

# The Dizzy Patient

## Consider a Second Diagnosis

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**Background:** Many patients with dizziness complain about >1 type of dizziness and therefore there may be  $\geq 2$  coexisting diagnoses.

**Objective:** To determine how often a second or third diagnosis is present in a patient with dizziness and to establish what are the most common combinations of diagnoses.

**Study Design:** Prospective, observational study in a tertiary center.

**Results:** A consecutive cohort of 621 patients was included in the study. In 187 patients (30.1%) a second diagnosis was present. Within this group a third diagnosis was present in 35 (5.6%) patients. The most common second diagnosis was an anxiety disorder (50.1%).

**Conclusions:** Patients with dizziness frequently present themselves with >1 type of dizziness caused by 2 or 3 different diseases. In our study 30% of patients with dizziness have >1 diagnosis. Anxiety disorder is the most common second diagnosis.

**Key Words:** dizziness, diagnoses, multiple diagnoses

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Dizziness is a very common, and often challenging symptom in medicine. To a large extent the diagnosis is made on the basis of the history. However, it is not always possible to make a clear diagnostic judgment. A patient may complain about >1 type of dizziness and there may be  $\geq 2$  coexisting diagnoses. Some diseases are frequently seen together, such as Meniere disease and migraine, benign paroxysmal positional vertigo (BPPV) and migraine, vestibular neuritis and BPPV.<sup>1</sup>

It is therefore important to consider the possibility of  $\geq 2$  diagnoses, as often they have to be treated differently.

Until today little research has been done on the prevalence of  $\geq 2$  diagnoses in patients with dizziness.

The Apeldoorn Dizziness Centre is a multidisciplinary tertiary center for patients with dizziness as their main complaint. Patients are seen by an ear-nose-throat (ENT) surgeon and a neurologist in a joint consultation. The diagnosis is made and the treatment advice is given by mutual consensus between both consultants and is based on internationally approved criteria. Annually new patients between 1100 to 1300 are seen in our center; 800 of these patients are tertiary referrals.

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The authors declare no conflict of interest.

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In 2014, 1187 patients were referred to our center. Retrospectively, we found that in 16% of the patients a second diagnosis was present (n = 190, Bruintjes TD, van Leeuwen R, unpublished data 2015).

To identify the true frequency of multiple diagnoses in patients with dizziness, we started a prospective, observational study in our hospital.

The aim of the study was to answer 2 key questions: how often is a second or third diagnosis made and what are the most common combinations of diseases?

### METHODS

All patients eligible for inclusion had been referred to us either by a general practitioner or by a specialist from all over the Netherlands. They all completed an intake questionnaire at home. This questionnaire gathered information on patient complaints, past medical history, and current health status. Apart from that, it included the Nijmegen Questionnaire (NQ) for hyperventilation and the Hospital Anxiety and Depression Scale (HADS). The NQ has been validated for use in evaluating hyperventilation syndrome.<sup>2,3</sup> The NQ consists of 16 items, which are graded as follows: 0 = never occurring, 1 = rare, 2 = sometimes, 3 = often, 4 = very often. A total score higher than 23 of 64 is suggestive for a diagnosis of hyperventilation. The HADS is an instrument to determine the level of anxiety and depression that a patient is experiencing. It has been shown to be a reliable and valid tool for evaluating patients in various disease populations. The HADS contains 14 items: an anxiety subscale and a depression subscale, both consisting of 7 items. Items have the same answering options as the NQ. After the written assessment had been submitted, patients visited our hospital for half a day of testing. Investigations included vestibular tests (oculomotor, caloric, rotational, and positional), pure tone audiometry, orthostatic hypotension testing, and a hyperventilation provocation test in the pulmonary function laboratory. Next, patients were seen in our multidisciplinary dizziness unit by an ENT surgeon and a neurologist at the same time. When appropriate, the following additional tests were performed: laboratory tests, magnetic resonance imaging, computed tomography, and/or duplex ultrasonography of the carotid and vertebral arteries. The final diagnosis was made by the ENT surgeon and the neurologist by mutual consensus based on internationally approved diagnostic criteria.

