The Relationship of Affective Temperament and Clinical Features in Bipolar Disorder

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INTRODUCTION

The word temperament was derived from “tempérare” which meant “confusion”. It describes attitudes and behaviors which stand on structural, genetic and biological basis (Goodwin and Jamison, 1990). It has been well known since the era of Hippocrates that human being had different temperament characteristics. Krapelin proposed continuity between affective temperament and affective pathology in 1921 (transferred by Akiskal and Pinto, 2000). Akiskal insisted that affective temperament formed the basis of affective disorders and described five principal affective temperament as depressive, hyperthymic, cyclothymic, irritable and anxious (Akiskal and Mallya, 1987). It has been proposed in the studies which were performed before 1970 that the majority of bipolar patients were in hyperthymic temperament before the disease (transferred by Angst, 2000).

Nowadays it is believed that affective temperament takes place in one end of bipolar disorder spectrum (Kelsoe 2003). Affective temperament does not meet the criteria of a disease period, but it has diagnostic validity, it may be inherited structurally and genetically and it does not necessitate treatment. With these characteristics, affective temperament may be accepted as a mediator, an escort, an endophenotype for bipolar disorder along the causative sequence from genetics to disease formation. On the other hand, affective temperament characteristics are related with etiology, phenomenology and treatment of affective disorder. Proposed characteristics of the relation between affective temperament and bipolar disor-
nder include familial burden, early onset, high incidence of relapses and tendency towards manic switch under the influence of anti-depressants (Akiskal 1996, Hantouche et al. 1998, Brieger et al. 2003). Moreover, it was reported that there was a continuity between temperament and end points (manic periods were more frequent in individuals with hyperthymic temperament and depressive periods were more frequent in individuals with depressive temperament) and hyperthymic characteristics were related with better prognosis (Henry et al. 1999).

The aim of this study was to compare bipolar patients with and without each temperament characteristics for 1) phenomenological characteristics (age at onset, duration of the disease, the type at the first episode, number and durations of disease episodes, psychotic features); 2) course patterns (severity, the time spared, hospitalization history, suicide history, dominant course pattern, switch tendency); and, 3) presence of comorbidity.

METHOD

Sample

The patients who applied to Affective Disorders Unit of Ege University Medical Faculty Psychiatry Department for routine controls between November 2001-June 2002 and who were in regular follow-up for at least one year were invited to join the study. Consecutive 100 patients (57 females, 43 males) who gave written consent to participate, had bipolar disorder type I diagnosis according to DSM-IV, were in episode free period and were between 17-77 years of age (Mean 36.7±14.5) were included; 43 patients were single, 40 patients were married, 13 patients were divorced and 4 patients were widow. Mean education duration of the patients was 11.7±4.2 years.

Evaluation instruments and implementation

Data demographics and clinical variates like age, gender, duration of education, marital status, age at onset of the disease, duration of the disease, total duration of disease episodes, type of first episode, number and durations of disease episodes, dominant course pattern, presence, type and number of switches, presence of psychotic features, presence and number of suicidal attempts, number and duration of hospitalizations and presence of comorbid diseases were collected. Data were obtained from the patients, at least one close relative and medical files.

A diagnostic interview with Turkish version of SCID-I (Çorapçıl et al. 1999) was performed with each patient and then Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto-questionnaire (TEMPS-A) was administered.

TEMPS-A has been developed by Akiskal in order to evaluate dominant affective temperament (Akiskal 1996). It includes 99 items which aim to determine depressive, hyperthymic, irritable, cyclothymic and anxious temperaments. Individuals gave their answers as “yes” or “no” when considering whole of their lives. Cut-off points to determine dominant temperament are 13 for depressive (18 items), 18 for cyclothymic (19 items), 20 for hyperthymic (20 items), 13 for irritable (13 items) and 18 for anxious (24 items) mood. Validity and reliability study of Turkish version was performed by Vahip and colleagues (2005). Test-retest reliability of Turkish form which was calculated separately for each temperament characteristics is between 0.73-0.93 with Cronbach’s alpha values between 0.77-0.85).

