Clinical and Legal Correlates of Inmates With Bipolar Disorder at Time of Criminal Arrest

Cameron D. Quanbeck, M.D.; David C. Stone, M.D.; Charles L. Scott, M.D.; Barbara E. McDermott, Ph.D.; Lori L. Altshuler, M.D.; and Mark A. Frye, M.D.

Background: In an effort to determine illness factors associated with criminality among bipolar patients, we identified bipolar arrestees housed in the psychiatric division of the Los Angeles County Jail who had a history of psychiatric treatment in the Los Angeles County community mental health system.

Method: Los Angeles County's computerized management information system was utilized to retrospectively identify all inmates evaluated over a 7-month period from July 1999 to Jan. 2000 with a DSM-IV diagnosis of bipolar I disorder, their symptoms at time of arrest, and the nature of community treatment preceding arrest. Criminal history was assessed using Sheriff's Department legal records. Demographic and clinical characteristics of these inmates were compared with characteristics present in a group of hospitalized bipolar patients without a history of arrest in Los Angeles County.

Results: Of the 66 inmates identified as having a clear diagnosis of bipolar disorder with previous community treatment in the Los Angeles County Mental Health system, the majority were manic (49/66, 74.2%) and psychotic (39/66, 59%) at time of arrest. Manic arrestees were recently released from community inpatient treatment and most were not involved in outpatient treatment postdischarge. The bipolar inmates had significantly higher rates of comorbid substance abuse than did the hospitalized bipolar patients without an arrest history (75.8% [50/66]) vs. 18.5% [10/54]).

Conclusions: The results of this study suggest that manic symptoms place bipolar patients at significant risk for criminal offending and arrest. Intensive treatment intervention by the community mental health and criminal justice system may be needed, particularly in the immediate postmanic hospitalization period, in order to prevent incarceration of patients with bipolar disorder.

(J Clin Psychiatry 2004;65:198–203)

Received April 26, 2003; accepted Sept. 9, 2003. *From the Department of Psychiatry, Forensic Division, University of California, Davis, Sacramento (Drs. Quanbeck, Scott, and McDermott); the Department of Psychiatry, Harbor-UCLA, Torrance (Dr. Stone); and the Department of Psychiatry and Biobehavioral Sciences, Mood Disorder Research Program, UCLA School of Medicine, Los Angeles (Drs. Altshuler and Frye), Calif.*

The authors report no financial relationship or other affiliation relevant to the subject matter of this article.

The authors recognize patients with bipolar disorder and their family members in the ongoing struggle to access and utilize the treatment needed to stabilize the manic phase of bipolar disorder.

Corresponding author and reprints: Cameron D. Quanbeck, M.D., 2230 Stockton Blvd., Sacramento, CA 95817 (e-mail: cdquanbeck@ucdavis.edu).

A number of previous studies have reported the prevalence rate of Axis I mental illness in jails (where inmates are housed after arrest and while awaiting court proceedings) at 6% to 15%, and in prisons (where inmates serve sentences greater than a year), at 10% to 15%.[1,2] The prevalence rate of bipolar disorder specifically in the prison population has been estimated to be 6 times greater than the rate in the community.[3] Furthermore, in comparison to unipolar depressed men or matched controls, male inpatients with bipolar disorder had the highest prevalence of criminal behavior.[4] The symptom profile of mania (i.e., grandiosity, poor judgment, impulsivity, lack of insight, antisocial behavior, and psychosis) can contribute to or predispose patients to assaultive and threatening behavior and thereby increase risk of criminal offending.[5,6] This hypothesis is supported by a recent study of 325 mentally ill offenders in a psychiatric parole and probation service. Among multiple sociodemographic variables, the number of lifetime manic episodes and frequency of psychiatric hospitalizations were most significantly associated with number of lifetime arrests.[7]

In this study we attempted to better understand factors involved in criminal offending among bipolar patients. We evaluated phase of illness, involvement in community treatment, and status of legal supervision at time of criminal arrest. Gaining a better understanding of factors underlying criminality in persons with bipolar disorder could lead to more effective interventions in efforts to divert the mentally ill from jails into community treatment.

METHOD

The Los Angeles County Department of Mental Health and the University of California, Davis, Human Subjects Review Committees approved a waiver of informed consent for this retrospective study. All inmates who received a psychiatric evaluation over a 7-month period from July 1999 to Jan. 2000 at the Los Angeles County Jail Twin Towers Correctional Facility (TTCF) were screened for a DSM-IV bipolar I disorder diagnosis. TTCF is the largest mental health facility serving the Los Angeles County population, with a daily census of approximately 2700 inmates. A 7-month time period was used due to time constraints imposed upon the principal investigator and was not related to study design, data accessibility, or human subjects committee regulation.

