

## TAKING HISTORY FOR VERTIGO AND DIZZINESS – A PRACTICAL APPROACH

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### ABSTRACT

Vertigo and dizziness are among the most frequent presenting symptoms, not only in neurology, but also in ENT and internal medicine clinics.

Vertigo is a spinning sensation or the feeling that the surroundings are spinning.

Floating sensation, lightheadiness, forward, backward – and sideward fall sensation, walking instability, gait hesitation or unsteadiness are other type of dizziness.

Several clinical pictures of different etiologies include vertigo and dizziness as underlying complaint. Diagnosis should be based on clinical history and neurotological evaluation.

A common perspective of neurologists, ENT doctors and general medicine physicians is needed for a better diagnosis and treatment of vertigo and dizziness patients.

**Keywords:** vertigo, dizziness

After headache, vertigo and dizziness are among the most frequent presenting symptoms, not only in neurology, but also in ENT and internal medicine clinics.

A survey of over 30,000 persons showed that the prevalence of vertigo lies around 17% and rises up to 39% in those over 80 years of age (Davis and Moorjani 2003). (1)

Vertigo and dizziness are not a unique disease entity. The terms cover a number of multisensory and sensorimotor syndromes of various aetiolo-

gies and pathogenesis, which can be elucidated only on an interdisciplinary approach.

Combined visual, somatosensory and vestibular inputs are required in order to maintain the body balance. Any dysfunction in one of these channels may lead to vertigo and imbalance. (2)

A common perspective of neurologists, ENT doctors and general medicine physicians is needed for a better diagnosis and treatment of vertigo and dizziness patients.

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Whether caused by physiological stimulation (motion sickness, height vertigo) or a lesion (unilateral labyrinthine failure, central vestibular pathways lesions), the resulting vertigo syndrome characteristically exhibits similar signs and symptoms, despite the different pathomechanisms – dizziness/vertigo, nausea, nystagmus, falling tendency/ataxia. (3)

On behalf of Romanian Society of neuro-otology a consensus of specialist was reach in order to cover important issues in taking history of patient of vertigo and dizziness.

**The history of a patient** with vertigo and dizziness must point out several characteristics: mode of onset, description of vertigo, associated signs, balance disturbances, history taken from witness of the attack (Table 1).

**TABLE 1.** History of a patient with vertigo and dizziness

<p><b>I. The mode of onset of symptomatology:</b></p> <ul style="list-style-type: none"> <li>– Abrupt onset – attacks of vertigo, or</li> <li>– Slow, progressive onset of dizziness</li> </ul> <p><b>Description of vertigo:</b></p> <p>1. <i>clinical course</i></p> <ul style="list-style-type: none"> <li>• Vertigo attacks (unique, multiple),</li> <li>• “continue” – dizziness</li> </ul> <p>2. <i>the description of the sensation felt by the patient</i></p> <p>– <i>the type of vertigo:</i></p> <ul style="list-style-type: none"> <li>• Rotator like riding “merry-go-round (vestibular neuritis),</li> <li>• linear movement,</li> <li>• lateral deviation,</li> <li>• unsteadiness like in a “boat trip” (phobic postural vertigo),</li> <li>• numbness (drug intoxication)</li> </ul> <p>3. <i>the duration of an attacks and the frequency of vertigo attacks;</i></p> <ul style="list-style-type: none"> <li>• seconds – minutes – vestibular paroxysmia transient ischemic attacks;</li> <li>• hours – Menière disease, vestibular migraine, transient ischemic attacks;</li> <li>• days to weeks – vestibular neuritis</li> </ul> <p>4. <i>factors that precipitates or exacerbates the vertigo attacks</i></p> <ul style="list-style-type: none"> <li>• change in head position (VPPB – benign paroxysmal positioning vertigo),</li> <li>• coughing, pressing, loud sounds “Tulio Phenomenon” (perilymph fistula)</li> <li>• physical activity, walking (bilateral vestibulopathy) changes in altitude, diving (barotraumas)</li> <li>• stress (psychogenic vertigo)</li> </ul> <p>5. <i>the presence of clinical signs between vertigo attacks</i> (neurological, cardiovascular)</p> <p><b>III. The presence of signs associated to vertigo</b></p> <ol style="list-style-type: none"> <li>1. auditory signs – hypoacusis, tinnitus, fullness in one ear, ear pain</li> <li>2. neurological signs; <ul style="list-style-type: none"> <li>• cranial nerves – nystagmus, diplopia, strabismus, reduce hearing and reduced vision, trigeminal, facial nerve damage</li> </ul> </li> </ol>
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- motor, sensitive, coordination pathways impairment
- other neurological signs – headache, loss of consciousness, autonomic nervous signs

#### **IV. Patient history related to balance disturbance**

1. history of cerebral trauma
2. ENT diseases
3. neurological disease
4. cardiovascular, metabolic, haematological diseases
5. local or general medications (amino glycosides, sedatives, anti-hypertensive drugs)
6. neurosurgery or otic surgery
7. infectious disease (ear, cerebral, general)
8. psychiatric illnesses
9. professional risk factors
10. genetic, familial diseases

#### **V. History taken from the witness of vertigo attacks**

- the presence of nystagmus
- falling
- loss of consciousness

The **real vertigo** is described as illusion of motion of the environment and of the patient’s body. Also patients describe “to-and-fro” and “up-and-down” sensation”.

