

Audiovestibular functioning in patients with panic disorder

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Abstract

Objective: The objective of this study was to investigate audiovestibular function in patients with panic disorder and healthy subjects by using vestibular and audiologic tests. **Methods:** Thirty-four panic disorder patients and 20 healthy control subjects were assessed by using clinical otoneurological examination, pure tone audiometry, tympanometry, and electro-nystagmography (ENG). All patients were evaluated with the Panic and Agoraphobia Scale (PAS), the Hamilton Anxiety Rating Scale (HARS), the Hamilton Depression Rating Scale (HDRS), and the State-Trait Anxiety Inventory (STAI). **Results:**

On vestibular testing, abnormal responses were more prevalent in panic disorder patients compared to healthy controls. The presence of agoraphobia in panic disorder patients did not make a significant difference on vestibular test results. The only variable that may be a predictor of vestibular abnormalities in panic disorder patients was found to be dizziness between attacks. **Conclusion:** The results show that dizziness between panic attacks may warrant audiovestibular testing among other medical investigations.

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Introduction

An important proportion (50–85%) of panic disorder patients reports dizziness [1]. Although dizziness reported by some panic disorder patients is thought to be related to hyperventilation, it may also be seen between panic attacks [2,3]. Panic disorder patients also experience some other sensations like veering to the left or right, tendency to fall, losing balance, and even rotatory vertigo during or between their attacks [2,3].

Jacob et al. [4] were the first investigators to employ a standardized otoneurologic test battery in patients with panic disorder who reported symptoms of dizziness or imbalance. Seventy-five percent of the patients with panic disorder and 60% of the patients with panic attacks and agoraphobia were identified as having vestibular abnormality. Sklare et al. [5] evaluated 20 consecutive patients with panic disorder. Vestibular abnormalities were found in 71% of patients who received electronystagmography (ENG).

Hoffman et al. [6] have studied patients with panic disorder, and vestibular autorotation test revealed abnormalities on horizontal and/or vertical vestibuloocular reflexes in all of the patients when compared to a normative sample.

Yardley et al. [7] studied patients with symptoms of panic attacks and agoraphobia, and there were significantly more abnormalities on posturography in patients with panic attacks and agoraphobia compared to normal controls (64% vs. 10%); however, there was not a statistically significant difference in caloric test results between the patient and control groups. Jacob et al. [8] reported that prevalence of abnormalities on the vestibular tests was significantly higher in panic disorder with agoraphobia group compared to panic disorder without agoraphobia group. Swinson et al. [9] investigated panic disorder patients with prominent dizziness. They did not find any abnormalities on ENG and caloric tests in panic disorder patients, but they reported that the patient group showed significantly greater discrepancy between head and eye movements on vestibuloocular reflex activity in the dark when compared to the healthy control subjects.

There are also studies assessing psychiatric morbidity among patients with complaints of dizziness. Clark et al. [10] reported panic disorder in 20% of patients presenting

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with dizziness. Peripheral vestibulopathy patients had significantly more phobic avoidance and more anxiety than patients with hearing loss. Moreover, peripheral vestibulopathy patients and central or nonspecific vestibulopathy group had significantly more depression than patients with hearing loss. Sullivan et al. [11] reported patients without a peripheral vestibular disorder, but complaining of dizziness had significantly more lifetime psychiatric diagnoses when compared with patients with a peripheral vestibular disease. Patients without a peripheral vestibular disorder also had significantly higher scores on somatization and depression scales. Kroenke et al. [12] reported persistent dizziness is associated with increased psychiatric comorbidity, particularly depression and somatization and more functional impairment.

It is remarkable that no precision was achieved in the results obtained from the investigation of the relationship between the audiovestibular test results and the clinical features of panic disorder patients. Whereas a common finding of the studies was the detection of abnormal audiovestibular function in panic disorder patients when compared to the control group, it could not be thoroughly explained with which features of panic disorder this abnormality was associated. The influence of anxiety and depression levels and the presence of agoraphobia in panic disorder patients on audiovestibular tests were found worth investigating.

The objective of this study is (1) to compare the frequencies of audiologic and vestibular abnormalities in (a) panic disorder patients and normal comparison subjects and (b) panic disorder with and without agoraphobia patients by using pure tone audiometry, tympanometric examination, and ENG; (2) to determine the frequency of dizziness during or between panic attacks, the severity of panic disorder and agoraphobia, and the level of anxiety and depression in panic disorder patients with and without ENG abnormalities; and (3) to investigate predictors of ENG abnormalities in panic disorder patients.

Method

Subjects

Thirty-four consecutive outpatients who applied to the Psychiatry Outpatient Clinic of Istanbul University Istanbul Faculty of Medicine and 20 control subjects were included in this study. Seventeen of the patients met the DSM-IV [13] criteria for panic disorder with agoraphobia and 17 for panic disorder without agoraphobia on the basis of Structured Clinical Interview for DSM-IV/Clinical Version (SCID-I/CV) [14]. The control group was selected among age and sex matched volunteers who were physically healthy and who did not have a current or past psychiatric disease.

The patients were medication-free for at least 2 weeks before testing, and all patients had at least one panic attack within last 2 weeks. Exclusion criteria were as follows: (1) any current psychiatric disorder other than anxiety or

depressive disorders diagnosed with the SCID-I/CV; (2) history of alcohol and drug abuse/dependence; (3) chronic neurological or any other serious physical illness, as assessed with physical and neurological examination, electrocardiogram, laboratory tests for renal, hepatic, hematologic, and thyroid functions; and (4) history of medical disorders that may have a causal relationship with panic disorder. Written informed consent was obtained from all of the patients and the healthy controls after the procedures had been fully explained.

Measures

The following four questionnaires were selected to evaluate panic disorder patients for research purposes:

Hamilton Anxiety Rating Scale (HARS) [15] is a 14-item clinician-rated scale that measures the severity of anxiety.

Hamilton Depression Rating Scale (HDRS) [16] is a widely used 17-item clinician-rated scale designed to assess the severity of depression.

Panic and Agoraphobia Scale (PAS) [17] is a 13-item scale designed to identify and rate essential features of panic disorder with or without agoraphobia. It has both an observer- and a self-rated version with matching items. Observer-rated version of the scale was used in the study.

State-Trait Anxiety Inventory (STAI) [18] is a self-rated scale that comprises two subscales of 20 items, one assessing state anxiety and the other trait anxiety.

Procedures

A semistructured interview form prepared by the authors was used to evaluate the demographic features of the patients. The SCID-I/CV was used to diagnose the Axis I disorders in the panic disorder group. All patients also completed the HARS, HDRS, PAS, and STAI in the same session. SCID-I/CV interviews and rating scales were conducted by psychiatrist who was fully trained in the use of these instruments.

The audiologic and vestibular assessments were performed at the audiometry and vestibulometry laboratories of the Istanbul University Istanbul Faculty of Medicine. Otoneurological examinations of all patients and healthy controls were done before laboratory tests to exclude pathological conditions that may prevent reliable testing. After stepping and walking assessment, Romberg and Dix-Hallpike tests were performed. Otological assessments of patient and control groups were done by using pure tone audiography and tympanometry. The classification of the audiovestibular assessments was done by one researcher who was blind to which group the test results came from.

The otologic assessment was accepted as normal if hearing threshold was below 20 dB in pure tone audiometry, if there was no conduction type hearing pathology, and maximum compliance was at ± 50 mm H₂O in tympanometry.

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