After determining which temperament characteristics were present in each patient with TEMPS-A, whether or not there was a difference between bipolar patients with and without that temperament was investigated.

Statistical analysis

Statistical analyses were performed with SPSS Windows 10.0 software. The comparisons were performed with chi-square test for categoric variants and Mann-Whitney U test for quantitative variants. The level of statistical significance was accepted as p<0.05 and all tests were double ended.

FINDINGS

1. Definition of the sample

Mean age of onset of the disease was 21.4±7.3 years. The duration of the disease varied between 12 and 624 months with a mean of 180.2±136.0 months. Numbers of disease episodes were between 1 and 65 with a mean of 11.2±10.3. First disease episode was depression in 48 patients and mania in 42 patients. There were switches from one end to the other (from depression to mania or
from mania to depression) in 18 patients. There was at least one episode of psychotic features in 33 patients. Seventy seven patients were hospitalized at least once because of bipolar disorder. Fourteen patients at least once attempted suicide. Most frequent comorbidity was anxiety disorder (s=11, obsessive-compulsive disorder, panic disorder and post-traumatic stress disorder. The other comorbid conditions were alcohol use disorders (s=6) and somatoform disorders (s=2).

2. Frequencies of affective temperaments

The frequencies of cyclothymic (s=10), hyperthymic (s=10) and irritable (s=9) temperaments were similar (Table 1, 2, and 3). Depressive and anxious temperaments were not present in bipolar patients. Hyperthymic temperament was more frequent in males (s=80, 80%, $\chi^2=8.485$, p=0.013, Table 2). There was not any difference between genders for cyclothymic or irritable temperaments (Tables 1 and 3).

3. The relationship between clinical variants and temperament

Episodes with psychotic features were more frequent in irritable temperament group (s=8, 92%) than patients without this temperament (s=25, 27%, $\chi^2=6.123$, p=0.037, Table 3). Episodes of disease with psychotic features were present in 4 patients from cyclothymic and 3 patients from hyperthymic temperament. In patients who did not have any specific temperament characteristics (s=71), the ratio for living a disease episode with psychotic features was 25.4% (s=18).

In cases with irritable temperament first episode was frequently mania (s=6, 67%, $\chi^2=9.254$, p=0.009, Table 3). The same ratio was 38% (s=36) in cases without irritable temperament. In cases with hyperthymic temperament first episode was frequently mania in 60% of cases (s=6) and depression in remainder 40% (s=4). In patients who did not have any specific temperament characteristics (s=71), first episode was mania in 45.1% (s=32) and depression in 54.9% (s=39) of cases.

Manic switches were more frequent in hyperthymic temperament group (s=5, 50%) than patients without this temperament (s=3, 3.2%, $\chi^2=8.924$, p=0.01, Table 2). Manic switches were determined in 10% (s=1) of cases with cyclothymic temperament and 11% (s=1) of cases with irritable temperament. Depressive switches were more frequent in irritable temperament group (s=6, 67%) than patients without this temperament (s=4, 4.3%, $\chi^2=6.542$, p=0.026, Table 2). Depressive switches were determined in 10% (s=1) of cases with cyclothymic temperament and 20% (s=2) of cases with hyperthymic temperament. In patients who did not have any specific temperament characteristics, manic and depressive switches were present in one case each.

Comorbidity was more frequent in cyclothymic temperament group (s=6, 60%) than patients without this temperament (s=13, 13.8%, $\chi^2=8.623$, p=0.012, Table 1). Alcohol and substance use disorders and anxiety disorders were determined as comorbid conditions in cases with cyclothymic temperament. Comorbidities determined in cases
without cyclothymic temperament were anxiety disorders and somatoform disorders. There was not any comorbid condition in cases with hyperthymic or irritable temperaments.

There was not any relation between total number of disease, manic, depressive, hypomanic or combined episodes and any specific temperament. Similarly, there was not any relation between dominant course pattern (Depression-Mania-Recovery or Mania-Depression-Recovery) and any specific temperament. Age at onset of the disease, duration of the disease, time spared with the disease, suicide attempts and hospitalization history were not related with temperament types, as well.