Diagnosis and Treatment History

In order to determine diagnosis, symptoms, and community treatment status at the time of arrest, we utilized the Los Angeles County Department of Mental Health Management Information System (MIS). Los Angeles County hospitals and outpatient clinics utilize MIS in order to coordinate mental health services; for each patient, the location and dates of prior inpatient and outpatient treatment are recorded, along with the DSM-IV diagnosis for which they were treated. An individual patient's involvement in outpatient care at the time of arrest can be assessed using MIS; an open case indicates a patient continues to make appointments and receive care at the clinic, and a closed case is represented by a closing date on MIS next to the clinic name. Los Angeles County Department of Mental Health policy states that a patient case is closed when the patient fails to make appointments for a period of 3 months or indicates to clinic staff that he or she is transferring care.

Because TTCF and other county forensic facilities are staffed by the Los Angeles County Department of Mental Health, all treatment provided in forensic settings is recorded in MIS. Arrestees exhibiting overt psychopathology are referred to mental health staff immediately after arrest by correctional staff. Some may require involuntary hospitalization at TTCF; these inmates receive a psychiatric evaluation within 24 hours of arrest. All other inmates entering Los Angeles County Jail are screened for mental illness at the Inmate Reception Center before being housed in the jail. Those who appear to be in need of psychiatric treatment are further evaluated by a nonpsychiatrist mental health professional, i.e., social worker, psychologist. Within 1 to 2 weeks after arrest, each inmate is evaluated by a psychiatrist and is given a DSM-IV diagnosis. This diagnostic information is what we collected in this study.

Arresting Charge and Legal History

The Los Angeles County Sheriff's Consolidated Criminal History Reporting System (CCHRS) was utilized to determine each bipolar inmate's arresting charge and legal history. CCHRS provides an overview of an individual's criminal history, including dates of prior arrests and charges, prior convictions and sentences, and dates of parole and probation.

Subjects

Jail sample. All inmates (men and women, aged 18–65 years) who received a DSM-IV diagnosis of bipolar I disorder at Twin Towers Correctional Facility over the 7-month period were identified in the MIS system. Only those who had a previous record of community treatment in the Los Angeles County Mental Health system were investigated further; those with no prior treatment or with treatment exclusively in forensic settings were excluded. Patients with a previous community hospitalization for treatment of bipolar I disorder (in any phase of illness) were included. The previous inpatient diagnosis of bipolar disorder was utilized to improve diagnostic reliability; subjects with more than 1 previous community hospitalization were included in the analyses if the majority of hospitalizations had a discharge diagnosis of bipolar I disorder.

Five hundred inmates received a bipolar diagnosis over the 7-month period. Of these inmates, 260 had a record of treatment in the Los Angeles County Mental Health system. Sixty-eight were excluded because their past treatment occurred exclusively in forensic settings. Of the remaining 192 patients, 120 did not meet study criteria because most of their discharge diagnoses were not bipolar disorder but included other Axis I conditions (a minority of discharge diagnoses were bipolar disorder, the remainder were schizophrenia, schizoaffective disorder, major depressive disorder, or other diagnoses). Six inmates appeared to have bipolar disorder (based on outpatient intake and emergency room visit diagnoses) but lacked a community hospitalization. Thus, 66 subjects with a clear diagnosis of bipolar disorder with previous community treatment in the Los Angeles County Mental Health system were included in the study.

Community sample. As a comparison to the bipolar arrestee group, a sample of Los Angeles County bipolar patients who were not arrested during the course of their psychiatric treatment within Los Angeles County was identified. In order to match the 2 groups in terms of illness severity, we randomly selected bipolar patients who were hospitalized at each of Los Angeles County's 4 major psychiatric hospitals during the same 7-month time period. Similarly, the majority of the comparison group's discharge diagnoses were bipolar I disorder. We compared the jail and the community sample group on a number of demographic and clinical variables.

Statistical Analysis

Chi-square analyses were utilized to assess (1) the percentage of inmates in a manic, mixed, or depressed episode

(with or without psychosis) at time of arrest and (2) the relationship of phase of illness at arrest to a recent discharge from a psychiatric hospital in the community; this was measured by calculating the number of days from hospital discharge to criminal arrest (recorded in categorical variables of less than 1 week, 1 week to 1 month, 1 to 3 months, and greater than 3 months). A t test was utilized to compare the length of hospitalization between the 2 groups.

