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ScienceDirect

Comprehensive Psychiatry 59 (2015) 28–32

COMPREHENSIVE PSYCHIATRY

www.elsevier.com/locate/comppsych

Impulsivity in bipolar and substance use disorders

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Abstract

Background: Bipolar disorder (BD) is commonly associated with increased impulsivity, particularly during manic and depressed episodes; also impulsivity remains elevated during euthymic phases. Impulsivity is also a factor in the initiation and maintenance of substance use disorders (SUD). Impulsivity can predispose to substance abuse or can result from it. Impulsivity appears to be relatively independent of mood state and is higher in individuals with past substance use. Thus, we wanted to compare the impulsivity of BD and SUD closely associated with impulsivity and identify potential differences.

Methods: Impulsivity was evaluated by the Barratt Impulsiveness Scale (BIS-11A), in 35 bipolar interepisode disorder male patients without comorbid substance use disorder and 40 substance use disorder male patients. The BIS-11A mean scores for the two groups were compared through one-way between-groups ANOVA.

Results: There was no difference between the BD and substance use disorder groups on total and subscale attentional, motor impulsivity measures. However, for the male patients there was difference on the nonplanning subscale. The male BD patient group scored higher than the male substance use disorder patient group regarding nonplanning impulsivity.

Conclusions: Our results replicate the findings that interepisode BD and substance use disorder patients both have increased total impulsivity; furthermore, the findings also indicate that trait impulsivity is not completely the same in subscales. Both groups were similar on attention and motor impulsivity subscales; however, on the nonplanning subscale, BD patients were more impulsive than the substance use disorder patients.

1. Introduction

Impulsivity is a disposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the self or to others [1]. Even though impulsivity is not itself a psychiatric diagnosis, it seems to be more common in some mental disorders such as certain personality disorders, bipolar disorders, impulse-control disorders (ICD) and substance abuse.

Impulsivity is a frequent component of the course and presentation of bipolar disorder; it has therefore been proposed to represent a core feature of the illness that persists across different affective states [1–8]. Among bipolar patients, impulsivity appears to be especially important during manic episodes, but may also be found during euthymia and other mood phases [1,2,9]. Both the impulsivity that appears in the manic phase of bipolar disorder (state impulsivity) and the stable impulsivity that may extend across mood states (trait impulsivity) are important features of bipolar disorder. Euthymic bipolar patients express trait impulsivity at higher levels than healthy individuals [9]; however, they do not differ from manic bipolar patients [3]. These findings indicate that the impulsivity present in bipolar patients may be independent of mood state.

There is now widespread agreement that impulsivity plays a key role in the initiation and development of substance misuse problems. Impulsivity can predispose to substance abuse, and can result from it [10]. Substance users are known to be highly impulsive and this is reflected in their BIS-11 scores. Behavioral and rating scale measures of impulsivity are elevated in patients with substance abuse [11,12]. For instance, increased impulsivity is found for cocaine dependent adults [13] and ecstasy users [14] relative to controls.

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http://dx.doi.org/10.1016/j.comppsych.2015.02.013
0010-440X/

Impulsivity, which is prominent in both bipolar disorder and substance abuse, may have behavioral and biological substrata that contribute to the overlap between the two disorders [1]. Thus, the goal of this study was to compare the impulsivity scores of patients with BD and SUD. Our hypothesis is that BD and SUD have different impulsivity rates and profiles.

2. Methods

2.1. Participants

Thirty-five euthymic (interepisode) BD patients without SUD and 40 euthymic SUD patients were recruited from the outpatient psychiatry clinic of Sakarya University Faculty of Medicine. BD and SUD diagnoses were confirmed using the Structured Clinical Interview for DSM-IV diagnoses.

The inclusion criteria were as follows:

(i) 18 years of age or older; (ii) diagnosis of euthymic BD without SUD comorbidity and SUD without bipolar comorbidity; the exclusion criteria for all groups were as follows: (i) presence of chronic illness (e.g., hypertension, diabetes, liver disease, kidney diseases, current thyroid dysfunction, or neurological disease); (ii) current comorbid Axis I disorders. All procedures were performed after the participants had demonstrated adequate understanding and provided written informed consent.

