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Brief report

Substance use and perceived symptom improvement among patients with bipolar disorder and substance dependence

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Abstract

Background: Bipolar disorder (BPD) is the Axis I disorder with the highest risk for coexisting substance use disorder. One explanation for this phenomenon is the ‘self-medication hypothesis’, which states that some patients experience improvement in psychiatric symptoms as a result of substance use. We thus investigated reasons for substance use and perceived substance-induced improvement in BPD symptoms among patients with current BPD and substance dependence. **Methods:** A total of 45 patients received six monthly assessments; 21 also received integrated group therapy (IGT), focusing simultaneously on BPD and substance dependence, while 24 did not receive IGT. Patients reported at intake their current reasons for initiating substance use (including BPD symptoms) and the effects of substance use on those symptoms. **Results:** Nearly all patients initiated substance use because of at least one BPD symptom, especially depression (77.8%) and racing thoughts (57.8%); most (66.7%) reported improvement in at least one BPD symptom as a result of substance use. Among patients reporting substance-induced improvement in BPD symptoms, those receiving IGT reported fewer days of drug use over the 6-month study period than those not receiving IGT; this difference was not significant among patients without substance-induced improvement in BPD symptoms. **Limitations:** The study is limited by its small sample size and by the potential inaccuracy of self-reports regarding the effects of substance use on mood. **Conclusions:** Substance dependent patients who report that substance use improves their BPD symptoms may benefit from treatment that focuses simultaneously on both disorders.

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1. Introduction

Bipolar disorder (BPD) is the Axis I disorder with the highest rate of co-occurrence of substance use disorder (SUD) (Regier et al., 1990). Explanations for this phenomenon include the ‘self-medication hypoth-

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esis' (Khantzian, 1997), which posits that drugs or alcohol are used to relieve specific psychiatric symptoms, leading to repetitive use. We are aware of only one study investigating this phenomenon; Sonne et al. (1994) found that 96% of their patients with BPD and substance use reported using substances to try to improve mood. However, they did not examine whether patients perceived these efforts as successful.

The current study is part of a larger study pilot-testing a new group treatment (integrated group therapy, IGT) for patients with BPD and substance dependence. IGT focuses on the relationship between BPD and SUD, emphasizing the negative impact of substance use on BPD. We previously reported that patients receiving IGT had better drug use outcomes than patients who did not receive IGT (Weiss et al., 2000). The current study addressed three research questions: (1) Do patients report using substances to relieve BPD symptoms, and do they report symptom improvement? (2) Do patients who perceive that substance use successfully relieves their bipolar symptoms report greater continued substance use than those who report no improvement or worsening of symptoms as a result of substance use? (3) Does the relationship between substance-induced BPD symptom improvement and likelihood of continued substance use vary according to whether patients receive IGT?

2. Methods

A total of 45 McLean Hospital patients gave written informed consent after receiving a complete study description. Patients were recruited in sequential blocks either for 3 months of IGT and three monthly follow-up assessments ($n=21$) or for six monthly assessments only ('non-IGT', $n=24$); subjects for each cohort were typically recruited over a 2-month period. The first non-IGT cohort was recruited while the initial version of the IGT treatment manual was being developed. Once the manual had been written, the first IGT cohort was recruited. After completing the first IGT group, we recruited more non-IGT subjects while revising the manual. The second IGT group cohort was recruited when the revised manual was completed; this process was repeated for the third non-IGT and IGT groups.

To confirm the diagnoses of current BPD and substance dependence, patients were administered the Structured Clinical Interview for DSM-IV (First et al., 1994) by a trained interviewer after detoxification. Inclusion criteria included substance use within 30 days prior to admission and ongoing pharmacotherapy with a mood stabilizer.

Substance use was assessed using the fifth edition of the Addiction Severity Index (ASI) (McLellan et al., 1992), administered at intake and monthly for 6 months by a trained interviewer. At intake, patients also completed the Drug and Alcohol Use Questionnaire (Weiss et al., 1992), which asked about typical reasons for currently initiating use of their primary substance of abuse; potential reasons included symptoms of BPD (e.g. racing thoughts). Patients were also asked to rate the effect of their substance use on each BPD symptom. Reasons for use were scored dichotomously (e.g. the patient either did or did not initiate substance use when experiencing racing thoughts), and effects of use were categorized as improving, worsening, or having no effect on the symptom. Patients reporting substance-induced improvement in any BPD symptom for which they claimed to currently initiate substance use were classified as exhibiting 'perceived symptom improvement'; we used this term specifically because we realize that some patients who may *perceive* substance-induced improvement in BPD symptoms may be viewed by other observers as experiencing a worsening of their condition.

