

Disseminating Best Practices for Bipolar Disorder Treatment in a Correctional Population

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Use of medication treatment algorithms may facilitate clinical decision making, improve consistency, and reduce polypharmacy in the correctional setting. A feasibility study was conducted investigating use of Texas Implementation of Medication Algorithms (TIMA) guidelines for bipolar disorder in the Connecticut Department of Correction. Forty inmates with diagnoses of bipolar disorder were treated over a 12-week period ad-

hering to the TIMA algorithm for bipolar disorder. Significant improvement was seen in the primary and secondary outcome measures ($p < .001$). This pilot project confirmed the feasibility of algorithm adaptation to the correctional setting and provided specific recommendations for successful dissemination of the TIMA algorithm for bipolar disorder in correctional settings. (*Psychiatric Services* 61:865–867, 2010)

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Inmates with bipolar disorder present a significant challenge for clinicians in the correctional setting because of their frequent impulse control issues, aggression, self-destructive behaviors, and treatment noncompliance (1). Their management is further complicated because of the high prevalence of psychiatric, medical, and substance use comorbidities and frequent incarcerations (2,3). The complexity of bipolar disorder treatment in the correctional setting has been associated with inconsistent and disjointed treatment. The availability of multiple medication options for bipolar disorder can improve treatment outcomes, but it can also lead to polypharmacy (4) and add significant safety and tolerability issues (5). There is a growing concern about the higher costs related to polypharmacy, which include direct costs of the medications as well as indi-

rect costs, such as costs associated with the management of the consequences of medication treatment (for example, metabolic syndrome, blood draws, and increased staffing requirements) (6).

An evidence-based treatment algorithm in a correctional setting

Evidence-based treatment algorithms provide consistency in pharmacologic practice (7). A major goal of treatment algorithms is to support the dissemination of best practices in a systematic manner. The Texas Implementation of Medication Algorithms (TIMA) is a prominent example of a successful statewide initiative to disseminate evidence-based practice guidelines, with successful statewide implementation experience (8,9). Adaptation of medication algorithms, such as those included in TIMA, to the correctional system may improve clinical outcomes, reduce costs, and reduce inappropriate variations in clinical practice, and if coupled with linkages to effective aftercare, it may reduce reoffending and reincarceration. The TIMA algorithm for bipolar disorder has not been tested within a correctional setting.

We are conducting a two-phase effectiveness study investigating adaptation of the TIMA algorithm for bipolar disorder to the correctional environment in the Connecticut Department of Correction (CDOC). This project represents a collabora-

tive venture between the clinical and service arms of the CDOC and the researchers at the University of Connecticut Health Center. The first phase of this project is an open-label feasibility trial, evaluating the suitability and application of the TIMA algorithm for bipolar disorder to the correctional environment. The second phase is a prospective, quasi-experimental trial. In this column, we describe selected findings from the feasibility trial. We delineate several general and correction-specific issues we encountered during this implementation. We also describe specific measures we undertook to overcome these challenges. Finally, we describe the major lessons learned during this process, which we believe would be helpful for implementation of algorithms in correctional systems.

A total of 40 patients participated in a 12-week study that consisted of an intake visit (week 0), five biweekly visits (weeks 2, 4, 6, 8, and 10), and an end visit (week 12). Qualitative data on the feasibility of algorithm implementation were gathered from the following sources: feedback from study and facility staff regarding TIMA algorithm implementation, documentation of weekly meetings and troubleshooting sessions addressing obstacles to algorithm implementation, regular reviews of the algorithm treatment decision trees, and clinic visit forms to identify and address adherence to algorithm implementation.

The study population

A total of 20 males and 20 female inmates with a diagnosis of bipolar I or II disorder were referred by CDOC clinicians and screened by a trained research assistant. Before study participation, inmates were seen by the CDOC clinicians approximately every four to six weeks for medication management visits. A few of the inmates, mainly women, also participated in therapy groups addressing stress management, coping skills, and substance use. Inmates already participating in groups continued their group participation. Inmates did not start group therapy during the study period if they were not already enrolled. The majority of participants

were Caucasian (N=25, 63%) and single (N=33, 83%), and they had a mean±SD age of 33.8±8.0 years. No significant differences were seen in demographic characteristics between male and female inmates. The baseline scores for the Bipolar Disorder Symptom Scale (BDSS) (10), a measure of bipolar symptomatology, also did not differ significantly between men and women. Eighty-five percent of patients (17 men and 17 women) were prescribed three or more medications at baseline, suggesting high utilization of psychotropic medication. At baseline, the use of psychotropic medications was generally higher among men than among women, with a particularly striking difference in antipsychotic medication use (19 men, or 95%, versus 11 women, or 55%).

Analysis of the clinical and functional outcome measures was conducted using paired t tests, with the last observation carried forward among the intent-to-treat participants. A total of 29 patients completed all the visits (17 men, 12 women). Clinically significant improvement was seen with the primary outcome measure BDSS ($t=4.32$, $df=39$, $p<.001$). (Scores ranged from 2.18±.06 to 1.81±.08 over the study period; possible BDSS scores range from 1 to 7, with higher scores indicating a higher level of symptomatology.) [A figure showing the change in BDSS score over the study period is available as an online supplement at ps.psychiatryonline.org.] Significant improvements ($p<.05$) were also seen with other secondary outcome measures—that is, the Clinical Global Impression (CGI) scale, the Brief Psychiatric Rating Scale (BPRS), and the Short-Form Health Survey (SF-36) (10). During the study period, utilization dropped considerably for antipsychotics (N=30, or 75%, to N=27, or 68%) and antidepressants (N=28, or 70%, to N=20, or 50%), which was associated with an increase in anti-convulsant medication utilization (N=26, or 65%, to N=32, or 80%).

