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Research report

Resilience and impulsivity in euthymic patients with bipolar disorder

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ABSTRACT

Background: Stress plays an important role in the onset and recurrence of bipolar disorder (BD). Resilience is the ability to cope with stress or adversity. Few studies have examined resilience in BD, and this study aimed to investigate the clinical correlates of resilience in euthymic patients with BD.
Methods: A total of 62 outpatients with BD type I, II, and not otherwise specified (NOS) who were in remission and 62 healthy individuals matched with the BD group in terms of age and sex were recruited. All participants completed the Connor–Davidson Resilience Scale and Barratt Impulsiveness Scale. A psychiatrist interviewed the subjects to assess clinical characteristics. Multiple linear regression analysis was used to determine factors associated with resilience.
Results: The BD group had significantly higher levels of impulsivity and lower levels of resilience compared with the control group. Degree of impulsivity, number of depressive episodes, Clinical Global Impression (CGI) scores, and length of education were significantly correlated with resilience. Attention impulsivity, non-planning impulsivity, and number of depressive episodes were associated with low levels of resilience, even when age, sex, length of education, and CGI scores were controlled.
Limitations: Because tertiary hospital patients were recruited, the generalizability of the findings is limited.
Conclusions: This study shows that low levels of resilience are related to high levels of impulsivity and to an increased number of depressive episodes in euthymic patients with BD. Given the reciprocal relationship between resilience and impulsivity, efforts to enhance resilience and reduce impulsivity may make important contributions to the treatment of patients with BD.

1. Introduction

Bipolar disorder (BD) has a strong hereditary component (Craddock and Sklar, 2013). However, stress can also play an important role in the onset and episodic recurrences of this condition (Altman et al., 2006; Hammen and Gitlin, 1997; Post et al., 2013). Indeed, higher stress levels contribute to an increased risk of recurrence (Cohen et al., 2004). Additionally, stressful traumatic experiences in childhood are related to the early onset of BD and to recurrences of BD that are easily triggered by even low stress levels (Dienes et al., 2006). Many previous studies have reported evidence suggestive of elevated rates of post-traumatic stress disorder (PTSD) in patients with BD (Otto et al., 2004). When compared to individuals with major depression, patients with BD have an increased risk for PTSD (Dilsaver et al., 2007). Thus, it can be assumed that patients with BD have a low tolerance for stress and adversity in life.

Individual physiological and psychological responses to the same stressor or adverse event vary, and these individual differences are related to resilience (Franklin et al., 2012). The American Psychological Association defines resilience as the ability to adapt well to adversity, trauma, tragedy, threat, or even significant sources of stress (American psychological Association, 2010). Resilience is not only an innate disposition but can also be affected by environmental factors (Southwick and Charney, 2012). Resilience is affected by interactions between protective factors, such as positive emotions, realistic optimism, and empathy, and risk factors such as poverty, child abuse, and chronic diseases (Agaibi and Wilson, 2005; Jung and Chae, 2010). Furthermore, numerous neurobiological mechanisms are thought to be associated with resilience (Franklin et al., 2012).

Many studies regarding resilience in patients with PTSD (Agaibi and Wilson, 2005), anxiety disorders (Min et al., 2013), and

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depressive disorders (Kesebir et al., 2013) have been conducted to date. The prevalence of PTSD is low in individuals with high resilience (Whealin et al., 2013), and resilience is inversely proportional to the severity of PTSD symptoms (Fincham et al., 2009). Patients with depressive disorders have lower levels of resilience than do healthy individuals (Kesebir et al., 2013). Resilience is also related to the severity of the symptoms of depressive disorder and responses to treatment (Min et al., 2012; Skrove et al., 2013). Given the influence of stress on BD, it was hypothesized that resilience affects the onset and course of BD. However, few studies have been conducted on resilience in patients with BD.

BD is characterized by increased impulsivity (Swann et al., 2009). Impulsivity is associated with the course and prognosis of BD with respect to age of onset (Depp et al., 2004), number of hospitalizations (Rosa et al., 2009), functional impairment (Jimenez et al., 2012), risk of suicide (Mahon et al., 2012), and low quality of life (Kim et al., 2013; Victor et al., 2011). Patients with BD display increased impulsivity not only during a manic state but also during a euthymic state (Strakowski et al., 2010). Elevated impulsivity is related to deficiencies in different domains of cognitive functioning in patients with BD (Christodoulou et al., 2006; Swann et al., 2009). These impulsivity-related cognitive deficits may reduce the ability of patients with BD to cope with adversity and stress in life. On the other hand, it is also possible that low levels of resilience predispose patients with BD to behave impulsively in response to stress. Therefore, it can be hypothesized that resilience is closely associated with impulsivity in BD. However, no studies of this association have been conducted.