For the BD patients; diagnoses and mood state were verified with the Structural Clinical Interview for DSM-IV [15], the Hamilton Rating Scale for Depression, 21 items (HAM-D) [16], and the Young Mania Rating Scale (YMRS) [17]. Absence of mood symptoms at least one month before the interview, as well as scores of <6 on the HAM-D and the YMRS scales, defined euthymia.

The SUD group was recruited from among patients applied by probation. Diagnosis of substance use disorder was made according to the Structured Clinical Interview for DSM-IV diagnoses. There was no substance use history, withdrawal symptom of substance and substance craving at least 3 months before the clinical interview. The patients were required to provide urine samples free of substances six times at intervals of 1 week. Urine samples were analyzed for cannabinoids and synthetic cannabinoids, cocaine, amphetamine, ecstasy, barbiturates, benzodiazepines, ethyl glucuronide, phencyclidine and opiates at our University Departmental Chemical Analysis Laboratory using the Enzyme Multiple Immunoassay Technique Drug Abuse Urine assay. Thus, these participants were not under the effect of any substance at their assessments. None of the SUD group was taking psychotropic medications for prophylaxis or anticraving at the time of assessment.

2.2. Methods

The participants completed the Barratt Impulsiveness Scale version 11A (BIS-11A) [18] to assess impulsivity. The BIS-11A is a 21-item self-report inventory that measures impulsivity as a trait encompassing three domains: attentional impulsivity (intolerance for complexity and persistence); motor impulsivity (tendency to act without forethought), and non-planning impulsivity (lack of a sense of the future). Items are rated from 1 (absent) to 4 (most extreme).

Table 1
Demographic and clinical characteristics of samples.

Characteristics	BD (n = 35)	SUD (n = 40)
Age, years	36.43 ± 14.08	29.65 ± 10.2
Age of onset BD	29.94 ± 13.07	–
Age of onset SUD	–	21.15 ± 5.4
Location		
Urban	31 (88.6%)	29 (72.5%)
Rural	4 (11.4%)	11 (27.5%)
Education (years)		
	9.54 ± 3.8	8,58 ± 2.6
Marital status		
Married	15 (42.9%)	13 (32.5%)
Single	19 (54.3%)	25 (62.5%)
Divorced	1 (2.9%)	2 (5%)
BD in first degree relatives	4 (11.4%)	–
SUD in first degree relatives	–	6 (15%)

2.3. Statistical analysis

All analyses were performed using the Statistical Package for the Social Sciences, version 16 for (SPSS, Inc., Chicago, IL, USA). The two groups were compared using one-way between-groups ANOVA. The level of significance was set at p = 0,05.

3. Results

3.1. Demographic data

The 35 BD patients had a mean age of 36.43 ± 14.08 and 40 SUD patients had a mean age of 29.65 ± 10.2, age of onset of BD was 29.94 ± 13.07 and age of onset of SUD was 21.15 ± 5.4 years, all patients were male. Thirty-one BD and 29 SUD patients lived in urban areas, whereas 4 BD and 11 SUD patients lived in rural areas. The mean HAM-D score was 2.86 ± 0.95, and the mean YMRS score was 1.91 ± 0.76. Demographic and clinical characteristics of the 2 groups are shown in Table 1. Mean age of the BD group was higher than the SUD group (t = 2.40; DF = 73; p = 0.02).

The SUD group data show that 28 (70%) patients used cannabinoid and synthetic cannabinoid, 3 (7.5%) patients used ecstasy, 2 (5%) patients used heroine, 1 (2.5%) patient used cocaine. 6 (15%) patients used multiple substances.

The BD group was receiving maintenance treatment. Twenty-seven (77%) of them were receiving lithium and the mean dose was 900 mg/day. Twelve (34%) lithium-treated patients also were receiving additional atypical antipsychotic treatment. Risperidone 3 mg/day (mean dose), quetiapine 400 mg/day (mean dose) and olanzapine 10 mg/day (mean dose) were preferred. Eight (23%) BD patients were receiving valproate and the mean dose was 750 mg/day. Four (11%) of