**DISCUSSION**

In this study which aimed to investigate whether affective temperament characteristics were related with features of bipolar disorder, course of the disease and presence of comorbidities, clinically very important findings were obtained. In addition to phenomenologic findings like presence of episodes with psychotic features or occurrence of first episode as manic type in patients with irritable temperament, it was determined that comorbidities were more frequent in patients with cyclothymic temperament. Maybe the most important clinical finding was relatively higher frequency of manic switches in patients with hyperthymic temperament. Our findings did not clarify whether or not affective temperament characteristics were genetic or disease triggers, but provided evidence for the clinical validity of affective temperament.

Cyclothymic, hyperthymic and irritable temperaments were more frequent in bipolar disorder. Especially frequency of hyperthymic temperament was considerably higher than healthy population (Placidi et al. 1998, Vahib et al. 2005) or patients with unipolar disorder (Cassano et al 1989, Akdeniz et al. 2005) consistently in studies from Turkey or other countries. This finding supported the proposition that there were specific temperament characteristics for depression and mania. That meant mania was related with hyperthymic and depression was related with depressive temperament (Hecht 1997). There were three studies which reported that hyperthymic temperament points were higher in bipolar patients. Bagby and colleagues (1996) used 5-factor NEO-PI extraversion subscale, Young and colleagues (1995) and Janowsky and colleagues (1999) used Cloninger’s novelty seeking subscale and all of them showed that points of bipolar patients were higher than depressive ones. In the study of Akdeniz and colleagues (2004) there was not any hyperthymic patient among depressive patients. Depressive temperament was more frequent in patients with depression (Cassano et al. 1989). Anxious temperament was more frequent in depressives than depressive ones (Akiskal 1996, Vahib et al. 2005). We did not find any depressive or anxious

### TABLE 2. Clinical features in cases with or without hyperthymic temperament.

<table>
<thead>
<tr>
<th>Clinical features</th>
<th>Hyperthymic temperament +</th>
<th>Hyperthymic temperament -</th>
<th>Hyperthymic temperament (+/-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (%)</td>
<td>N (%)</td>
<td>x²</td>
<td>p</td>
</tr>
<tr>
<td>Female/male</td>
<td>10 / 10</td>
<td>90 / 90</td>
<td>8.485 0.013</td>
</tr>
<tr>
<td>First disease episode:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mania</td>
<td>6 / 60</td>
<td>43 / 47</td>
<td>NS</td>
</tr>
<tr>
<td>Depression</td>
<td>4 / 40</td>
<td>47 / 52</td>
<td>NS</td>
</tr>
<tr>
<td>Presence of psychotic features</td>
<td>3 / 30</td>
<td>30 / 33</td>
<td>NS</td>
</tr>
<tr>
<td>Switch:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manic switch</td>
<td>5 / 50</td>
<td>3 / 3.2</td>
<td>8.924 0.01</td>
</tr>
<tr>
<td>Depressive switch</td>
<td>2 / 20</td>
<td>8 / 8.8</td>
<td>NS</td>
</tr>
<tr>
<td>Comorbidity:</td>
<td>-</td>
<td>19 / 21</td>
<td>-</td>
</tr>
</tbody>
</table>

without cyclothymic temperament were anxiety disorders and somatoform disorders. There was not any comorbid condition in cases with hyperthymic or irritable temperaments.

There was not any relation between total number of disease, manic, depressive, hypomanic or combined episodes and any specific temperament. Similarly, there was not any relation between dominant course pattern (Depression-Mania-Recovery or Mania-Depression-Recovery) and any specific temperament. Age at onset of the disease, duration of the disease, time spared with the disease, suicide attempts and hospitalization history were not related with temperament types, as well.