We used accepted criteria at the time to arrive at the diagnosis of Ménière disease,<sup>4</sup> BPPV,<sup>5</sup> vestibular neuritis,<sup>6</sup> and vestibular migraine.<sup>7</sup> The diagnosis recurrent vestibulopathy was made if the patient had experienced repeated attacks of rotational vertigo ranging from a few minutes to 24 hours in duration, provided that these attacks had not been provoked by

changes of position and that no cochlear symptoms were present.<sup>8,9</sup> The diagnosis “unknown peripheral vestibular disorder” was made if the patient’s history and/or videonystagmographic findings indicated a peripheral cause but did not meet the criteria for any of the known peripheral vestibular disorders. Orthostatic hypotension was defined as a fall of 20 mm Hg in systolic blood pressure, or 10 mm Hg fall diastolic, during the first 3 minutes of standing, provided that this finding could be reproduced. We tentatively diagnosed hyperventilation/anxiety disorder: (1), if the HADS was positive at a score of  $\geq 8$  on the subscale for anxiety; (2), in the presence of complaints such as presyncopal light-headedness and giddiness; (3), when the NQ scored  $>24$ ; and (4), if a hyperventilation provocation test was abnormal. We did not arrive at separate diagnoses as chronic subjective dizziness, persistent postural perceptual dizziness, and phobic postural dizziness, because our patients with clinical symptoms of these syndromes fulfilled also the criteria of anxiety (distress) disorder. The diagnoses were made by mutual consensus between the ENT surgeon and the neurologist. A second or third diagnosis was only made if those diagnoses caused complaints (ie, if the patient had  $\geq 2$  types of dizziness). In case of  $>1$  diagnosis the diagnosis with the most disabling complaints was chosen as the first diagnosis.

In addition to the diagnoses the following data were collected:

Age, sex, and whether they had been referred for a second opinion.

### RESULTS

In the period of April 1 to November 1, 2015 a consecutive cohort of 621 patients was included in the study. In this group the male/female ratio was 1:2. The average age was 56 years (range, 11 to 90 y); 59% of patients were referred for a second opinion.

In 187 patients (30.1%) patients a second diagnosis was made. Within this group a third diagnosis was made in 35 patients.

The first and second diagnoses that were made are provided in the Table 1.

The most common second diagnosis was anxiety disorder (50.1%), mostly in combination with a peripheral vestibular disorder, such as BPPV, vestibular neuritis, or Ménière disease.

In the group with 2 diagnoses the number of patients who had been referred for a second opinion was significantly higher than in the group with 1 diagnosis (68% vs. 55%;  $P=0.001$ ). The male/female ratio in these 2 groups did not differ significantly. In 23.6% of the patients from our own region a second diagnosis was made. In 35.1% of the patients who had been referred for a second opinion a second diagnosis was made.

### DISCUSSION

Our study revealed that the frequency of 2 diagnoses in patients with dizziness is high: 30%. Clinicians both in primary and secondary care should be aware of this and should take it into account when taking the history in a patient with dizziness. If a second diagnosis is made, in half of the patients this is an anxiety disorder leading to dizziness in addition to a primary vestibular disorder.

Thus far, few studies have been conducted on the prevalence of multiple diagnoses in patients with dizziness. Primary care studies indicate frequencies from 12% to 44%.<sup>10,11</sup> These studies have primarily been conducted in elderly patients. Secondary care studies were often conducted in small patient groups, where the prevalence of multiple diagnosis was between 12% and 18%.<sup>12–15</sup>

A number of cautionary remarks about our study should be made. First of all, the study was conducted in a tertiary center, which may have an impact on the number of multiple diagnoses. At the same time, in 23.6% of the patients from our own region a second diagnosis was made. Furthermore, the diagnosis of anxiety disorder was tentatively made on the basis of the NQ and HADS. The HADS is valid for screening purposes; definitive diagnosis rests on the process of extensive psychiatric evaluation. However, the HADs is said to perform as a case finder for anxiety disorder in  $\sim 80\%$  of cases.<sup>16</sup>

### CONCLUSIONS

Patients with dizziness frequently present themselves with  $>1$  type of dizziness caused by 2 or 3 different diseases. In our study 30% of patients with dizziness have  $>1$  diagnosis. Anxiety disorder is the most common second diagnosis.

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**TABLE 1.** First and Second Diagnosis in Patients With Dizziness

First (Main) Diagnosis	n (%)	Second Diagnosis	
		n (%)	(%)
Hyperventilation/anxiety	176 (28.3)	95	15.3
BPPV	151 (24.3)	24	3.8
No diagnosis	87 (14.0)		
Meniere disease	39 (6.3)	6	1.0
Vestibular neuritis	37 (6.0)	6	1.0
Recurrent vestibulopathy	25 (4.0)	3	0.5
Migraine	22 (3.5)	8	1.3
Orthostatic hypotension	18 (2.9)	19	3.0
Unknown peripheral vestibular disorder	14 (2.3)	5	0.8
Bilateral vestibular hypofunction	13 (2.1)	5	0.8
Vestibular paroxysmia	10 (1.6)		
Other	29 (4.7)	16	2.6
Total	621 (100)	187	30.1

BPPV indicates benign paroxysmal positional vertigo.

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