Descriptive statistics were utilized to assess the types of arresting charges, criminal history, and legal supervision at arrest. Because some subjects in this study were charged with more than 1 crime at arrest, all arresting charges were recorded. For purposes of data analysis, charges were grouped into the following categories: (1) violent crime, (2) property crime, (3) drug-related crime, (4) noncompliance crime, and (5) miscellaneous crime. A chi-square analysis was performed to evaluate the relationship of bipolar symptoms, psychosis, and gender with the type of crime charged at arrest.

RESULTS

Subjects

Sixty-six inmates (37 men, 29 women; mean age = 36 years, range, 22–60 years) met study inclusion criteria. Among the subjects, 4 different ethnicities were represented: white (48.5% [32/66]), African American (31.8% [21/66]), Hispanic (15.2% [10/66]), and Asian (4.5% [3/66]). The majority of bipolar inmates (75.8% [50/66]) had a comorbid substance abuse diagnosis.

Of the 54 comparison subjects identified, 37 were female and 17 were male. They ranged in age from 21 to 74 years, with an average age of 41.2 years. The largest percentage of subjects were African American (18/54 [33.3%]); 16/54 (29.6%) were white, 14/54 (25.9%) were Hispanic, and 6/54 (11.1%) were Asian. In contrast to the bipolar inmates, only 10/54 (18.5%) had a comorbid substance abuse diagnosis ($\chi^2 = 34.20$, df = 1, $p < .000$). The comparison bipolar sample was significantly older ($p < .009$) and more likely to be female ($\chi^2 = 7.70$, df = 1, $p < .006$) than were the bipolar inmates.

Correlates at Arrest

At the time of arrest, the majority of bipolar inmates were in a manic or mixed phase of illness (49/66 [74.2%]), with 35 experiencing a manic episode and 14 experiencing a mixed episode, while 25.8% of inmates (17/66) were depressed. In addition, 59% (39/66) were psychotic; more manic and mixed inmates (63.3% [31/49]) than depressed inmates (47.1% [8/17]) were experiencing psychosis at arrest.

The specific types of crimes charged in this study are presented in Table 1. There were 85 charges for the 66 inmates, or an average of 1.29 charges per inmate. Violent crimes were charged most frequently (41.2% [35/85]), followed by property crimes (20% [17/85]) and drug-related crimes (18.8% [16/85]). Crimes of noncompliance, such as parole or probation violations, were the most infrequent charge (11.8% [10/85]). Miscellaneous crimes (8.2% [7/85]) were also included. The 2 most frequently charged crimes were possession of narcotics (11/85) and terrorist threats (10/85). The crime of terrorist threats is defined as a threat to commit a crime that will result in great injury or death and causes the victims to fear for their safety. The threat can occur verbally, in writing, or electronically, and the stated intent of the perpetrator is irrelevant. Phase of bipolar disorder (manic, mixed, or depressed) at the time of arrest did not correlate with the type of arresting charge. There was a trend for the presence of psychosis at arrest to be associated with a violent arresting charge ($\chi^2 = 3.062$, df = 1, $p < .08$). Men

Table 1. Arresting Offense (grouped by the type of crime) in 66 Inmates With Bipolar Disorder

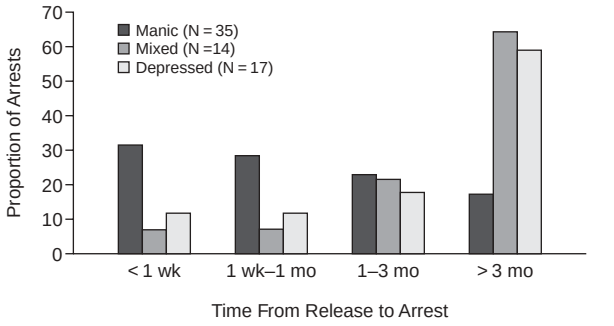
Charge	N
Violent	
Terrorist threats	10
Assault	5
Battery	3
Spousal abuse	3
Murder	2
Arson	2
Reckless driving	2
Resisting arrest	2
Child molestation	2
Attempted murder	1
Disorderly conduct	1
Robbery	1
Rape	1
Total	35[a]
Property	
Theft	8
Vandalism	5
Burglary	4
Total	17[b]
Drug-related	
Possession	11
Under the influence	2
Drunk driving	2
Selling narcotic	1
Total	16[c]
Noncompliance	
Parole/probation violation	8
Failure to appear in court	2
Total	10[d]
Miscellaneous	
Prostitution	2
Accessory after the fact	1
Conspiracy	1
Forgery	1
False identification	1
Attempt to bribe officer	1
Total	7[e]

