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Temperament characteristics in patients with panic disorder and their first-degree relatives

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Abstract

Aim: Panic disorder is one of the highly heritable anxiety disorders; and temperament characteristics are considered predicting liability to panic disorder. Accumulating evidence suggests temperament characteristics are intermediate phenotypes for clinical conditions. Given this background, we aimed to investigate temperament characteristics in patients with panic disorder, their first-degree relatives, and healthy controls.
Method: Study sample was consisted 60 patients with panic disorder, 37 first-degree relatives of these patients, and 37 age, gender, and education level matched healthy controls (HC). SCID-I, the Panic Agoraphobia Scale, and the State and Trait Anxiety Inventory were applied to assess clinical characteristics of the patient group. Temperament characteristics were assessed using the Temperament Evaluation of Memphis, Pisa, Paris, San Diego Autoquestionnaire (TEMPS-A).
Results: Anxious, depressive, cyclothymic, and irritable temperament scores of patients were higher than those of HC. There was no difference between the patients and the relatives, with the exception of higher anxious temperament scores in patients.
Conclusion: Overall, our findings suggest that anxious temperament characteristic might be a trait marker for liability to panic disorder. Further research with a prospective design in a larger sample is required to confirm our findings.
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1. Introduction

Life time prevalence of panic disorder was reported to be 3–21 times higher in the first degree relatives of patients with panic disorder in comparison to general population [1,2]. Twin studies indicate that panic disorder is heritable [3]; there exists an increased genetic liability in patients with early-onset panic disorder [4]. On molecular level, panic disorder was associated with serotonin transporter gene polymorphism, and dysfunctioning in the cholecystokinin system [5–7]. However, genetics of panic disorder has a complex and multifactorial nature like many of the other neuropsychiatric disorders. Genetic studies indicate that many genes with small effect sizes play a role in etiopathogenesis of panic disorders, while exposure to several other environmental factors increases susceptibility [8].

A growing body of evidence shows that temperament is a heritable phenomenon [9]. In particular, anxious temperament is characterized as a phenotype of increased psychological and behavioral responses to the emergent stimuli that has been shaped during the early childhood period [10,11]. Moreover, research suggests that anxious temperament and anxiety proneness are likely predictors for future panic disorders [12], thereby indicating that particular temperamental features are sub-threshold forms of clinical conditions. Studies showing an increased risk, particularly for

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anxiety disorders, depression and comorbid substance use disorders in children with anxious temperament [13], and an association between anxious temperament and serotonin transporter gene further support this notion [14].

In the light of the current evidence, we aimed to investigate the temperamental characteristics of patients with panic disorder, and their first generation relatives. We think that temperamental characteristics are essential elements to understand the heritability of panic disorder, and therefore we hypothesized anxious temperamental characteristics would be comparable in patients with panic disorder, and in their first generation relatives, but less prominent in the control group.

2. Methods

2.1. Study sample

Our study consisted patients with panic disorder, their first-degree relatives (no more than one relative for each patient [patient/relative pairs]), and control group. Patients with panic disorder were recruited from the outpatient clinic of Bakirkoy Research and Training Hospital for Psychiatry, Neurology, and Neurosurgery. Inclusion criteria for the patients were: being older than 18 years old, and not having a panic attack in the last month, given scores of temperamental characteristics may be affected by present anxiety symptoms. Age, gender, and education level matched control group consisted of hospital staff without a present/past time psychiatric disorder, or a family history of panic disorder.

Exclusion criteria for all participants were: having comorbid anxiety disorders except specific phobia and generalized anxiety disorder (where high comorbidity with panic disorders prevents exclusion of these diagnostic categories), panic disorder due to medical conditions or substance use, bipolar disorders including acute mood episodes (hypomanic, manic, mixed or depressive), schizophrenia or psychotic disorder, any psychiatric condition (e.g. delirium, dementia, mental retardation) or low education level influencing cooperation, communication, understanding and implementation of the tests, and serious or uncontrolled medical disorder.

2.2. Instruments

1) Sociodemographic, and clinical characteristics: Sociodemographic information, history of medical and psychiatric disorders, treatment characteristics were assessed using a structured questionnaire developed by the researchers.
2) The Structured Clinical Interview for DSM Axis I Disorders (SCID-I): SCID-I was administered to confirm the diagnosis of the patients. SCID-I is a semi-structured clinical interview developed for diagnosing DSM-IV first axis disorders [15]. SCID-I consists of six modules, and assesses 38 psychiatric disorders according to DSM-IV diagnostic criteria. Implementation takes 25–60 minutes.
3) The Panic and Agoraphobia Scale (PAS): The Panic and Agoraphobia Scale is designed to identify and assess the severity of panic attacks, agoraphobia, anticipatory anxiety, disability and worries about health as subscales; and particularly used to investigate the efficacy of medications and other psychological treatments [16]. Every subscore consists of its component scores, and the sum of all subscores constitutes the total severity score.
4) Temperament Evaluation of Memphis, Pisa, Paris, San Diego Autoquestionnaire (TEMPS-A): TEMPS-A is composed of 100 dichotomous items assessing 5 temperament dimensions: depressive, cyclothymic, hyperthymic, irritable and anxious temperament [17]. It was adapted to Turkish by Vahip and colleagues [18].

2.3. Procedure

Sixty patients were recruited from the patients presented to the outpatient clinic of Bakirkoy Research and Training Hospital for Psychiatry, Neurology, and Neurosurgery. The diagnosis of panic disorder was confirmed with SCID-I, and severity was assessed by PAS. TEMPS-A was used to evaluate temperamental characteristics. The study was approved by the local ethics committee, and all participants provided written informed consent.

2.4. Statistical analysis

Data were analyzed with Statistical Package for the Social Sciences (SPSS) version 19. Categorical data were analyzed using chi-square. Normality of the distribution was ascertained by Kolmogorov–Smirnov test. For normally distributed data, one way analysis of variance with post-hoc Bonferroni test was applied to analyze differences in the TEMPS-A scores between patients with panic disorder, their relatives, and healthy controls. To analyze data deviated from normal distribution, Kruskal–Wallis test was applied to test whether TEMPS-A scores differ among patients with panic disorder, their relatives, and healthy controls, and if so Mann–Whitney tests were used for paired comparisons between two groups (n = 3 post-hoc tests, Bonferroni corrected alpha <0.017).

3. Results

Our study sample consisted of 60 patients with panic disorder, 37 first-degree relatives of these patients, and 37 healthy controls. The majority of the first-degree relatives were siblings of the patients (67.6%, n = 25); 18.9% (n = 7) were the mothers or the fathers of the patients, and the remaining (13.5%, n = 5) were their adult children.