Due to missing data, we report here 6-month substance use outcomes on the 36 participants (80%) for whom we have complete data. Since the number of days of alcohol and drug use was not normally distributed, the independent two-tailed *t*-tests reported for comparisons of means were logarithmically transformed.

3. Results

3.1. Characteristics of the study sample

Patients were primarily white ($n=39$; 86.7%), unmarried ($n=36$; 80%), and unemployed ($n=31$; 68.9%). Mean age was 36.2 (S.D. 8.7). Most ($n=31$; 68.9%) had both current drug and alcohol dependence. The most frequent primary substances of

abuse (i.e. the drug causing the most difficulty, according to self-report), according to the ASI, were cocaine ($n=13$; 28.9%), cannabis ($n=13$; 28.9%), and sedative-hypnotic drugs ($n=9$; 20.0%). The sample had previously had a mean of 6.8 (S.D. 8.0) psychiatric hospitalizations and 6.4 (S.D. 16.1) hospitalizations for substance dependence. The mean baseline score on the Hamilton Rating Scale for Depression was 17.7 (S.D. 11.1), and the mean Young Mania Rating Scale score was 5.7 (S.D. 5.1).

Baseline comparisons of these characteristics in the two cohorts revealed only two differences: the IGT group was older (mean age 39.9 (S.D. 9.7) vs. 33.0 (S.D. 6.4); $t=2.77$, $df=33.9$, $P<0.01$) and had a higher mean ASI alcohol composite score (0.39 (S.D. 0.25) vs. 0.21 (S.D. 0.23); $t=-2.59$, $df=43$, $P<0.02$).

3.2. Reasons for and effects of substance use

Most patients ($n=42$, 93.3%) reported that they currently typically initiated substance use because of at least one bipolar symptom; most cited depression ($n=35$; 77.8%), racing thoughts ($n=26$; 57.8%), and/or irritability ($n=26$; 57.8%). Most of these patients ($n=28$, 66.7%) reported improvement in at least one

BPD symptom, particularly racing thoughts ($n=15$; 57.7%) and depression ($n=20$, 57.1%).

3.3. Perceived bipolar symptom improvement and continued substance use

There were no significant differences among the overall study sample in days of drug ($t=0.32$, $df=33$, $P=0.75$) or alcohol ($t=-1.23$, $df=34$, $P=0.23$) use according to whether or not patients reported substance-induced improvement of BPD symptoms. Examination of the IGT and the non-IGT cohorts separately also found no significant differences on these measures (Fig. 1). However, the effect sizes in the non-IGT cohort were medium to large, unlike the small effect sizes within the IGT cohort.

3.4. The impact of IGT

IGT patients reported significantly fewer days of drug use than the non-IGT cohort during the 6-month study period (mean 7.7 (S.D. 13.8) vs. 19.6 (S.D. 21.0), $t=2.32$, $df=33$, $P=0.03$), but a similar number of days using alcohol (mean 11.1 (S.D. 18.1) vs. 17.1 (S.D. 22.7), $t=0.92$, $df=34$, $P=0.36$). Interestingly,

