



Impulsivity and aggressiveness in bipolar disorder with co-morbid borderline personality disorder

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ARTICLE INFO

Article history:

Received 2 May 2010

Received in revised form 26 October 2010

Accepted 27 October 2010

Keywords:

Suicidality

Co-morbidity

Mood disorders

Personality disorders

ABSTRACT

Few studies to date have been performed to investigate impulsivity and aggressivity in patients with bipolar disorder (BD) and borderline personality disorder (BPD); the primary aim of the present study was to evaluate the impact of co-morbidity of BPD on impulsivity and aggressivity in patients affected by BD. A total of 57 patients (male = 20, female = 37) affected by BD (BD-I 51%; BD-II 49%) in clinical stable remission were recruited; 28 patients were affected by BD (49.1%), 18 by BD and BPD (31.6%) and 11 (19.3%) by BD plus other personality disorders (OPD) (19.3%). They were assessed with the Structured Clinical Interview for DSM-IV (SCID)-I and SCID-II, and were evaluated by means of the Clinical Global Impression (CGI)-severity and Global Assessment Functioning (GAF) scales, the Barratt Impulsivity Scale (BIS-11) and the Aggression Questionnaire (AQ). Mean total scores were significantly higher among BD/BPD patients with respect to BD and to BD/OPD, both on the BIS-11 and the AQ; the rate of attempted suicides was approximately three times higher in BD/BPD patients with respect to BD and 7.6 times higher than in BD/OPD patients. The results of our study suggest that patients with co-morbid BD and BPD are more impulsive and aggressive. Furthermore, this co-morbid condition may be a risk factor for suicidality.

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1. Introduction

Impulsivity is a common feature of several psychiatric disorders (Bellino et al., 2003) such as bipolar disorders (BDs) (Swann et al., 2001, 2003) and cluster B personality disorders (Looper and Paris, 2000), in particular, borderline personality disorder (BPD) (Stone, 1990; Zanarini, 1993; Mehler et al., 1994; Links et al., 1999). Impulsivity seems to be one of the most stable characteristics of personality in borderline patients, while in bipolar subjects, both a state and a trait component may be recognised, both episodic and interepisodic impulsivity having been demonstrated (Moeller et al., 2001). Whether trait (interepisodic) impulsivity is a risk factor for bipolar disorder or a consequence of repeated episodes of illness is still controversial (Moeller et al., 2001). Aggressiveness is frequently manifested in different clinical conditions, including BDs (Latalova, 2009) and borderline and antisocial personality disorders (Lish et al., 1996; Moeller et al., 2001). Hostility and aggression may be important as core features of manic and mixed states, independent of psychosis (Cassidy et al., 2002; Sato et al., 2002; Maj et al., 2003). Aggression in bipolar disorder seems to be mostly impulsive and occurring not only

during manic and mixed episodes, but also during remission (Latalova, 2009), but unresolved questions persist about the state-versus trait-dependent nature of aggression in BD (Garno et al., 2008). Cluster B personality disorders are associated with high levels of aggressiveness (Fossati et al., 2007), and impulsive aggression, including self-aggressive behaviour, is very common among borderline patients (Moeller et al., 2001; Garno et al., 2005). In light of these findings, we would expect impulsivity and aggressiveness to be increased in the case of co-morbidity between bipolar and borderline personality disorder, but data supporting this assumption are limited. In fact, very few studies have been undertaken to investigate and compare impulsivity and/or aggressivity in mood disorders (including BDs) with co-morbid personality disorders, particularly borderline disorder (Henry et al., 2001; Wilson et al., 2007; Garno et al., 2008), showing substantially that patients affected by the latter are characterised by high levels of impulsiveness and aggressiveness independent of any Axis I diagnosis. However, no studies have been devoted towards specifically evaluating the magnitude of the impact of co-morbidity of BPD on impulsivity and aggressivity in bipolar patients of both type I and II. Based on the above premises, the present study aimed to verify the hypothesis, according to which bipolar patients with co-morbid BPD (BD/BPD) are affected by a higher degree of impulsivity and aggressivity (including self-aggressiveness, as measured by attempted suicides) than patients affected by BD with other co-morbid personality disorder (BD/OPD) or bipolar disorder without Axis II co-morbidity (BD).