[a]41.2% of all crimes.
[b]20.0% of all crimes.
[c]18.8% of all crimes.
[d]11.8% of all crimes.
[e]8.2% of all crimes.

were not more likely to be charged with a violent crime than were women ($\chi^2 = 0.023$, df = 1, $p < .879$). However, women were more likely to be charged with a property crime ($\chi^2 = 5.440$, df = 1, $p < .02$).

The vast majority of subjects (80% [53/66]) had a pre-existing criminal record at the time of their arrest. Only 34.8% (23/66) of subjects, however, had a previous felony conviction. Almost half of the inmates had either no prior convictions (19.7% [13/66]) or only 1 misdemeanor conviction (21.2% [14/66]) prior to their arrest. Consistent with the criminal record, 61.6% (40/66) of inmates were under legal supervision at the time of their arrest, 50.0% (33/66) were on probation, and 10.6% (7/66) were on parole.

Figure 1. Time From Hospitalization Release to Arrest: Mood State at Arrest in 66 Inmates With Bipolar Disorder



Treatment History

Recent psychiatric hospitalization was commonly found among bipolar inmates at the time of arrest; 62.1% (41/66) of all inmates and 82.9% (29/35) of those in a manic phase had received inpatient treatment in the 3-month time period preceding their arrest. Inmates in a manic phase of illness were released from an inpatient setting more recently than were those arrested in a mixed or depressed phase of illness ($\chi^2 = 9.715$, df = 2, $p < .008$; Figure 1).

Of inmates experiencing a manic episode at arrest, 60.0% (21/35) had been hospitalized within the month prior to their arrest, and, of these, 31.4% (11/35) were released from an inpatient setting within the week prior to their arrest. The vast majority of manic-episode arrestees (94.3% [33/35]) were treated for a manic or mixed episode during their most recent hospitalization, and 90.9% (30/33) of those were held involuntarily. Thirteen of the 35 manic-episode arrestees required involuntary hospitalization at the jail immediately following arrest.

At the pre-arrest hospitalization for all bipolar inmates, 59.1% (39/66) of patients were treated for a manic episode, 16.7% (11/66) were treated for a mixed episode, and 24.2% (16/66) of patients were in a depressed phase of illness. The mean duration of hospitalization was 9.80 days. Only 22 (33.3%) of the 66 bipolar inmates were established in outpatient care before their pre-arrest hospitalization, and only these inmates had a record of following up with outpatient care after their release. Eight of the 22 patients established in outpatient care had dropped out of treatment by the time they were arrested. Thus, only 14 (21.2%) of 66 inmates had an open outpatient case at one of Los Angeles County's community clinics at the time of arrest.

CONCLUSIONS

To our knowledge, this is the first study to examine phase of illness, criminal charges, and health care utilization preceding arrest for patients with bipolar I disorder. We found that most bipolar inmates were experiencing manic and/or psychotic symptoms at the time of criminal arrest. They were most frequently charged with a violent offense, though the most commonly charged violent crime, terrorist threats, involved verbal threats of violence rather than actual assault. Most were under legal supervision at the time of arrest and had a prior criminal record, though a substantial number had only 1 prior misdemeanor conviction or no prior convictions. Manic arrestees were significantly more likely to have been recently discharged from a psychiatric hospital than were inmates in a mixed or depressed phase of illness; the majority were released from a hospital in the month before arrest and failed to enter into outpatient treatment.

The most striking finding of this study is that almost two thirds of inmates had recently been released from a psychiatric inpatient unit before their arrest, particularly for the subgroup of inmates experiencing manic symptoms at arrest. The relatively short, involuntary hospitalization preceding the arrest of these manic arrestees suggests some may have been released without optimal stabilization of mania, possibly at a legal hearing. In California, after an initial 3-day evaluation period, a patient can be held for an additional 14 days of involuntary treatment if commitment criteria are met. In our study, the mean duration of the hospitalization preceding the arrest of bipolar inmates, 9.80 days, suggests some patients may have been released at civil commitment hearings (which occur from 5 to 9 days after admission) or at least were discharged prior to the full 14-day, legally authorized term.

