Consultation with a dizzy patient

Introduction

The management of a patient presenting with dizziness is a common task otolaryngologists face in clinic. Failure to obtain an adequate history or perform a thorough clinical examination results in sub-optimal evaluation and inadequate treatment of these cases.

What to ask in the history

Description of the episode

It is important to obtain information about what the patient experiences while having a dizzy spell (Bojrab and McFeely, 2000). Patients may have difficulty describing their symptoms but tend to use expressions such as dizziness, whirling or a feeling of unsteadiness. It is vital to elicit a history of relative motion with the surrounding space and its association with movement, posture or position. A history of rotational vertigo suggests a peripheral cause of dizziness (Goebel, 2001). Patients with a cerebrovascular or cardiac cause of dizziness rarely experience true vertigo.

Onset and nature of dizziness

Detailed attention to the first episode often yields valuable information into the aetiology. A history of trauma (perilymph fistula) and/or an upper respiratory tract infection (labyrinthitis) is important in this context. Was the onset sudden, e.g. lasting for days (vestibular neuronitis or labyrinthitis) or gradual in progression, e.g. associated with earache or discharge (otitis media)? Do sudden movements of the head bring on the episode, e.g. benign positional paroxysmal vertigo? How long do the spells last: seconds (benign positional paroxysmal vertigo), minutes to hours (Ménière's disease) or hours to days (labyrinthitis)?

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Associated symptoms

Symptoms of aural fullness, tinnitus and hearing loss during an attack of vertigo suggest Ménière's disease (Baloh, 2001). A history of dysarthria, diplopia, blackouts, focal weakness or seizures associated with dizziness point towards a cortical or brainstem disorder.

General medical history

A complete medical history should be taken as cardiovascular disease (transient ischaemic attacks and stroke) or endocrine disorders (diabetes mellitus, hypothyroidism) could be the ultimate cause of dizziness. Disorders of the neck can alter somatosensory input relating to movements of the head or compromise blood supply to the peripheral vestibular system. Some causes include whiplash injury and cervical spondylosis. Medications such as anticonvulsants, hypnotics, antihypertensives and oral hypoglycaemic drugs may cause dizziness but not true vertigo.

Physical examination

Following a complete history, the clinician should perform an ear, nose and throat examination including examination of the cranial nerves and tests for coordination and balance. The examination should focus on aetiological clues, which include otitis media with effusion, perforated tympanic membrane, cholesteatoma and/or otorrhoea. When indicated a fistula test is performed by increasing pressure in the ear canal (applying pressure on the tragus). In the presence of a labyrinthine fistula, nystagmus is seen towards the affected ear.

Examination of cranial nerves

CNS abnormalities are often revealed by examination of the cranial nerves (CN). Suspicion of tumours of the cerebellopontine region should focus the examination on CN V, VI, and VIII. This may reveal a delayed corneal reflex, which is a sensitive sign. Tuning fork tests may demonstrate a sensorineural hearing loss on the affected side. Vertigo can be a presenting complaint of multiple sclerosis (Linstrom, 1992). These patients demonstrate an internuclear ophthalmoplegia, which is tested by asking the patient to follow the examiner's finger from side to side in a horizontal plane. In the case of a pontine lesion the ipsilateral globe is on target whereas the contralateral eye lags behind.

Cerebellar tests

An incoordination of limb movements or the inability to perform alternating movements (dysdiadokinesis) indicates cerebellar cortical disease. Coordination tests such as finger-nose-finger, heel shin and rapid alternating motion of both hands are useful tests to assess the cerebellar function.

Gait

The assessment of a dizzy patient is incomplete without gait observation. Gait is assessed for initiation of movement, missteps and veering. An ataxic gait implies a CNS involvement while veering to one side is associated with a vestibular lesion on that side.

Postural tests

Romberg and Unterberger tests work on the principle that maintaining balance in gravity depends on three components: vision, proprioception and vestibular function. Elimination of one component places the work of balance on the other two. If either of these is defective, only one remains and balance cannot be maintained.

