

TEACHING COURSE: NEURO-OTOLOGY: THE DIZZY PATIENT

HISTORY TAKING AND KEY SYMPTOMS

Thomas Brandt
German Center for Vertigo and Balance Disorders, Munich, Germany

E-Mail: Thomas.Brandt@med.uni-muenchen.de

Disclosure

“none”

Learning objectives

Five keys for diagnosing most vertigo, dizziness, and imbalance syndromes: an expert opinion

A diagnosis of vertigo, dizziness, and imbalance syndromes requires first of all a careful patient history. On the basis of our experience in the German Center for Vertigo and Balance Disorders, we find that five different categories with the following key symptoms provide a reliable and practical diagnostic guide for the general neurologist and others who manage dizzy patients:

1. Paroxysmal positional vertigo

(benign paroxysmal positional vertigo > central positional vertigo and/or nystagmus)

2. Spontaneous recurrent vertigo attacks

(vestibular migraine or Menie`re's disease)

3. Sustained rotational vertigo

(vestibular neuritis or central pseudo-neuritis)

4. Frequent spells of dizziness or imbalance

(vestibular paroxysmia > superior canal dehiscence syndrome)

5. Postural imbalance without other neurological Symptoms

(phobic postural vertigo /PPPD > bilateral vestibulopathy)

Brandt, Strupp & Dieterich, 2014

In our practice, these five categories cover ten distinct vertigo, dizziness, or balance disorders that together make up 80–90 % of the diagnoses established in outpatients (Table 1). Once a patient has been assigned to one of the five syndromic categories, further differentiation of the ten underlying disorders is based on the following:

- type of vertigo,
- duration of attacks (min./max.),
- frequency of attacks,
- triggers/modulating factors,
- associated symptoms.

To determine the presence of the above additional symptoms, the physician must simply ask the patient the right questions. The answers will suggest the diagnosis, which is then confirmed by an oto-neurological examination revealing typical signs (e.g., nystagmus or other ocular motor abnormalities).

Table 1
Trigger/Exacerbation/Improvement of Vertigo

- These features of the disorder must be explicitly asked of the patient, for Example, vertigo or dizziness:
- Already at rest (e. g., acute vestibular neuritis, downbeat nystagmus syndrome, attacks of vestibular migraine, or Menière's disease)
- While walking (e. g., bilateral vestibulopathy)
- While turning the head to the side (e. g., bilateral vestibulopathy, vestibular paroxysmia)
- When changing head position relative to gravity (e. g., benign paroxysmal positional vertigo)
- When coughing, pressing, or at loud sounds of a certain frequency – as the Tullio phenomenon (e. g., perilymph fistula, superior canal dehiscence syndrome)
- Context-dependent intensity (worsening in certain social or environmental situations with improvement during sport activities or after light alcoholic drinks, e. g., phobic postural vertigo/PPPD)

