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Short communication

Anxious, introverted personality traits in patients with chronic subjective dizziness

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ABSTRACT

Objectives: Chronic subjective dizziness (CSD) is a neurotologic disorder of persistent non-vertiginous dizziness, unsteadiness, and hypersensitivity to one's own motion or exposure to complex visual stimuli. CSD usually follows acute attacks of vertigo or dizziness and is thought to arise from patients' failure to re-establish normal locomotor control strategies after resolution of acute vestibular symptoms. Pre-existing anxiety or anxiety diathesis may be risk factors for CSD. This study tested the hypothesis that patients with CSD are more likely than individuals with other chronic neurotologic illnesses to possess anxious, introverted personality traits.
Methods: Data were abstracted retrospectively from medical records of 40 patients who underwent multidisciplinary neurotology evaluations for chronic dizziness. Twenty-four subjects had CSD. Sixteen had chronic medical conditions other than CSD plus co-existing anxiety disorders. Group differences in demographics, Dizziness Handicap Inventory (DHI) scores, Hospital Anxiety and Depression Scale (HADS) scores, DSM-IV diagnoses, personality traits measured with the NEO Personality Inventory — Revised (NEO-PI-R), and temperaments composed of NEO-PI-R facets were examined.
Results: There were no differences between groups in demographics, mean DHI or HADS-anxiety scores, or DSM-IV diagnoses. The CSD group had higher mean HADS-depression and NEO-PI-R trait anxiety, but lower NEO-PI-R extraversion, warmth, positive emotions, openness to feelings, and trust (all $p < 0.05$). CSD subjects were significantly more likely than comparison subjects to have a composite temperament of high trait anxiety plus low warmth or excitement seeking.
Conclusion: An anxious, introverted temperament is strongly associated with CSD and may be a risk factor for developing this syndrome.

Introduction

Chronic subjective dizziness (CSD) is a neurotologic disorder of persistent non-vertiginous dizziness or unsteadiness that is present throughout the day for 3 months or more [1]. Symptoms may be exacerbated by upright posture, patients' own movements, exposure to full field visual stimuli (e.g., shopping malls), or performance of precision visual tasks (e.g., reading). CSD is usually triggered by neurotologic or other events that cause acute attacks of vertigo, unsteadiness, or dizziness, such as vestibular neuritis, presyncope, or panic attacks [2]. Retrospective [3] and prospective [4,5] studies found that CSD symptoms developed in about 25% of patients afflicted by these events. CSD also may occur in patients with episodic neurotologic illnesses, such as Meniere's disease. It may persist for years [1]. The pathophysiologic processes underlying CSD are unknown, but may relate to patients' failure to return to normal postural control after adapting to the demands of acute vestibular crises [1].

CSD is not a rare or new condition. It is the second most common cause of dizziness in tertiary neurotology centers that track it [1]. Physical symptoms of CSD are similar to those of phobic postural vertigo (PPV), which was described in Germany 27 years ago [6]. However, the definition of PPV included mild anxiety and depressive symptoms and obsessive compulsive personality traits [6] that were not retained in the definition of CSD. This conceptual refinement parallels changes in constructs of irritable bowel syndrome (IBS) from early psychosomatic formulations that included anxiety and depressive symptoms, personality traits, and stress [7], through identification of core gastrointestinal symptoms [8] to widely accepted Rome III diagnostic criteria [9]. Fibromyalgia evolved similarly. CSD, like IBS and fibromyalgia, frequently co-exists with anxiety and depressive disorders [8,10–12], but may occur independently of psychiatric morbidity [2,13].

Personality traits have been investigated in patients with IBS, fibromyalgia, and non-cardiac chest pain (NCCP). Patients with these conditions had higher levels of neuroticism than normal controls [10,14–17]. Those with IBS also were more introverted than normal controls

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[10,14,16]. Patients with IBS or NCCP who had Type D (distressed) personality reported more physical symptoms and poorer health-related quality of life than others [15,18,19]. In patients with IBS, the severity of neuroticism correlated inversely with physical and psychological responses to treatment with mianserin [20].

Several studies investigated psychological factors in patients with CSD. Pre-existing anxiety disorders predicted development of CSD symptoms after acute neurotologic illnesses [3,5], and premorbid anxiety diatheses were associated with poorer treatment response to selective serotonin reuptake inhibitors, the primary medications for CSD [21]. In contrast, patients with greater resilience, life satisfaction, and sense of coherence were less likely to develop CSD-type symptoms after acute neurotologic illnesses than individuals with lower scores on these positive characteristics [22].