The aim of this study was to investigate the demographic and clinical factors related to resilience in euthymic patients with BD. The association between impulsivity and resilience was also investigated.

2. Methods

2.1. Participants and evaluation methods

Participants were consecutively recruited from the outpatient psychiatric clinic of Gyeongsang National University Hospital, Republic of Korea from March 2013 to November 2013. To exclude the influence of symptoms that can affect impulsivity or resilience, we recruited outpatients who had been stabilized as a result of treatment at either the outpatient clinic or the inpatient unit following an acute manic or depressive episode. This group comprised patients who were 20–65 years of age and who were diagnosed with BD type I (BD-I), BD type II (BD-II), or BD not otherwise specified (BD-NOS) by a psychiatrist in accordance with Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV-TR) criteria (American Psychiatric Association, 2000). All participants were in clinical remission, defined as a Clinical Global Impression (CGI) score ≤ 2 for at least 2 months. The exclusion criteria were mental retardation, dementia, severe psychotic symptoms, organic mood disorder, personality disorder, current alcohol use disorder, or illiteracy. In total, 62 patients, 36 with BD-I (58.1%), 20 with BD-II (32.3%), and 6 with BD-NOS (9.7%) were selected to participate in this study. All participants completed the Connor–Davidson Resilience Scale (CD-RISC) and the Barratt Impulsiveness Scale (BIS). Information regarding the demographic and clinical characteristics of the BD group was determined through semi-structured interviews with the psychiatrist and an examination of medical records.

The control group consisted of 62 healthy individuals who visited the Health Promotion Center at Gyeongsang National University Hospital for regular physical health examinations, who had no previous history of psychiatric disorders, including alcohol use disorders and suicide attempts, and who were not predisposed to depression, as measured by the Center for Epidemiological Studies for Depression Scale (CES-D). The control group, matched with the BD group in terms of age and sex, completed the CD-RISC and BIS.

Individuals in both the BD and control groups were informed of the research purpose and methods and signed written consent forms. This study was reviewed and approved by the Gyeongsang National University Hospital Institutional Review Board.

2.2. Measures

2.2.1. CD-RISC

The CD-RISC was used as a tool to assess resilience. It was developed in 2003 to evaluate the ability of an individual to cope with stress, and the average score of the general population is 80.4 (Connor and Davidson, 2003). This evaluation tool comprises 25 self-reported questions. A rating of 0 to 4 can be selected for each question, and a higher total score indicates greater resilience. The CD-RISC has been used in numerous studies of resilience in patients with PTSD (Agaibi and Wilson, 2005) and depressive disorder (Min et al., 2013). The reliability and validity of the translated Korean version has been verified (Jung et al., 2012), and the average score of the general Korean population is 65.9 (Jung et al., 2012).

2.2.2. BIS

The BIS was used to assess impulsivity. The 30 questions in the eleventh edition of the scale consist of three subscales: attention impulsivity (rapid decision making because of the inability to cognitively endure complexity and persistence), motor impulsivity (a tendency to act without forethought at a moment's stimulation), and non-planning impulsivity (acting without consideration for the future) (Jimenez et al., 2012; Strakowski et al., 2010). A higher total score indicates higher levels of impulsivity. The reliability and validity of the translated Korean version have been verified (Lee et al., 2012).

2.2.3. CES-D

The CES-D was used to identify symptoms of depression in the control group. It was developed as a screening tool for depression in an epidemiological study of the general population (Radolff, 1977), and the Korean version has been standardized (Chon et al., 2001). It consists of 20 questions, and a cut-off score of 21 was used in this study. A higher score indicates a greater disposition to depression.

2.3. Statistical analyses

To compare the sociodemographic characteristics, CD-RISC scores, and BIS scores of the BD and control groups, *t*-tests were used for continuous variables, and *chi*-square tests were used for categorical variables. When the CD-RISC and BIS scores were compared between the two groups, an analysis of covariance (ANCOVA) was used to adjust for the effects of occupation and length of education, as these significantly differed between the two groups. A Pearson correlation analysis was used to examine the correlation between resilience and the demographic and clinical characteristics of the BD group as well as the correlation between resilience and number of manic episodes of the 36 patients with BP-I. The relationships between resilience and nominal variables such as sex, occupational status, history of suicide attempts, and history of alcohol use disorder were examined with univariate regression analysis. Significant variables from