Feasibility

In general, the project was well received by the correctional clinicians referring inmates to the study as well

as by the support staff (for example, nurses and pharmacy employees). We encountered several challenges to the algorithm implementation, some of which were specific to the correctional environment. These obstacles were generally of two types—some were related to correctional policy or of an administrative nature, whereas others were related to the clinical culture in the correctional institutions.

Obstacles from administrative and policy issues

Two inmates were transferred to other prisons and had to be withdrawn from the project because these other facilities were not approved for protocol implementation. Four inmates dropped out of the study because they were released by court order. All of these inmates were lost to follow-up. Another administrative issue hampering algorithm implementation involved inconsistent blood drawing procedures. This inconsistency was partially due to lack of resources. We had to frequently educate the staff about the importance of timely blood draws from both an efficacy and a safety standpoint.

CDOC formulary restrictions also complicated algorithm implementation. Agents such as olanzapine and aripiprazole were not on the CDOC formulary. Per CDOC policy, psychiatrists were able to access nonformulary medications only after failed trials of formulary medications. Because of this policy, the nonformulary medications were considered at later stages during the implementation, at times inconsistent with the algorithm recommendations. It is important to note that clinicians seldom used the nonformulary medications because they were able to achieve adequate response using formulary medications.

Obstacles related to the clinical culture in the correctional facilities

These issues were related to assumptions and expectations of inmates or clinical support staff or both.

Issues related to inmates and clinicians. Inmates, at times, refused to consider certain medications (for example, lithium) without any appropriate reason and at times because of hearsay about the medication. This phenomenon appears to have oc-

curred much more frequently in this setting than in our noncorrectional outpatient settings, possibly because of constant proximity to other inmates, a lot of free time, and gossip about medications. We had to educate inmates about the importance of considering all potential options recommended by the algorithm and describe it in the context of risk-benefit ratio of all available options. Furthermore, inmates frequently requested switching or adding medications in the absence of any side effects and often before completion of an adequate medication trial (dosage or duration) per algorithm recommendation. Occasionally such requests were tacitly endorsed by the correctional support staff. Study clinicians faced difficulties adhering to algorithm-recommended critical decision points (10) because of these requests. Inmates and occasionally correctional staff needed education and reassurance about the potential benefit of the ongoing, algorithm-recommended medication trial. We also had to educate inmates in individual sessions about the importance of an adequate trial of a medication recommended by the algorithm. Study clinicians were, in general, successful in reassuring inmates and staff, and for the most part, inmates experienced improvement if they continued on the trials.

Issues specific to clinical and support staff. At baseline, we often encountered simultaneous use of three or more psychotropic medications from different stages of the algorithm. Frequently these medications were used at dosages that were less than the recommended ones. This baseline polypharmacy was partially due to the traditional symptom-driven management of bipolar disorder. To address this issue, we had to educate clinical support staff about the importance of providing evidence-based care, of considering the efficacy-safety ratio, and of focusing on the treatment of illness rather than treatment of individual symptoms. We also educated them about how evidence-based algorithms can be used to accomplish these objectives. Another issue complicating algorithm implementation was the fact that utilization of specific classes of

medications at baseline was often inconsistent with current evidence for the treatment of bipolar disorder. In several cases, medications recommended at the first algorithm stage had not been tried. All of these factors complicated algorithm implementation because study clinicians frequently had to move backwards in the algorithm to start from the first stage. However, it is important to note the improvement trend that occurred during the implementation of the TIMA algorithm. Additionally, there was a considerable decrease in utilization of antipsychotics and antidepressants and an increase in anticonvulsant medication utilization, changes consistent with algorithm recommendations.

Discussion and conclusions

This pilot study confirmed the feasibility of implementing the TIMA algorithm for bipolar disorder in a correctional setting. Our observations suggest that the algorithm needs to be modified for effective implementation in the correctional patient population. Several other issues need to be tackled for implementation of this best practice in the correctional setting. First and foremost, the clinicians and support staff need to be educated about the importance and benefits of evidence-based and algorithm-driven treatments. Second, the clinicians need to be carefully educated about the appropriate algorithm implementation, adequate medication trials, the use of critical decision points during medication changes, and the importance of using brief outcome measures (10). Third, inmates need to be frequently educated about bipolar disorder, its comorbidities, and the importance of adequate medication trials in individual or in group sessions. Finally, the culture of symptom-driven and disjointed treatment needs to be addressed at its core with both staff and patient education about treating the overall illness.

Results for the study presented here suggest that evidence-based algorithms can be successfully implemented in the correctional setting and can lead to improved outcomes with respect to the utilization of evidence-based medications. This project

represents a vital first step toward establishing best practices for individuals with bipolar disorder in the criminal justice system.

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