The subjective vertigo is the sensation of turning one’s body around the environment.

The objective vertigo is the illusion of environment motion around the patient.

Vertigo can be paroxysmal, permanent, transient or positional.

**Pseudovertigo** – dizziness, giddiness – must be distinguished by the real vertigo – than patient complaints of light-headedness, felling of swaying, imbalance – but without objective neurological or ENT signs. (4)

According to the cause of vertigo and dizziness, in clinical practice we can identify:

- non-vestibular vertigo
- vestibular vertigo.

**Non-vestibular vertigo** could be due to orthostatic hypotension, anaemic syndrome, cardiac arrhythmias, drug intoxication, hypoglycaemia, phobic vertigo, but also neurological causes (epilepsy, acute oftalmoplegia, paraneoplastic syndrome, cerebellar ischemia, basilar migraine) (Table 2).

**TABLE 2.** Causes of non-vestibular vertigo:

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|---|
| <p>1. <i>orthostatic hypotension</i></p> <ul style="list-style-type: none"> <li>– primary,</li> <li>– due to over – treatment of arterial hypertension</li> <li>– due to neurological causes (adverse event in levodopa therapy in Parkinson disease, sensitive polyneuropathy with impairment of proprioceptive and vibratory sense in diabetes, neurosyphilis)</li> </ul> |
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2. anaemic syndrome
3. cardiac arrhythmias
4. drug intoxication with sedative, barbiturics
5. hypoglycaemia
6. anxiety and panic attacks, phobic vertigo
7. neurological causes of non-vestibular vertigo
  - epilepsy
    - focal vestibular epilepsy – vertiginous sensation due excitation of superoposterior or the junction between parietal and temporal lobes
    - vestibulogenic epilepsy – reflex epilepsy due to vestibular stimulation
  - acute oftalmoplegia
  - paraneoplastic syndrome – opsoclonus
  - ischemia in posterior-inferior cerebellar artery territory, flocculonodular lobe
  - medullo-pontine lesions – of nucleus prepositus hipoglosii
  - basilar migraine

**Vestibular vertigo** could be due to labyrinthine lesions, acustico-vestibular nerve lesions, brainstem lesions, cerebellar lesions, familial vestibulo-cerebellar syndrome (Table 3).

**TABLE 3.** Causes of vestibular vertigo

1. labyrinthine lesions
  - Menière disease
  - Benign positional vertigo
  - Vestibular neuronitis
  - Toxic and idiopathic bilateral vestibulopathy
  - Toxic, infectious labyrinthitis,
  - Serous labyrinthitis accompanying medium otitis
  - Post-traumatic labyrinthitis following withplash trauma, fracture of temporal bone
  - paroxysmal vertigo of childhood
  - Cogan syndrome (nonsyphilitic interstitial keratitis with vertigo, tinnitus, nystagmus, rapidly pregressive deafness)
2. acustico-vestibular nerve lesions
  - tumors of cerebello-pontine angle
  - acoustic neuroma (vestibular Schwannoma),
  - neurinoma of trigeminal (gasserian) ganglion or neighboring cranial nerves
  - meningioma of cerebello-pontine angle
  - cholesteatoma (epidermoid cyst)
  - glomus jugulare tumor
  - meningeal inflammations
  - vascular compressions
3. brainstem lesions
  - vascular – ischemic stroke in vertebro-basilar territory
  - demyelinating lesions – in multiple sclerosis
  - brainstem glioma
4. cerebellar lesions – vascular lesions (infarctions, hemorrhage)
5. familial vestibulo-cerebellar syndrome(4)

At University Emergency Hospital of Bucharest – Neurology Department an observational was performed in order to evaluate the most frequent causes of vertigo in clinical practice. (5)

Posturography is a method of measuring the participation of proprioceptive, visual and vestibular input in keeping the balance. This method evaluates stability of the body and equilibrium scores. (6)

Computerized static posturography is useful to assess the type of sensory impairment. Vertigo and imbalance in ischemic stroke patients is usually caused by is a multisensory impairment pattern, so complex *balance training exercises are needed in central compensation after ischemic stroke* (7).

Computerized dynamic posturography can also be used in diagnostic of presbyatosis and in the treatment of age related balance disorder, in vestibular rehabilitation (8).

We evaluated in our clinic 210 patients with vertigo, addressed to our dizziness unit for computerized static posturography assessment (5).

