSE 23/30). While most were ambulatory (70%), 52% had one or more deficits of ADL functioning. Also, 45 patients (25%) had a severe and persistent psychiatric disorder; 29 (16%) had major depression; 11 (6%) had nonorganic psychotic disorders, including schizophrenia; and 5 (3%) had bipolar disorder.

There were no significant differences on sex, race, education, marital status, exposure category, or MMSE score. Patients with comorbidity were significantly less likely to have any ADL deficit (43% vs. 56%) and were more likely to be ambulatory (82% vs. 67%) (Table I).

The mean length of stay during the first admission was 152 days (range 1 to 1,353 days); over all admissions, it was 188 days (1–1,353 days). Among patients who died, the mean duration from admission until death was 179 days (1–825 days).

Patients with comorbidity had a significantly longer duration of first admission stay (234 vs. 128 days, $P = .03$), more total days spent at the facility (280 vs. 158, $P = .01$), and, among those who died, a longer duration from admission until death (308 vs. 147 days, $P = .004$). Patients with comorbidity had significantly more mean admissions during the study (1.4 vs. 1.2, $P = .04$), but were not significantly more likely to be released to a hospital or the community.

TABLE 1 Sociodemographic and Clinical Characteristics of 180 Patients With and Without Psychiatric Comorbidity Residing at a Long-Term Care Facility for People With AIDS

Characteristic	All Patients (N = 180), N (%)	Patients With Psychiatric Comorbidity (n = 45), n (%)	Patients Without Comorbidity (n = 135), n (%)	χ^2	P
Male	124 (69)	29 (64)	95 (70)	0.53	.46
Race/ethnicity					
African-American	79 (44)	19 (42)	60 (44)	3.86	.15
White	73 (41)	15 (33)	58 (43)		
Latino/Latina	28 (16)	11 (24)	17 (13)		
Less than high school education	20 (12)	5 (12)	15 (12)	0.00	1.00
Never married	118 (66)	27 (60)	91 (67)	0.82	.37
Exposure					
Injection drug use	105 (57)	32 (71)	73 (54)	4.56	.21
Male same-sex contact	30 (17)	5 (13)	25 (19)		
Heterosexual contact	38 (21)	6 (13)	32 (24)		
Other*	7 (3)	2 (4)	5 (3)		
Reason for admission					
24-hour nursing/medical supervision	103 (57)	28 (62)	75 (56)	4.09	.39
Complete acute medical treatment	42 (23)	9 (20)	33 (24)		
Terminal care	23 (13)	3 (7)	20 (15)		
Respite care	7 (4)	3 (7)	4 (3)		
Unsafe home environment	5 (3)	2 (4)	3 (2)		
Median MMSE score†	23/30	24	23		.89
Impairment in 1 + ADL‡	85 (52)	17 (40)	68 (56)	3.53	.05
CDC HIV Stage C3§	158 (88)	38 (84)	120 (89)	0.62	.43
Ambulatory	127 (70)	37 (82)	90 (67)	3.90	.04

*Includes two blood product exposures, five unknown.

†Folstein Mini-Mental State Examination (see ref. 19).

‡Katz Activities of Daily Living (ADL) Scale (see ref. 20).

§CDC HIV/AIDS Classification System (see ref. 21).

||Walks with or without assistance (e.g., cane) versus bedbound or wheelchairbound.

During the study period, 111 patients died (62% mortality), for an overall mortality rate of 58/100 person-years observation. There were 72 patients who died at Leeway or within 2 weeks of discharge (65% of deaths). Patients with comorbid psychiatric disorders had a significantly lower mortality rate than patients without (RR = 0.47, 95% confidence interval [CI] 0.37–0.60, $P = .002$). Controlling for ambulatory status did not alter the association; patients with comorbidity had a significantly lower risk for death (RR = 0.53, 95% CI 0.42–0.68, $P = .009$).