Brandt, Dieterich & Strupp, 2013

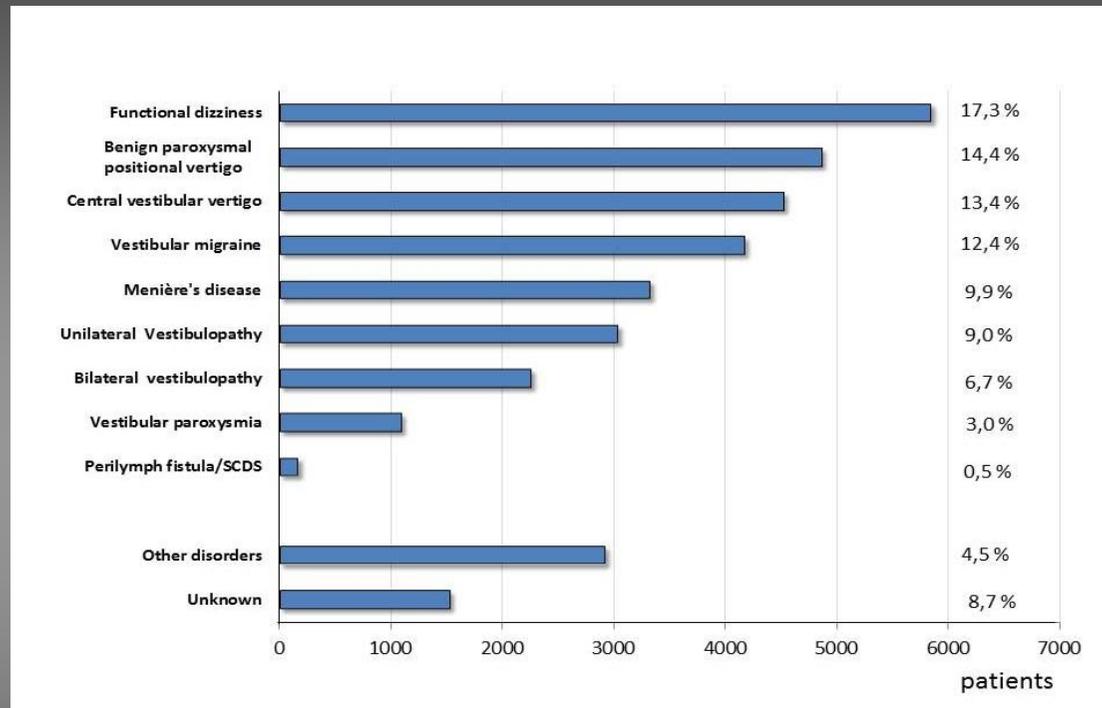


Table 2:
 Frequency of different diagnoses in 33.716 patients seen in an interdisciplinary outpatient dizziness clinic.

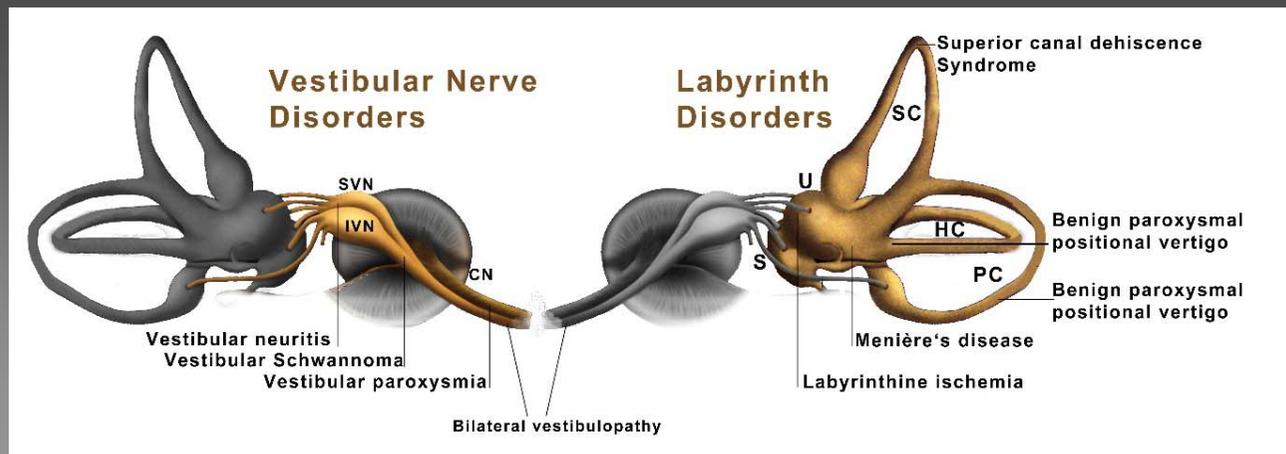


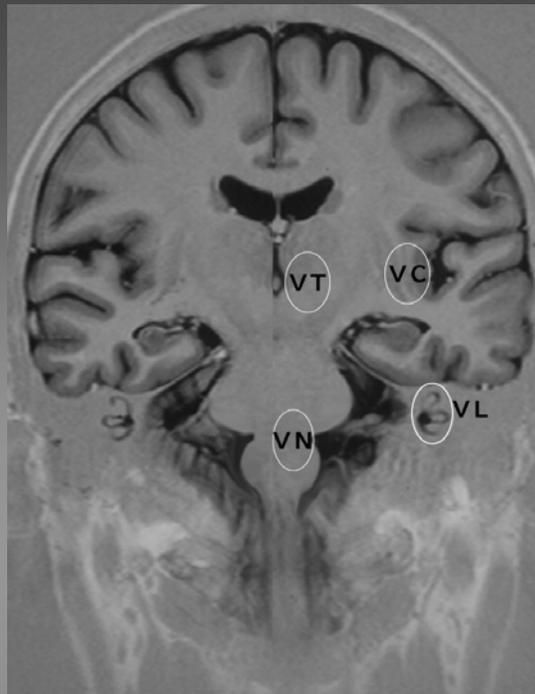
Figure 1:

Common peripheral vestibular disorders of the labyrinth (*right*) and the vestibular nerve (*left*) make up about 45% of more than 23,000 outpatients in a tertiary multidisciplinary dizziness unit (Table 1). Labyrinthine disorders include benign paroxysmal positional vertigo due to canalo- or cupulolithiasis, superior canal dehiscence syndrome, and Menière's disease with endolymphatic hydrops. Vestibular nerve disorders include vestibular neuritis, vestibular schwannoma, bilateral vestibulopathy, and vestibular paroxysmia due to neurovascular cross-compression. (schematic drawing of the labyrinth modified from Leblanc). SC, HC, PC superior, horizontal, posterior canals, U utricle, S saccule, SVN, IVN superior, inferior vestibular nerves, CN cochlear nerve.

