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Dizziness, giddiness and feeling faint

Dizziness is a common complaint and has a very broad list of possible underlying causes.

'Dizziness' is a nonspecific term which can mean different things to patients, including vertigo, light-headedness, impaired spatial orientation, weakness, unsteadiness, feeling faint (presyncope), funny turns, visual disturbance, or a psychological problem.^[1]

People with dizziness can experience significant social and occupational morbidity. Those presenting with dizziness should be given the correct diagnosis, both to avoid missing serious neurological causes and to ensure that the right treatment is given promptly.^[2]

The cause of the dizziness can be diagnosed in most cases on the basis of a thorough clinical history and examination and may not require hospital referral - although assessment in the emergency department should be considered in those presenting with an acute vestibular syndrome in whom risk factors for stroke or other significant acute causes are present.^[3]

Causes of dizziness

Aetiology of dizziness is diverse. Causes include:

- Cardiovascular:
 - Postural hypotension.
 - Carotid sinus syndrome.
 - Vertebrobasilar insufficiency.
 - Aortic stenosis.
 - Subclavian steal syndrome.
 - Cardiac arrhythmias.
 - Angina.
 - Postural Orthostatic Tachycardia syndrome (POTS).

- Neurological:
 - Cerebrovascular disease (stroke and TIA).
 - [Vestibular migraine](#) (generally presents with attacks of spontaneous or positional vertigo lasting seconds to days, with associated migraine symptoms). [4]
 - Cerebellar disease.
 - Persistent postural perceptual dizziness (PPPD). This is functional dizziness. It is defined as dizziness, unsteadiness or non-spinning vertigo that has been present continuously or on most days for three months or more. Symptoms are exacerbated by upright posture, motion and exposure to complex visual patterns or moving visual stimuli. It is usually precipitated by an acute, episodic or chronic vestibular syndrome, but can be caused by other neurologic or medical illnesses, or psychological distress. [1]
 - Following [head injury](#).
 - [Epilepsy](#).
 - [Multiple sclerosis](#).
 - [Parkinsonism](#) and other neurodegenerative conditions.
 - [Dementia](#).
 - [Brain tumours](#), especially brainstem and cerebellar tumours.
 - [Idiopathic intracranial hypertension](#).
 - [Normal pressure hydrocephalus](#).
 - [Peripheral neuropathy](#).
 - Spinal posterior column lesions.
 - Intracranial bleeding.
 - Episodic ataxia.

- Otological:
 - Benign paroxysmal positional vertigo (BPPV).
 - Ménière's disease.
 - Vestibular neuritis and labyrinthitis.
 - Unilateral or bilateral vestibular hypofunction.
 - Ototoxicity.
 - Otosclerosis and Paget's disease of bone.
 - Middle ear trauma.
 - Following surgery - eg, stapedectomy, cochlear implant.
 - Tumours - eg, acoustic neuroma.
 - Cholesteatoma.
- Metabolic:
 - Hypoglycaemia.
 - Adrenal insufficiency.
 - Hypothyroidism.
- Haematological:
 - Anaemia.
 - Hyperviscosity.
- Psychogenic: eg, generalised anxiety, agoraphobia, panic attacks, hyperventilation.

- Miscellaneous:
 - Viral illness.
 - [Migraine headaches](#).
 - Other infections – eg, acute bacterial infections, [Lyme disease](#), [HIV infection](#).
 - Ocular: visual impairment or misalignment.
 - Multisensory dizziness: occurs when there are reduced inputs from more than one sensory system – eg, reduced vision, vestibular dysfunction, peripheral neuropathy, autonomic neuropathy.
 - Autoimmune/connective tissue disorders – eg, [rheumatoid arthritis](#), [systemic lupus erythematosus](#), autoimmune inner ear disease.
 - Drug intoxication – eg, acute intoxication with alcohol or drugs; carbon monoxide poisoning; chronic alcohol misuse.
 - Iatrogenic: side-effect of medication – eg, antihypertensives, antidepressants, aminoglycoside antibiotics, anti-arrhythmics. Polypharmacy is an extremely common cause of dizziness, particularly in older people.

Red flag signs associated with acute vertigo that indicate a possible central neurological cause (such as posterior circulation stroke) include:

- Abnormal neurological symptoms or signs.
- New headache.
- A normal vestibulo-ocular reflex as assessed by the head impulse test (which would imply that the vertigo does not originate in the peripheral vestibular system).

The most common causes of true vertigo encountered in primary care are BPPV, vestibular migraine and vestibular neuritis. Even in the elderly, an underlying cause for dizziness can usually be established.^[5]

Assessment^[6] ^[7] ^[8]

See also the separate [Neurological History and Examination](#) article. A thorough history and examination usually provide a clear guide to initial investigations, treatment and the need for referral.

When the patient first presents, it is very important to determine exactly what symptom(s) the patient is experiencing, because patients mean different things by the term 'dizziness'.

Usually by history and examination it is possible to distinguish between a peripheral vestibular problem and a central one such as stroke. Where a central cause is suspected then referral for urgent further investigation can be instigated.