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2. Methods

2.1. Subjects

All consecutive outpatients attending a university community mental health centre, who fulfilled the following inclusion criteria, were considered: age 18–65 years; lifetime diagnosis of bipolar I or bipolar II disorder, according to Diagnostic and Statistical Manual of Mental Disorders fourth edition-text revision (DSM-IV-TR criteria) (APA, 2000) made by a senior psychiatrist on the basis of non-structured clinical interviews according to routine protocols; absence of current depressive, manic/hypomanic or mixed episode, according to DSM-IV criteria, together with stable clinical remission over the last month; and provision of informed study. Exclusion criteria were: patients with a past or current schizophrenic, schizoaffective or other psychotic disorder; patients with a past or current mental disorder due to a medical condition; current mental retardation or other significant cognitive disturbances; current severe physical illness; and concurrent alcohol and/or other substance abuse/dependence. The sample selected for the present study on the basis of the above-mentioned inclusion/exclusion criteria was originally made up of 60 subjects. Three subjects refused to take part in the study. The final sample was constituted by 57 bipolar patients (29 bipolar I = 51%, 28 bipolar II = 49%), 20 males (35.1%) and 37 females (64.9%); mean age was 47.9 ± 10.8 years (males: 45.2 ± 10.15 ; females: 49.03 ± 11.21 , $t = -1.269$, $df = 55$, $P = 0.210$); mean years of education were 10.77 ± 3.89 (males: 10.0 ± 3.34 ; females: 11.84 ± 4.11 , $t = -1.714$, $df = 55$, $P = 0.09$); 22 patients (38%) were employed (males: $n = 8$, 40%; females: $n = 14$, 37.8%), 35 (62%) were unemployed (males: $n = 12$, 60%; females: $n = 23$, 62.2%; chi-square test = 0.016, $df = 1$, $P = 0.901$); 21 (36.8%) patients were married (males: $n = 9$, 45%; females: $n = 12$, 32.4%), 36 were single (males: $n = 11$, 55%; females: $n = 25$, 67.6%, chi-square test = 0.424, $df = 1$, $P = 0.515$). An Axis II co-morbidity was found in 50.8% of the sample. Cluster A, B, C and personality disorders not otherwise specified were found respectively in 5.3%, 33.3%, 12.3% and 7.0% of the sample, with no statistical difference between genders. A total of 28 patients were affected by BD (49.1%), 18 by BD/BPD (31.6%) and 11 (19.3%) by BD/OPD (19.3%). No difference was detected among BP, BP/BPD and BP/OPD patients as far as mean age, education, marital status and occupation were concerned. All patients were submitted to routine treatment (clinical monitoring, psychopharmacological treatment and supportive psychotherapy).

2.2. Procedures

All subjects were assessed with the Structured Clinical Interview for DSM-IV (SCID) I (First et al., 1996a) and SCID II (First et al., 1996b) by a fellow in psychiatry (LL) trained in conducting the interviews, to confirm the diagnosis of BD type I or II and evaluate the presence of a concurrent personality disorder. For the purposes of the present study, interrater agreement between the rater (LL) and a criterion rater certified for the use of SCID I and II (FP) was evaluated using Cohen's kappa; the range of agreement between raters was fairly good, ranging from 0.60 and 0.77 both for Axis I and Axis II diagnoses. Clinical history and demographical data were collected from clinical records. Severity of psychopathology was evaluated by means of the Clinical Global Impression severity scale (CGI-s) (Guy, 1976) and Global Assessment Functioning (GAF) scale (APA, 1994). Impulsivity was evaluated by means of the Barratt Impulsiveness Scale 11 (BIS-11) (Patton et al., 1995), a self-administered 30-item questionnaire to which answers are quoted on a 4-point Likert Scale where 1 = rarely and 4 = almost always/always (some answers are reverse scored); the questionnaire comprises Attentional (rapid shifts in attention/impatience with complexity), Motor (acting impetuously) and Non-Planning (absence of weighing up long-term consequences of action) subscales; the total score obtained at BIS-11 allows overall impulsivity to be evaluated. Aggressiveness was evaluated by means of the Italian version (Fossati et al., 2003; Fossati and Borroni, 2008) of the Aggression Questionnaire (AQ) (Buss and Perry, 1992), a 29-item self-administered questionnaire to which answers are quoted on a 4-point Likert Scale where 1 = rarely and 4 = almost always/always (some answers are reverse scored); the tool consists of Physical Aggressiveness, Verbal Aggressiveness, Anger and Hostility subscales; AQ provides for evaluation of overall aggressiveness on the basis of total score obtained. Patients were also submitted to other self-evaluation tools to assess other personality characteristics such as Millon Clinical Multiaxial Inventory III (MCMI III) and Minnesota Multiphasic Personality Inventory-II (MMPI)-II, not considered in the present report.