Romberg test

The subject is asked to stand upright with his/her feet close together and arms at the side. The eyes are initially kept open and then closed. An increase in sway towards one side is abnormal.

Unterberger test

The patient is asked to close his/her eyes and raise his/her arms outstretched in front and march on the spot for 30 seconds. An abnormal test includes a body rotation of >30° or forward or backward displacement of more than a metre.

Positional manoeuvre

Dix–Hallpike manoeuvre

A positional manoeuvre is diagnostic for benign positional paroxysmal vertigo (Zee, 1986). The patient sits on a couch and the

head turned 45° with extension to one side (*Figure 1*). It is important to ask the patient to keep his/her eyes open during the examination. The patient is then reclined in one movement and the eyes noted for nystagmus. The following characteristics are noted:

1. Latency period between assuming the position and onset
2. Character (horizontal, rotatory, clockwise or anticlockwise)
3. Direction of nystagmus
4. Duration.

The character of the induced nystagmus may help to distinguish between peripherally and centrally generated nystagmus as summarized (*Table 1*).

What tests should we perform?

Investigations for dizziness should be selected on the basis of history and clinical findings.

Pure tone audiogram

Patients with a suspected vestibular disorder should be investigated with a pure tone audiogram. This may reveal a low frequency sensorineural hearing loss (Ménière's disease) or an asymmetrical hearing loss (vestibular damage or acoustic neuroma).

Lying and standing blood pressure

A difference in systolic blood pressure of >20 mmHg on standing after a period of lying flat suggests orthostatic hypotension.

Blood profile

Blood tests are not routinely performed, but basic screening tests may include serum glucose, lipids, thyroid function tests and venereal diseases research laboratory test for syphilis (Pulec, 1997) where indicated.

Figure 1. Dix–Hallpike manoeuvre.

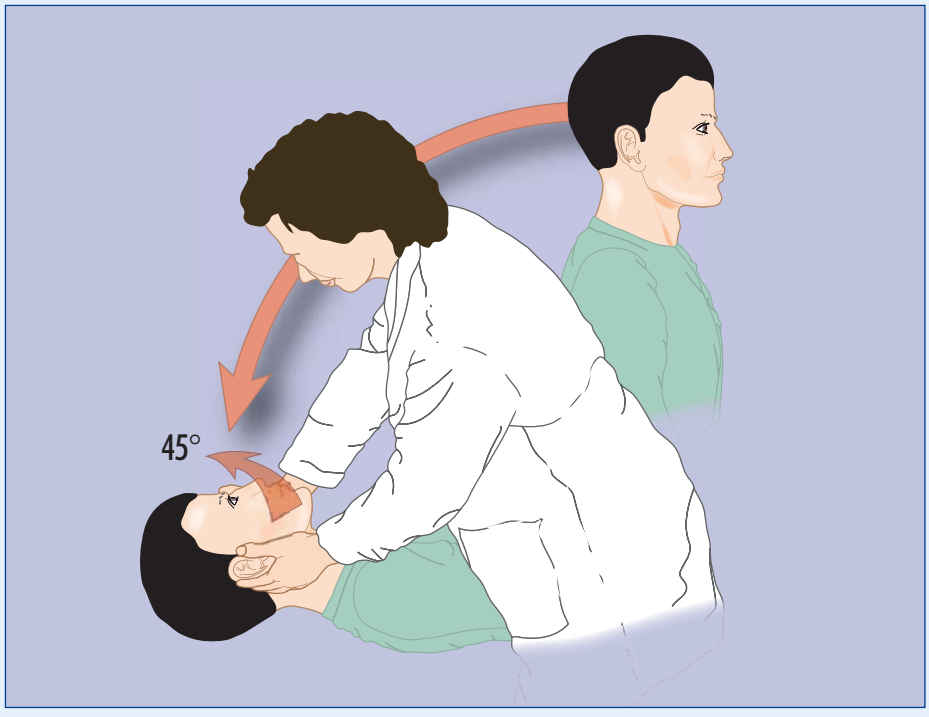

Table 1. Characteristics of central and peripheral nystagmus

Feature	Peripheral	Central
Latency	5–15 seconds	No latency period
Duration	<50 seconds	>1 minute
Vertigo	Always present	May be absent
Direction of nystagmus	Fixed direction	Multidirectional
Fatiguability	Present	Absent