Assessment involves identification of the precise underlying cause, if possible:

- An assessment for any serious underlying disorder requiring urgent treatment – eg, coronary heart disease, cerebrovascular disease.

- Identifying the nature of the presenting symptom. Traditionally, dizziness has usually been categorised into one of four main groups: [9]
 - Vertigo:
 - Vertigo is defined as an abnormal sensation of movement, either of the surroundings or the person (see also the separate [Vertigo](#) article). Descriptions of vertigo include spinning, tilting, and moving sideways or forwards or back. Vertigo can arise spontaneously or can be triggered by head-, self- or visual-motion. It can be positional (triggered by a change of head position in space relative to gravity) or, rarely, may be sound-induced.
 - Presyncope:
 - A feeling of light-headedness, muscular weakness and feeling faint. Features may suggest a specific diagnosis.
 - See the separate [Syncope](#) article.
 - Unsteadiness:
 - The feeling of being unstable while standing or walking without a particular directional preference.
 - A common cause is 'multiple sensory deficits' in elderly patients, who may have deficits with all three balance-preserving senses, ie vestibular, visual and proprioceptive. Recent research has also identified cerebral small vessel disease as a possible aetiology in the elderly.
 - Nonspecific dizziness:
 - Occasionally, patients with 'dizziness' do not have specific features of vertigo, unsteadiness or presyncope.
 - The history may be vague.

- However, it has been suggested that many people are unable to describe exactly what they mean in the above-described terms and that it may be more helpful to ask about the timing and triggers involved. For example, asking whether it is:
 - Constant or episodic.
 - Triggered or spontaneous (eg, triggered by movement, specific events, medication, etc).
 - Associated with other symptoms (eg, hearing loss, headache, panic attacks, nausea, vomiting, light- or sound-sensitivity).
- Using this line of questioning helps to guide examination, and narrows down likely diagnoses – for example:
 - Where dizziness is episodic and triggered, possible causes may include postural hypotension and BPPV.
 - Where dizziness is episodic and not triggered, causes include Ménière's disease or vestibular migraine.
 - Where dizziness is constant and has been present for many months, the diagnosis of persistent postural perceptual dizziness should be considered, although generally this diagnosis should be made in secondary care after further investigations have been considered (eg, imaging, vestibular function tests) if necessary.
 - Where dizziness is persistent and not triggered, consider acute vestibular syndrome (AVS). This is defined as the acute onset of persistent dizziness associated with nausea or vomiting, gait instability, nystagmus, and head-motion intolerance lasting hours to days. A common cause is vestibular neuritis (vertigo only) or labyrinthitis (vertigo plus hearing loss or tinnitus) but an important central cause is an acute posterior circulation ischaemic stroke, generally arising in the cerebellum or brainstem.

Symptoms

- Actions that provoke symptoms may include:
 - Change in posture (possible postural hypotension).
 - Movement of the head or neck.
 - Feeling anxious (may indicate hyperventilation).
- Associated symptoms may include:
 - Features suggestive of epilepsy, which need to be considered.
 - Falls: consider referring to a falls assessment service.
 - Tinnitus or hearing impairment: suggests a vestibular cause.
 - Olfactory hallucinations and amnesia, which may suggest a temporal lobe lesion.
- Consider medication.
- Determine the level of anxiety. It may be present without being the only cause, particularly in older people.
- Consider a possible cardiovascular cause; ask about smoking and any other risk factor for cardiovascular disease.
- Enquire about alcohol intake.
- Review past medical history.

Examination

The primary aim of the evaluation of a dizzy patient is the detection of any vestibular deficits.^[10] Careful examination is required in order to assess a possible underlying cause - for example:

- Cardiovascular (see also the separate [Cardiovascular History and Examination](#) article):
 - Blood pressure: assess while supine and measure again whilst the person has been standing for at least one minute, to assess any significant postural drop suggesting postural hypotension. If the systolic blood pressure falls by > 20 mmHg or the diastolic falls by > 10 mmHg when the person is standing: review medication and consider referral to specialist care (cardiology or dedicated autonomic unit) if symptoms of postural hypotension persist.
 - Pulse: assess rhythm and rate via palpation.
 - Cardiac murmur (eg, aortic stenosis would warrant prompt cardiology referral), carotid bruit.
- Eyes (see also the separate [Examination of the Eye](#) and [Nystagmus](#) articles):
 - Visual impairment.
 - Nystagmus.
- Ears - looking for infection, herpetic lesions, signs of cholesteatoma.
- Dix-Hallpike test (see the separate [Benign Paroxysmal Positional Vertigo](#) article for description of test). It is recommended that *all* elderly patients presenting with dizziness or vertigo should have this assessment, as older patients may not describe classical positional vertigo.