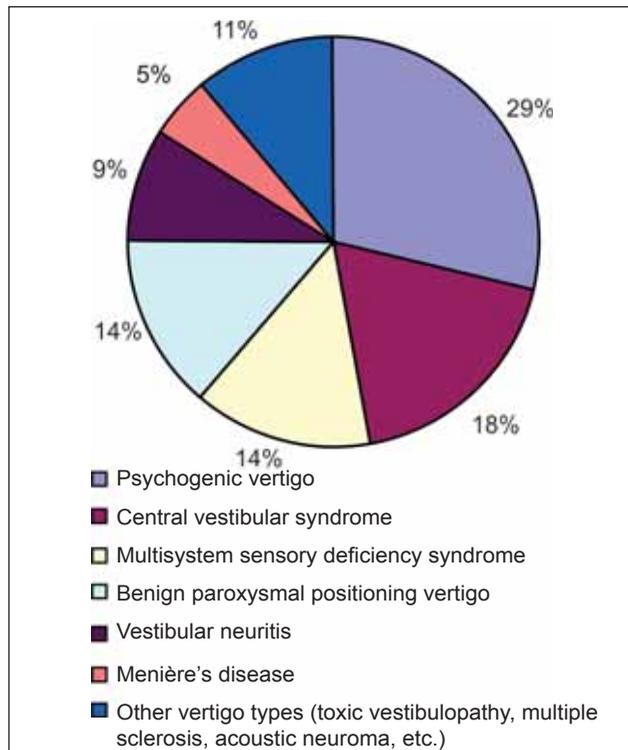
We found different type of vertigo syndromes (Fig. 1):

- psychogenic vertigo (phobic postural vertigo, panic attacks, visual vertigo – “supermarket syndrome”) – 58 patients (42 women, 16 men), with the age between 18-76 years (mean age 43,86).
- central vestibular vertigo after ischemic stroke – 38 patients (18 women, 20 men), with the age between 37-80 years (mean age 62,42). The vascular territory involved was carotidian in 11 patients and vertebro-basilar in 27 patients
- chronic dizziness (multisystem sensory deficiency syndrome) – 34 patients (19 women, 10 men), with the age between 41-81 years (mean age 61,68)
- benign paroxysmal positioning vertigo – 29 patients (18 women, 11 men), with the age between 27-80 years (mean age 48,10)
- vestibular neuritis – 19 patients (12 women, 5 men), with the age between 30-67 years (mean age 47,57)
- Menière’s disease – 11 patients (9 women, 2 men), with the age between 18-73 years (mean age 40,18)
- Various other disorders (toxic vestibulopathy, vertiginous epilepsy, multiple sclerosis, etc.) – 22 patients (18 women, 4 men), with the age between 19-72 years (mean age 46,95)

The relative frequency of different vertigo syndromes diagnosed in our clinic:

- psychogenic vertigo (phobic postural vertigo, panic attacks, visual vertigo – “supermarket syndrome”) – 27,61%
- central vestibular vertigo after ischemic stroke – 18,09%

- chronic dizziness (multisystem sensory deficiency syndrome) – 13,80%
- benign paroxysmal positioning vertigo – 13,80%
- vestibular neuritis – 9,04%
- Menière's disease – 5,23%
- various other disorders (toxic vestibulopathy, vertiginous epilepsy, multiple sclerosis, acoustic neuroma, etc.) – 10,47%.



**FIGURE 1.** Relative frequency of different vertigo syndromes in neurological practice

Vertigo is a spinning sensation or the feeling that the surroundings are spinning.

Floating sensation, lightheadiness, forward, backward – and sideward fall sensation, walking instability, gait hesitation or unsteadiness are other type of dizziness.

The ocular motor system serves to hold images steady on retina. Abnormal eye movements may lead to blurred vision and the illusion that the seen world is moving, (oscillopsia).

Nystagmus is defined as repetitive to-and-fro involuntary movements that are initiated by slow drifts of the eye.

The vestibulo-ocular reflex normally generates eye rotation after a short latency in the same plane as the head rotation elicits them.

Disorders of the vestibular periphery cause nystagmus in a direction determined by the pattern of involved labyrinthine semicircular canal. The complete, unilateral loss of one labyrinth causes a mixed horizontal-torsional nystagmus that is suppressed by visual fixation. Loss of peripheral vestibular function causes impaired vision and oscillopsia during locomotion.

Central vestibular disorders lead to upbeat, downbeat or torsional nystagmus. (9)

Several clinical pictures of different aetiologies include vertigo and dizziness as underlying complaint. Diagnosis should be based on clinical history and neurotological evaluation.

A patient can experience more than one type of vertigo and dizziness.

There are no defined rules in clinical practice concerning vertigo and dizziness, medical reasoning should be dynamic and flexible, adequate of each individual case. (10)

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