

Brief report

Verbal fluency dysfunction in euthymic bipolar patients: A controlled study

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Abstract

Objective: To study the executive functioning in euthymic bipolar patients in comparison to healthy controls and to examine the relationship between neuropsychological deficits and clinical variables.

Methods: Twenty-five euthymic bipolar patients and 31 controls underwent a battery of executive tasks including mental flexibility, inhibitory control and verbal fluency tests.

Results: There were no significant differences between bipolar patients and controls in relation to mental flexibility and inhibitory control. However, patients performed worse than controls on verbal fluency tests. Poor performances on the Stroop Test and the Hayling and Brixton Tests — part A were associated to lifetime occurrence of psychotic symptoms, prior number of episodes, and previous hospitalizations.

Conclusions: In our study, only verbal fluency tests differentiated bipolar euthymic patients from healthy controls. Patients who showed deficits in information processing speed and inhibitory control had more episodes and hospitalizations and lifetime occurrence of psychotic symptoms.

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Keywords: Bipolar disorder; Executive functioning; Verbal fluency; Neuropsychological tests

1. Introduction

Bipolar type I disorder is a common, chronic and severe mental disorder, affecting approximately 1.2% of the adult population (Kessler et al. 2005). Recent studies have suggested that cognitive deficits in bipolar patients are not restricted to acute episodes, but they may persist

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even during euthymic states, though less pronounced (Dixon et al., 2004; Olley et al., 2005; Kolar et al., 2006). According to Rubinsztein et al. (2000), these discrepancies could be partially explained by the heterogeneity of the euthymia criteria employed in the studies. Besides that, some clinical factors could influence cognitive functioning in these patients (Martínez-Arán et al., 2004a).

Deficits in the cognitive functioning presented by euthymic bipolar patients have been found in various domains of cognitive functioning, including executive functions, attention/concentration, visuospatial organization, learning and memory (Deckersbach et al., 2004; Martínez-Arán et al., 2004b; Antila et al., 2006). It has been suggested that abnormalities in prefrontal are implicated in disturbances of executive functioning, attention and impulse regulation in bipolar patients (Frangou et al., 2006). Our interest was to investigate which aspects of executive functioning are impaired in euthymic bipolar patients and which aspects are related to clinical variables. The association between cognitive deficits and clinical characteristics of bipolar disorder has been reported in several studies (Cavanagh et al., 2002; Clark et al., 2002; Selva et al., 2007).

2. Methods

2.1. Participants

Twenty-five patients were recruited from the outpatient unit of the Bipolar Research Program, meeting Bipolar Disorder type I diagnostic criteria according to the DSM-IV (APA, 1994) and confirmed by the Structured Clinical Interview – SCID (First et al., 1997). Euthymia was defined by scores on Hamilton Depression Rating Scale – 21 items (HAMD-21) <7 and Young Mania Rating Scale (YMRS) <7 in two consecutive measures with an interval period of 4 weeks (Hamilton, 1960; Young et al., 1978). Patients were excluded if they had diagnosis of schizoaffective disorder, alcohol and/or substance abuse or dependence in the preceding 6 months and lifetime history of epilepsy or seizures, use of topiramate and/or benzodiazepines in the preceding 2 weeks.

Thirty-one healthy volunteers recruited for advertisement and they without personal or family history of psychiatric disorders (interviewed with SCID, SRQ-20 and a family history questionnaire) (Mari and Williams, 1986; First et al., 1997; Weissman et al., 2000). They did not presented total scores on HAMD-21 >7. There were no significant differences among groups in relation to education, age, sex and intellectual level (Table 1).

Table 1

Socio-demographic characteristics and intellectual level

	Patients (N=25)	Controls (N=31)	p value
Education			
Average and (SD)*	12.58 (1.7)	11.74 (2.0)	0.07 ^(a)
Age			
Average and (SD)*	33.08 (8.5)	35.35 (7.0)	0.45 ^(a)
Gender (%)			
Male	12 (21.4%)	10 (17.9%)	0.28 ^(b)
Female	13 (23.2%)	21 (37.5%)	
Full scale IQ	101.88 (9.4)	97.23 (9.5)	0.07 ^(a)

* SD – standard deviation, (a) Student-*t* Test ($p < 0.05$) // (b) Chi-square, IQ = intellectual quotient.

2.2. Illness variables

The following clinical variables were considered: The mean number of previous hospitalizations was 1.28 (S.D. 2.4), the mean duration of illness was 9.1 years (S.D. 4.9), the mean of age at onset in years was 21.1 (S.D. 5.64) and mean number of episodes was 13.8 (S.D. 9.55). The mean total HAMD score was 1.36 (S.D. 1.44) and mean YMRS score was 0.96 (S.D. 1.34). Fourteen patients had psychotic symptoms in the course of illness. Ten patients had psychiatric comorbidities: panic disorder ($n=5$), obsessive-compulsive disorder ($n=1$), past drug or alcohol abuse ($n=3$) and attention-deficit and hyperactivity disorder ($n=1$). All patients were on medication at the time of testing. The majority was on lithium ($n=14$, 56%), either in monotherapy ($n=6$, 24%) or in association with antipsychotic, anticonvulsants and/ or antidepressants ($n=8$, 32%).

2.3. Neuropsychological assessment

All participants completed the following tests: Wechsler Abbreviated Scale of Intelligence – WASI (Wechsler, 1999), Wisconsin Card Sorting Test – WCST (Heaton, 1981), Hayling and Brixton Tests – HSCT (Burgess and Shallice, 1997), Controlled Oral Word Association Test – FAS (Spreen and Strauss, 1998a) and the Stroop Color-Word Test (Spreen and Strauss, 1998b).

2.4. Procedures

A trained neuropsychologist (CCAR) administered and was blind to participants' diagnoses during the study. Neuropsychological testing lasted approximately two hours divided by a short break of 15 min.

Clinical data were obtained from the SCID and chart records. Patients and controls were carefully screened for the strict euthymia criteria, and the psychiatrists who

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