Vestibular system function

Electronystagmography is a basic test of the vestibular system. Electronystagmography is a series of examinations driven by the vestibulo-ocular reflex. Nystagmus can be observed if spontaneous or recorded after caloric stimulation of the vestibular apparatus with warm and cold water in the external auditory canal. These tests are non-specific but when abnormal indicate a vestibular dysfunction (Herdman et al, 1993). The details of these tests are beyond the scope of this discussion and therefore are not included.

Imaging

Patients complaining of dizziness associated with unilateral tinnitus, focal neurological signs and/or asymmetrical sensorineural hearing loss warrant a magnetic resonance imaging scan of the brain with gadolinium infusion, as it is better at detecting brainstem lesions than computed tomography.

Common peripheral causes of dizziness

Benign positional paroxysmal vertigo

Patients commonly present with vertigo associated with sudden head movements. The vertigo lasts for seconds and resolves spontaneously. Benign positional paroxysmal vertigo is the most common cause of vertigo. Characteristically there is no associated hearing loss and, apart from positional nystagmus, an ear, nose and throat and neurological examination is essentially normal.

The features of benign positional paroxysmal vertigo are believed to be caused by otolith debris that floats freely in the posterior semicircular canal but there is a considerable degree of uncertainty about the true pathology of this condition. Treatment of benign positional paroxysmal vertigo primarily involves repositioning manoeuvres (Epley manoeuvre). Eighty per cent of patients are cured by a single manoeuvre. Vestibular exercises that provoke dizziness improve recovery (Paparella et al, 1990). In refractory cases occlusion of the posterior semicircular canal with muscle, fascia or bone pate have shown to be effective.

Labyrinthitis

Labyrinthitis presents with acute onset nausea, vomiting and vertigo, which can

last for several days. The condition is usually preceded by an upper respiratory tract infection and can occur among members of a family. Treatment is conservative and supportive and includes adequate hydration, antiemetics and antihistamines.

Ménière's disease

Ménière's disease is characterized by episodes of aural fullness, tinnitus, hearing loss and vertigo. Subjects are usually able to localize their symptoms to the affected ear and the attacks, which resolve spontaneously, can last from a few minutes to several hours. Initially the hearing loss is reversible but with repeated attacks, patients exhibit a progressive low frequency sensorineural hearing loss.

Conservative measures include a low salt diet, diuretics and vasodilator therapy (betahistine). Surgical treatment may involve intratympanic gentamicin therapy (Schwaber, 2002) or decompression of the endolymphatic sac. In cases with severe vertigo and no serviceable hearing a transmastoid labyrinthectomy or selective vestibular neurectomy is offered.

Other peripheral causes of dizziness

The other peripheral causes of dizziness include ototoxic drugs (aminoglycoside antibiotics, aspirin, diuretics), middle ear disease and surgery, migraine, post-traumatic vertigo and vertebrobasilar insufficiency. This is not a comprehensive list but may guide the clinician towards potential vestibular causes of dizziness.

Conclusions

A thorough history is the most valuable tool in the diagnosis of patients presenting with dizziness. Investigations should be tailored to the history and clinical findings. Treatment should be directed to the underlying cause and appropriate antiemetic medication or vestibular sedatives should be used for symptomatic relief. **BJHM**

Conflict of interest: none.

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KEY POINTS

- A thorough history is the key to the diagnosis of patients presenting with dizziness.
- Patients with a peripheral cause of dizziness (benign positional paroxysmal vertigo, Ménière's disease or labyrinthitis) usually give a history of true vertigo.
- Investigations for dizziness should be directed towards potential causes.