Modified from Brandt & Dieterich 2017

Central vestibular Disorders

Central vestibular disorders make up about 25% of the diagnoses in a tertiary interdisciplinary outpatient dizziness unit. Signs and symptoms can mimic those of peripheral vestibular disorders and can be elicited by unilateral lesions along the bilaterally organized vestibular circuitry. This combines the vestibular nuclei and vestibular cerebellum via ascending pathways with the integrative thalamo-cortical system. Disorders of 'higher' cortical (cognitive) vestibular functions should also be considered. They involve more than one sensory modality as well as cognition; examples are hemispatial neglect, room tilt illusion, pusher syndrome, as well as impairment of spatial orientation and navigation in bilateral vestibulopathy.



Cortex

- Cortical vertigo
- Pusher syndrome
- Room tilt illusion
- Spatial hemineglect
- Spatial memory deficit
- Vestibular epilepsy

Thalamus

- Thalamic astasia
- Pusher syndrome

Brainstem

- Lateropulsion
- Ocular tilt reaction
- Parox. ataxia/dysarthria
- Pseudo-neuritis
- Room tilt illusion
- Skew-torsion
- Vestibular migraine

Cerebellum

- Downbeat nystagmus
- Episodic ataxia type 2
- Ocular tilt reaction
- Posit. vertigo/nystag.
- Pseudo-neuritis
- Upbeat nystagmus

Figure 2:

This figure presents a list of clinical syndromes of vertigo, disorientation or imbalance which may be called central vestibular disorders or disorders of higher vestibular function. They are depicted in alphabetical order and are topographically grouped by cerebral cortex, thalamus, brainstem and cerebellum. The topographic assignment remains uncertain for some conditions. Note also that similar disorders occur with lesions at different sites – brainstem or cortex (room-tilt illusion) or brainstem and cerebellum ocular tilt reaction (OTR) – within the central vestibular neuronal circuitry. Please note that this list does not include all central vestibular syndromes. (VC = vestibular cortex; VT = vestibular thalamus; VN = vestibular nucleus; VL = vestibular labyrinth),

Modified from Brandt & Dieterich 2017

Functional dizziness: diagnostic keys and differential diagnosis

Table 3

Features **typical** for a functional dizziness syndrome

1. Chronic spontaneous dizziness or unsteadiness lasting for months or longer
2. Dissociation between objective balance tests and subjective imbalance
3. Fear of falls without a history of falls
4. Improvement during bodily activity, mental distraction or after alcohol consumption
5. Inappropriate excessive anxiety or fear of impending doom
6. Dizziness combined with non-vestibular or non-balance symptoms
7. Situational or social events as triggers of dizziness and avoidance behavior
8. Rotational vertigo without concurrent spontaneous nystagmus
9. Unusual or bizarre postural and gait patterns
10. Chronic unsteadiness and dizziness following transportation in vehicles

Brandt, Huppert & Dieterich 2005

Table 4

Features **atypical** for a functional dizziness syndrome

1. Frequent episodic vertigo/dizziness attacks with symptom-free intervals
2. Nausea and emesis
3. Rotational vertigo with directional pulsion or falls
4. Dizziness/vertigo with concomitant auditory symptoms
5. Head rotation or head tilt as specific triggers
6. Spontaneous suspicion of patients that psychological (not physical) stress is causative

References:

Brandt, T., Dieterich, M., Strupp, M. Vertigo and Dizziness – Common Complaints. 2nd Edition, Springer: London, 2013

Brandt, T., Strupp, M., Dieterich, M. Five keys for diagnosing most vertigo, dizziness, and imbalance syndromes: an expert opinion. J Neurol 2014; 261(1):229-231

Brandt, T., Huppert, D., Strupp, M., Dieterich, M. Functional dizziness: diagnostic keys and differential diagnosis. J Neurol 2015; 262:1977-1980

Brandt, T., Dieterich, M. The dizzy patient: don't forget disorders of the central vestibular system. Nat Rev Neurol 2017; 13:352-362