The rate of either discharge (either to the community or a hospital or due to

death) was 236 per 100 person-years. The rate for patients with comorbidity was significantly lower than for patients without comorbidity (RR = 0.48, 95% CI 0.40–0.58, $P = .0001$). A model controlling for ambulatory status revealed that psychiatric comorbidity continued to have a significant effect on lowering this rate (74 per 100 person-years vs. 173, RR = 0.43, 95% CI 0.23–0.78, $P = .0001$) (see Table II).

The Figure presents Kaplan-Meier curves of survival stratified by patient's psychiatric comorbidity and ambulatory status. There were significant differences between the four groups on time until death. Patients with comorbid disorders who were ambulatory at admission had the highest median survival duration, 533 days. Patients without comorbidity who were not ambulatory had the lowest survival time of 71 days, significantly different from ambulatory patients with comorbidity (log-rank $\chi^2 = 40.95$, $P = .0001$).

DISCUSSION

Of patients with AIDS residing in a long-term care facility, 25% had comorbid, severe, and persistent psychiatric disorders, a prevalence far higher than that found in either the Epidemiologic Catchment Area study²⁴ or the National Comorbidity Survey.²⁵ This may be due in part to the high proportion of patients with a history of IDU and the association of psychiatric disorders and substance use.²⁶

TABLE II Outcome Characteristics for 180 Patients With and Without Psychiatric Comorbidity Residing at a Long-Term Care Facility for People With AIDS

Outcome	All Patients (N = 180), N (%)	Patients With Psychiatric Comorbidity (n = 45), n (%)	Patients Without Comorbidity (n = 135), n (%)	χ^2	P
Discharged*	92 (51)	25 (56)	67 (50)	0.47	.49
Died†	111 (62)	89 (62)	22 (49)	3.77	.05
Discharged/Died	164 (91)	37 (82)	127 (94)	5.85	.02
				RR	P
Discharge rate	236‡	128	267	0.48	.0001
Discharge rate§		74	173	0.43	.0001
Mortality rate	58	34	71	0.47	.002
Mortality rate§		24	45	0.53	.009

*To community or hospital.

†Includes deaths occurring after discharge from the facility.

‡Rates per 100 person years of observation.

§Models controlling for ambulatory status.

FIGURE Kaplan-Meier estimates of survival, stratified psychiatric disorder, and patient ambulatory status: ——— psychiatric disorder, ambulatory; - - - psychiatric disorder, not ambulatory; - . - no psychiatric disorder, ambulatory; — — — no psychiatric disorder, not ambulatory.

The prevalence may also be due in part to the method of data collection. Standardized, structured psychiatric diagnostic interviews that would ensure a higher degree of reliability and accuracy were not performed. The retrospective nature makes distinguishing between a current or recent diagnosis, a lifetime diagnosis, and the sequelae of HIV disease very difficult. Conversely, the prevalence of psychiatric comorbidity may be under-reported, as is often the case for patients with other medical conditions.²⁷

While there was no significant difference in the reported reason for admission, patients with comorbid disorders had more favorable functional characteristics and lower death rates. This suggests that they were at a less advanced stage of HIV illness and should have been discharged sooner. That they were not implies that they may have required continued care due to the unavailability of residential alternatives.

The lower discharge rate and longer length of stay among patients with comorbidity at Leeway contributed to an escalating prevalence of psychiatric comorbidity; the proportion of patients with comorbidity increased from 38% in June 1996, to 41% in June 1997, to 53% in June 1998. This selection process may become more severe with further developments in HIV therapies. This process is evidenced at Leeway, where the increasing prevalence has exerted considerable pressure on the fixed number of beds ($N = 36$). This has required the creation of an extensive and costly 10-bed unit dedicated to the needs of patients with AIDS and psychiatric comorbidity.

As public policy and economic factors have increasing impact on health care delivery, important questions are being raised regarding the allocation of limited resources to the needs of the expanding population of people with HIV disease. While the psychosocial and medical requirements of this population have been acknowledged, there exists a need to develop further noninstitutional, alternative community-based residential care options that provide treatment in a cost-effective manner.

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