2.3. Statistical analysis

Statistical analysis was performed by means of the Statistical Package for Social Sciences (SPSS) 11. Pearson's chi square test and Fisher's exact test were used for non-continuous variables, and t -tests for independent samples and one-way analysis of variance (ANOVA) with *post hoc* Bonferroni's Test and analysis of covariance (ANCOVA) were used for continuous variables. Cronbach's alpha was used for evaluating the internal consistency of the self-evaluation instruments used in the study.

3. Results

Clinical variables of patients with BD, BD/BPD and BD/OPD are reported in Table 1. No difference was found between groups as far as

age at onset of BD and duration of illness were concerned. The GAF mean score was significantly higher among BD patients, and the CGI mean score was significantly higher in BP/OPD patients. No significant difference in mean number of drugs taken per patient was detected. Mean number of attempted suicides was significantly higher among BP/BPD patients both with respect to BD and BD/OPD patients. Internal consistency of BIS-11 and AQ were both fairly good, Cronbach's alpha being, respectively, 0.754 and 0.778.

Mean scores at BIS-11 are reported in Table 2. BD/BPD patients showed significantly higher mean scores with respect to BD and BD/OPD patients both on the Total Scale and the Attentional and Non-Planning subscales; mean scores on the Motor subscale were significantly higher in BD/BPD patients with respect to BD but not BD/OPD patients. Effect sizes, as evaluated by means of partial eta square, were, respectively, 0.32, 0.30 and 0.20 for the Attentional, Motor and Non-Planning subscales and 0.38 for the Total Scale of the BIS-11. Even after controlling for the effect of gender and age by means of ANCOVA, co-morbidity was associated with higher mean scores on the BIS-11 Total Scale ($F = 29.24$, $P = 0.000002$), and the Attentional ($F = 27.2$, $P = 0.000003$), Motor ($F = 19.55$, $P = 0.00005$) and Non-Planning ($F = 11.82$, $P = 0.001$) subscales.

Mean scores on the AQ are reported in Table 3. BD/BPD patients showed significantly higher mean scores for the Total Scale and on the Physical Aggression and Hostility subscales with respect to BD but not BD/OPD patients; moreover, mean scores obtained by BD/BPD patients on the Verbal Aggressiveness subscale were significantly higher than those in BD/OPD patients but not in BD patients. Effect sizes as measured by partial eta square were, respectively, 0.12, 0.02, 0.06 and 0.09 for Physical, Verbal, Anger and Hostility subscales and 0.12 for the Total Scale of the AQ. Based on ANCOVA, scores on the AQ-AF subscale ($F = 4.355$, $P = 0.04$) and on the AQ Total Scale ($F = 4.300$, $P = 0.04$) remained significantly higher in patients with BPD co-morbidity, even when controlling for age and gender.

4. Discussion

The relationships between mood disorders and BPD remain rather controversial; in particular, the debate as to whether or not to include BPD among mood-spectrum disorders is far from being concluded (Paris et al., 2007; Berrocal et al., 2008) due to the sharing of several clinical features, in particular, impulsiveness, aggressiveness and affective lability, which may explain the acknowledged difficulties in differential diagnosis at times encountered by clinicians (Zimmerman et al., 2008, 2010a,b). A number of studies report data on impulsivity and aggressivity from patients affected by both BD and PD, mostly considered separately. Some studies considered impulsivity a 'trait' manifested in BD, irrespective of the clinical status of patients (Swann et al., 2001, 2003; Wilson et al., 2007; Matsuo et al., 2009; Swann et al., 2009), whilst others indicated a differential correlation between impulsivity and mania or depression (Swann et al., 2007), or at times did not consider impulsivity as a trait feature of BD, with total scores found on the BIS being similar to those obtained by euthymic bipolar patients and normal subjects (Lewis et al., 2009). Furthermore, impulsivity is also considered a trait feature of several PDs, in particular, BPD, being one of the core diagnostic criteria of this disorder (DSM-IV-TR, 2000). Indeed, in a clinical study comparing borderline patients with other groups (patients with other cluster B PDs, patients with non-cluster-B PD, and patients without any PD), the BIS-11 clearly discriminated BPD subjects (Fossati and Borroni, 2008), the mean scores of these patients being reported considerably higher than for other disorders; the discriminant value of impulsivity remained significant even in case of co-morbidity with any Axis I diagnosis. Moreover, a study of the same group using regression analyses showed how impulsive traits evaluated by means of the BIS-11 were selectively associated with BPD (Fossati et al., 2007). Aggressive behaviours and hostility are frequently reported in patients with a diagnosis of BD

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