Though recent release from an inpatient setting was common prior to arrest, subsequent entry into outpatient care was not. Only a minority of bipolar inmates were seen in a Los Angeles County clinic after hospital release, and some of these patients had dropped out of care before being arrested, suggesting they were noncompliant with outpatient care and had their case closed. Thus, it appears that only a small percentage of inmates were in outpatient treatment for their bipolar disorder at the time of arrest

and that they had difficulty establishing continuity of care after being released from the hospital, placing them at risk for decompensation into illness.

Our finding that the majority of inmates were experiencing a manic or mixed episode at arrest is consistent with the hypothesis that manic symptoms (i.e., impulsivity, grandiosity, lack of insight into illness, psychosis) may account for increased criminality.[4–7] These results are consistent with an earlier study of mentally ill inmates at Los Angeles County Jail, which found that 80% of inmates were exhibiting severe psychopathology at the time of arrest; over 90% had a history of both psychiatric hospitalization and criminal arrest and were not in community treatment at the time of arrest.[8]

Because the most frequently charged crimes in this study were violent in nature, we decided to investigate what symptoms were associated with violence. Though the particular phase of illness was not associated with violent crime, there was a near significant trend between psychosis and violent behavior. Previous studies have demonstrated that psychosis, in particular paranoid delusions, is a significant risk factor for potential violence in the mentally ill.[9–12] Further, we found that men and women did not differ in the likelihood of being charged with a violent crime. Studies have shown that among the mentally ill, in contrast to the population at large, women and men are equally violent, and the potential for violence among mentally ill women should not be underestimated.[13]

Another striking finding in this study was that most inmates were under the supervision of the criminal justice system at the time of their arrest; 61.6% of inmates were on either parole or probation when arrested. The court usually sentences an offender to probation when convicted of a misdemeanor or less serious crime. The purpose of probation is to give a defendant a chance to avoid a prison sentence contingent upon good behavior. Parole is legal supervision of individuals who have been convicted of a felony and served time in prison. Such individuals can be released from prison into parole prior to the end of their sentence and must comply with certain guidelines or face a return to prison. The court can order mandatory psychiatric treatment as a term of parole or probation; however, many jurisdictions lack the resources to institute mental health programs that have the capacity to provide enforced, structured treatment.[14,15]

After the deinstitutionalization of psychiatric patients from state hospitals that began in the 1970s, increasing numbers of mentally ill individuals have entered the criminal justice system in the United States.[2,16,17] Today, a significant number of psychiatric patients are cared for in both community mental health systems and criminal justice systems, often moving between hospitals and jails in a "revolving door" pattern.[18] Two hypotheses proposed to explain this "criminalization" phenomenon are a lack of community treatment resources and civil commitment laws that make involuntary treatment difficult.[19,20] The brief duration of hospitalization and outpatient treatment nonadherence of the bipolar inmates suggest that these inmates were not able to access and/or fully utilize the resources available to treat their mental illness. It is possible that further pharmacologic treatment and stabilization of their bipolar illness in an outpatient setting may have prevented the behaviors that resulted in their criminal arrest. The prevalence of a substance abuse diagnosis in bipolar inmates was 75.8%, which appears to be higher than that among bipolar patients in the community at large (a 60.7% lifetime prevalence), and significantly higher than that in the comparison community sample without an arrest history (18.5%). Certainly, the high prevalence of comorbid substance abuse diagnoses among the inmates indicates that their treatment compliance may be complicated by substance abuse issues.[21] In addition, they may have poorer insight into their bipolar illness than do those in the community sample and not recognize their need for treatment.[22]

The study has several limitations. First, the diagnoses were not confirmed by a structured diagnostic interview at the time of arrest or at previous hospitalizations. We attempted to increase the reliability of the diagnosis by utilizing the "clinical consensus" of Los Angeles County psychiatrists; most of the patients' past discharge diagnoses were for a bipolar disorder. In addition, there was no structured interview that evaluated Axis II comorbidity.

Second, we equate diagnosis at evaluation with diagnosis at arrest. Those inmates who are not hospitalized immediately after arrest receive a psychiatric evaluation 1 to 2 weeks after arrest, and it is possible their bipolar symptoms could change in that time period. This is unlikely, however, as the majority of manic arrestees who were hospitalized for mania in the month preceding their arrest were diagnosed with mania at their TTCF evaluation as well (19 of 21 manic arrestees). Third, only bipolar inmates with a past history of hospitalization and treatment in the Los Angeles County community mental health system were included; this excludes those who receive their care in private and forensic settings exclusively.