This investigation was part of a larger project to validate the definition of CSD, including the presence or absence of psychological symptoms and personality traits that may differentiate it from other neurotologic disorders. This study focused on personality traits. Attention was given to obsessive compulsive traits, which were included in the definition of PPV [6], but not CSD, and to neuroticism and introversion, which have been associated with IBS, fibromyalgia, and NCCP [7,10,14–17]. To identify personality traits that might be associated specifically with CSD, a comparison group of patients with similar levels of vestibular and psychological symptoms was chosen, lest symptom burden alone or neuroticism associated with co-existing psychiatric disorders confound the results. Personality traits measured by the NEO Personality Inventory — Revised (NEO-PI-R) [23] were compared between 24 patients with CSD and 16 patients who had chronic neurotologic conditions plus comorbid anxiety disorders.

Method

Study design

This retrospective review included 40 patients with either CSD or co-existing chronic neurotologic and anxiety disorders. Patients provided written informed consent for research record review. Our Institutional Review Board approved this study.

Subject selection and evaluation

Subjects were drawn from the Mayo Clinic Vestibular Syndrome Validation Project (MC-VSVP, N = 600), a study investigating characteristic symptoms of CSD and vestibular migraine, plus features that differentiate these conditions from other neurotologic disorders. Subjects in the MC-VSVP completed multidisciplinary clinical evaluations including neurotologic examination, vestibular laboratory testing, head imaging, if indicated, and self-reports of impairment on the Dizziness Handicap Inventory (DHI) [24]. Per clinical protocol, subjects underwent behavioral medicine consultations if their vestibular symptoms or functional impairment were not fully explained by physical neurotologic findings alone or they recorded positive scores on the Hospital Anxiety and Depression Scale (HADS) [25]. Behavioral medicine assessment including the Mini International Neuropsychiatric Inventory [26], standardized psychosocial interview, clinical examination by a psychosomatic medicine psychiatrist and/or clinical health psychologist, and assessment with the NEO-PI-R [23], if indicated. Subjects who completed the NEO-PI-R were selected for this study if they were diagnosed with CSD alone (N = 24) or had other neurotologic conditions and levels of persistent vestibular and psychiatric symptoms roughly comparable to those in the CSD group (N = 16).

Measures

Patient demographics, DHI and HADS scores, neurotologic diagnoses, DSM-IV psychiatric diagnoses, and NEO-PI-R results were abstracted from the medical record. The DHI is a 25-item, self-report of physical symptoms, functional impairment, and emotion distress due to dizziness with total score from 0 to 100 [24]. The HADS is a validated self-report with seven questions each for anxiety and depression, rated 0–3 [25]. The HADS may be used continuously or categorically with scores ≥8 for anxiety or depression or total scores ≥12 indicating

Table 1
Characteristics of CSD and comparison subjects

		CSD group (N = 24)	Comparison group (N = 16)	Between group differences[a]
Age (years)	Mean ± standard deviation	43.5 ± 18.5	48.6 ± 21.1	n.s.
	Range	16–89	18–81	
Sex	Male	9	8	n.s.
	Female	15	8	
Race	% Caucasian	91.7%	87.5%	n.s.
DHI-total	Mean ± standard deviation	54.8 ± 19.3	52.7 ± 29.2	n.s.
HADS—anxiety	Mean ± standard deviation	10.9 ± 3.8	8.5 ± 4.2	n.s.
	% positive (≥8)	89.5%	72.7%	n.s.
HADS—depression	Mean ± standard deviation	8.1 ± 4.4	5.2 ± 3.8	$p < 0.05$
	% positive (≥8)	47.4%	27.3%	n.s.
DSM-IV anxiety disorders	Major[b]	14	8	n.s.
	Minor[c]	7	4	
	None	3	4	
DSM-IV depressive disorders	Major[d]	6	3	n.s.
	Minor[e]	1	2	
	None	17	11	
Primary neurotologic diagnoses	Chronic subjective dizziness	24		
	Central vestibular deficit		6	
	Peripheral vestibular deficit		5	
	Vestibular migraine		3	
	Autonomic disorder		2	

DHI = Dizziness Handicap Inventory.
HADS = Hospital Anxiety and Depression Scale.
[a] Student's *t*-test for continuous data. Chi-square test for categorical data. n.s. = not significant.
[b] Panic disorder with or without agoraphobia, generalized anxiety disorder, posttraumatic stress disorder, and obsessive compulsive disorder.
[c] Specific phobia (of dizziness), anxiety disorder not otherwise specified.
[d] Major depressive disorder, single episode or recurrent, any severity.
[e] Depressive disorder, not otherwise specified.