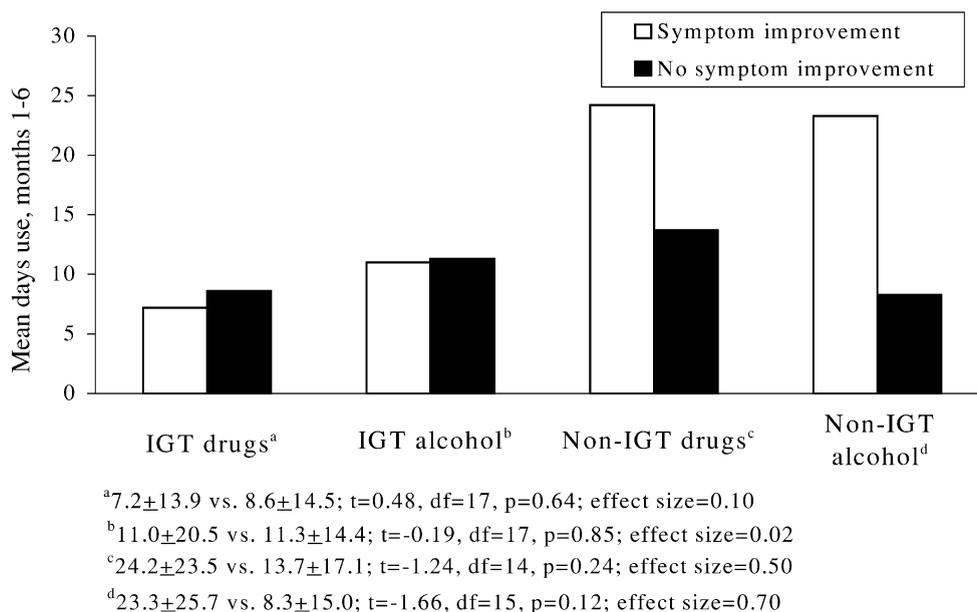


Fig. 1. Perceived substance-induced bipolar disorder symptom improvement and subsequent substance use among patients receiving and not receiving integrated group therapy (IGT).

this difference in drug use was statistically significant for patients with perceived symptom improvement ($t=2.73$, $df\ 19$, $P=0.01$), but not for patients without perceived symptom improvement ($t=0.50$, $df\ 12$, $P=0.63$).

3.5. Assessment completion

We were able to complete 215 of 278 (77.3%) scheduled assessments fully, while 40 (14.4%) were completed partially. Only 23 assessments (8.3%) were not performed. A longitudinal analysis of IGT versus non-IGT, using data from all subjects, also found IGT to be superior (Weiss et al., 2000).

4. Discussion

Like Sonne et al. (1994), we found that patients with BPD and SUD frequently used substances in response to BPD symptoms. Moreover, they generally reported that substance use improved their symptoms.

Laboratory research has demonstrated the inaccuracy of many patients' self-reports regarding the effects of substance use on mood (Mirin et al., 1976). Our findings extend this work by highlighting the importance of patients' *perceptions* of the effect of substance use on mood. Our effect size comparisons suggest that non-IGT patients who perceived (accurately or not) that substance use improved their mood were likely to continue substance use, whereas this was not the case among patients who received IGT. Moreover, much of the difference in drug use outcomes between the IGT and non-IGT cohorts may reflect the impact of IGT on patients who perceived that they were relieving BPD symptoms with substance use. Patients who either do not use substances to relieve symptoms or are unsuccessful in doing so may benefit less from IGT. Thus, a patient who perceives that marijuana relieves racing thoughts may continue its use, but may be influenced to stop by a treatment emphasizing the negative impact of marijuana on BPD. A patient who perceives an exacerbation of BPD symptoms from marijuana might, conversely, be inclined to stop without this treatment, since his or her own experience would discourage future use.

One limitation of this study is its small sample size, which precluded our ability to examine with adequate

power potentially important issues such as the interaction between particular drugs and specific BPD symptoms. It is also possible that the recruitment of patients in sequential blocks may have created some selection bias. However, we have previously reported that there was no significant difference between the IGT and non-IGT cohorts in their likelihood of study refusal or in their reasons for refusing the study (Weiss et al., 2000). Moreover, patients were not offered the choice between IGT and non-IGT during recruitment. Rather, they were recruited in blocks for one condition or the other, depending on the phase of the study. These two circumstances thus mitigate the potential effects of selection bias.

It is possible that some patients may have experienced recall bias on the basis of either manic or depressed mood. Moreover, some patients who reported substance-induced improvement in BPD symptoms may have been viewed by others (e.g. family members) as experiencing an exacerbation of their symptoms as a result of substance use. Our results suggest, however, that bipolar patients with substance dependence who perceive that substance use improves their bipolar symptoms may be particularly responsive to a treatment that addresses both disorders simultaneously.

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