In summary, the majority of bipolar inmates (74.2% [49/66]) in this study were experiencing a manic (71.4% [35/49]) or mixed (28.6% [14/49]) phase of illness at the time of arrest. In addition, most of these inmates were experiencing psychotic symptoms when arrested (63.3% [31/49]). Despite having an established history of treatment in the community and a recent hospitalization, most were not in outpatient care at the time of arrest but were under legal supervision. There was a marked difference in the prevalence of comorbid substance abuse between the inmates and community group. These findings suggest

that the following interventions may be effective in reducing criminal offending in this population: (1) substance abuse treatment, (2) enforced treatment of bipolar offenders on parole or probation, and (3) a community mental health system with stronger authority and more resources to stabilize acute mania and transition patients to an outpatient setting.

REFERENCES

1. Abram KM, Teplin LA. Co-occurring disorders among mentally ill jail detainees: implications for public policy. Am Psychol 1991;46: 1036–1045
2. Lamb HR, Weinberger LE. Persons with severe mental illness in jails and prisons: a review. Psychiatr Serv 1998;49:483–492
3. Robins LN, Regier DA, eds. Psychiatric Disorders in America: The Epidemiological Catchment Area Study. New York, NY: MacMillan; 1991
4. Modestin J, Hug A, Ammann R. Criminal behaviors in males with affective disorders. J Affect Disord 1997;42:29–38
5. Wulach JS. Mania and crime: a study of 100 manic defendants. Bull Am Acad Psychiatry Law 1983;11:69–75
6. Janowsky DS, El-Yousef MK, Davis JM. Interpersonal maneuvers of manic patients. Am J Psychiatry 1974;131:250–255
7. Solomon P, Draine J. Explaining lifetime criminal arrests among clients of a psychiatric probation and parole service. J Am Acad Psychiatry Law 1999;27:239–251
8. Lamb R, Grant RW. The mentally ill in an urban county jail. Arch Gen Psychiatry 1982;39:17–22
9. Link BG, Stueve A, Phelan J. Psychotic symptoms and violent behaviors: probing the components of "threat/control-override" symptoms. Soc Psychiatry Psychiatr Epidemiol 1998;33:55–60
10. Monahan J. Mental disorder and violent behavior. Am Psychol 1992;47:511–521
11. Torrey EF. Walking time bombs: violence in the mentally ill. In: Torrey EF, ed. Out of the Shadows: Confronting America's Mental Illness Crisis. New York, NY: John Wiley & Sons; 1997:43–60
12. Asnis MA, Kaplan ML, Hundorfean G, et al. Violence and homicidal behaviors in psychiatric disorders. Psychiatr Clin North Am 1997;20: 405–425
13. Monahan J, Steadman H, eds. Violence and Mental Disorder: Developments in Risk Assessment. Chicago, Ill: University of Chicago Press; 1994
14. Ditton PM. Mental Health Treatment of Inmates and Probationers. DOJ publication NCJ 174463. Washington, DC: US Dept Justice, Bureau of Justice Statistics; 1999
15. National Institute of Justice. NIJ Survey of Probation and Parole Agency Directors. Washington, DC: US Government Printing Office; 1995
16. Whitmer GE. From hospitals to jails: the fate of California's deinstitutionalized mentally ill. Am J Orthopsychiatry 1980;50:65–75
17. Sosowsky L. Explaining the increased arrest rate among mental patients: a cautionary note. Am J Psychiatry 1976;137:1602–1605
18. Lamb HR, Weinberger LE, Gross BH. Community treatment of severely mentally ill offenders under the jurisdiction of the criminal justice system: a review. Psychiatr Serv 1999;50:907–922
19. Allen M, Smith VF. Opening Pandora's box: the practical and legal dangers of involuntary outpatient commitment. Psychiatr Serv 2001; 52:342–346
20. Torrey EF, Zdanowicz M. Outpatient commitment: what, why, and for whom. Psychiatr Serv 2001;52:337–341
21. Regier DA, Farmer ME, Rae DS, et al. Comorbidity of mental disorders with alcohol and other drug abuse. JAMA 1990;264:2511–2518
22. Swartz MS, Swanson JW, Hiday VA, et al. Violence and severe mental illness: the effects of substance abuse and nonadherence to medication. Am J Psychiatry 1998;155:226–231