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Temperament in our group of patients and this finding might be interpreted as these temperament characteristics were more related with depressive conditions. Similarly we could conclude that cyclothymic and especially hyperthymic temperaments were related with bipolar disorder. Hyperthymic temperament was more frequent in males and this finding was consistent with the literature (Perugi et al. 1990, Cassano et al. 1992, Giovanni 1992). Giovanni and colleagues (1992) found another interesting characteristic; depressive temperament was more frequent in female patients with bipolar disorder. Family history for unipolar depression was more prominent in these patients. When these two findings were combined, it might be concluded that temperament was an intermediate stage between gender related existence and familial-hereditary factors in bipolar disorder.

Temperament adds colors to disease episodes (Hirschfeld and Klerman 1979) and influences the severity (Perugi et al. 1990). In our study, it was shown that there was a relationship between irritable temperament and living a disease episode of psychotic features which was evaluated as an indicator of severity (Swann et al. 2004). In the study of Henry and colleagues (1999) which evaluated affective temperament of patients with bipolar disorder, there were relationships between depressive temperament points and number of depressive episodes and hyperthymic temperament points and number of manic episodes.

As in depressions which sourced from cyclothymic or hyperthymic temperament, hypomania is seen frequently, if the person consumes alcohol or substance, generally additional personality disorder diagnosis is made. On the other hand, the frequency of cyclothymia was reported as 4-6% in borderline personality disorder (Angst 2000). Alcohol or substance use disorders and borderline personality disorders were reported to be frequent in bipolar patients. Occasionally, positive family history for bipolar disorder was reported in patients with alcohol or substance use disorders and borderline personality disorders. Irritability was considered to be prominent in atypical depression of these individuals (Perugi 1998, Hantouche et al. 1998), it was proposed that the objective of alcohol or substance use was a kind of self-therapy. As a consequence, the frequency of psychiatric comorbidities was reported to be high (Akiskal and Pinto 2000) and our results were consistent with this view.

Manic switch risk is an important aspect especially in the therapy of depressive episode of bipolar disorder. In the past, it was proposed that the risk for hypomania increased with antidepressant therapy (Akiskal 1996). Maybe the most important finding of the present study was the most frequent presence of manic switch in hyperthymic temperament. In another study which evaluated risk factors for manic switch, hyperthymic temperament was reported to have the highest risk (Henry et al. 1999). These findings were interpreted as the switches were not only due to the drug, but they had structural aspects as well and patients with accompanying temperament had high risk for switches.

### TABLE 3. Clinical features in cases with or without irritable temperament.

<table>
<thead>
<tr>
<th>Clinical features</th>
<th>Temperament analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Irritable temperament +</td>
</tr>
<tr>
<td><strong>N (%)</strong></td>
<td>N (%)</td>
</tr>
<tr>
<td>Female/male</td>
<td>6/3 60/30</td>
</tr>
<tr>
<td>First disease episode:</td>
<td></td>
</tr>
<tr>
<td>Mania</td>
<td>6 67</td>
</tr>
<tr>
<td>Depression</td>
<td>3 33</td>
</tr>
<tr>
<td>Presence of psychotic features</td>
<td>8 92</td>
</tr>
<tr>
<td>Switch:</td>
<td></td>
</tr>
<tr>
<td>Manic switch</td>
<td>1 1.1</td>
</tr>
<tr>
<td>Depressive switch</td>
<td>6 67</td>
</tr>
</tbody>
</table>
| Comorbidity:                               | -                    | 19 21 | -
Studying on temperament in bipolar disorder possesses some difficulties. First, despite all individuals who will fill the questionnaire are reminded to take the whole of their lives into consideration, there are some difficulties in evaluation of premorbid personalities. Second, despite all patients are between episodes, it is impossible to exclude the effects of the disease or reminder features on temperament. The validity and reliability of TEMPS-A was proved in many languages and Turkish as well, its dependency to self-report of the patient in evaluation of affective temperament should be considered as another limitation.

Despite its limitations, this study examines structural and phenomenological relations between affective temperament and bipolar disorder. The data of this study emphasize that affective temperament has clinical validity and importance and gives the color of the disease to a certain extent.

REFERENCES