- Neurological (see also the separate [Abnormal Gait](#) and [Cerebellar Disorders](#) articles):
 - Features of cerebrovascular disease, peripheral neuropathy or Parkinsonism.
 - Examine gait and ask the patient to do heel to toe walking - if these are abnormal, test reflexes and tone in the lower extremities, and test plantar responses. If gait is unsteady, check for peripheral neuropathy.
 - Perform a Romberg's test. (Ask the person to shut their eyes whilst standing - be ready to support if need be.) A positive test may be suggestive of a problem with proprioception or vestibular function. It does not help to distinguish between central and peripheral causes.
 - Test co-ordination by asking the patient to put the opposite heel on the knee and to run the foot down and up the shin (assuming the patient is physically able to do this).
 - A three-component bedside oculomotor examination - HINTS (horizontal head impulse test, nystagmus and test of skew) - has been shown to identify stroke with high sensitivity and specificity in patients with AVS and rules out stroke more effectively than early diffusion-weighted MRI, when this protocol is performed by a trained neuro-otologist.^[11] In reality, this assessment is hard to accurately perform with precision, even in the emergency department. If a posterior circulation stroke is suspected from the symptoms alone, it is appropriate to transfer the patient to a hyperacute stroke unit for assessment. The HINTS examination differentiates between a central cause such as stroke, and a peripheral cause of AVS, and is described further below.

HINTS test for people with acute vestibular syndrome^[12]

- **Head Impulse** – the person sits upright and is asked to keep their gaze fixed on the examiner. Turn their head *very quickly* about 20° to one side and watch their eyes. Normal response (normal *peripheral* vestibular system, may suggest central pathology) = eyes remain fixed on the examiner. Abnormal response = if eyes are dragged off target by the turning action, and there is a correcting movement (saccade) as the eyes move back to the examiner. (The abnormal response is therefore reassuring as it suggests a peripheral cause not a central one.)
- **Nystagmus** – the person follows the examiner's finger moved across horizontally and then vertically:
 - Unidirectional horizontal nystagmus which enhances (stronger, increased velocity) when gazing in the direction of the nystagmus suggests a peripheral cause such as vestibular neuritis.
 - Vertical nystagmus, purely torsional nystagmus or nystagmus which changes direction with gaze is suggestive of a central cause. Centrally caused nystagmus can usually be suppressed by fixing the gaze.
- **Test of Skew** – ask the person to look straight ahead then cover each eye in turn then uncover it. Vertical deviation/correction after uncovering is suggestive of central pathology such as brainstem stroke.
- 'HINTS plus' refers to the HINTS examination 'plus' a bedside test of hearing, eg, the examiner rubs their fingers close to the patient's ears and asks if both are heard, to detect new onset hearing loss in the acute setting.

There are demonstrations available to view on line.^[13]

Diagnosing dizziness (investigations)

The most useful diagnostic approach in distinguishing different types of dizziness is a thorough history and physical examination and additional tests are rarely necessary.^[14]

However, if the diagnosis is still not obvious, then consider referral to secondary care. Initial investigations may include:

- Urinalysis: to exclude urinary tract infection.
- FBC: anaemia; mean cell volume (MCV) can be elevated with alcohol abuse.
- Renal function, blood glucose, electrolytes, LFTs, thyroid profile.
- ECG and ambulatory 24-hour ECG for possible arrhythmia.

Further investigations may include electroencephalography (EEG), CT or MRI brain scan, pure tone audiometry, vestibular function tests (eg, video head impulse testing, caloric testing, electronystagmography), further cardiology investigations (eg, echocardiogram) or others suggested by the presentation of each individual patient.

However, CT has poor sensitivity in acute stroke, and an MRI scan can miss up to one in five strokes in the posterior fossa in the first 24-48 hours.^[11] Diffusion weighted imaging (DWI) is a commonly performed MRI sequence for evaluation of acute ischaemic stroke, and is more sensitive for small, early and posterior infarcts.^[15] All those with abnormal neurological signs on examination need MRI scan. MRI scanning is also indicated for persistent vertigo, where less common causes such as tumours may be picked up.

Management of dizziness

Management depends on the underlying cause but, in general terms, management includes:

- Thorough discussion with the patient and explanation of the problem and any underlying cause.
- Immediate urgent referral to secondary care if a central cause of an acute vestibular syndrome is suspected.
- Evaluation and correction or amelioration of any associated medical problem.

- Vestibular suppressant medication for symptomatic relief of vertigo and any associated nausea or vomiting. Generally, these should be *avoided* if possible and only prescribed when the underlying cause of the dizziness or vertigo has been established. Great care should be given in prescribing, especially to the elderly, in view of potential sedative effects and possible increase in risk of falls. Options include anti-emetics, some of which have vestibulosuppressant effects, such as cinnarizine, cyclizine, prochlorperazine and hyoscine. In some cases buccal may be needed if there is significant vomiting.
- Vestibular rehabilitation; correction of remedial problems, specific exercises to reduce the sensitivity of the balance system or strengthen it, general exercises to improve overall strength and balance confidence, psychological assessment and realistic family, social and occupational goals.
- Psychological intervention - eg, [cognitive behavioural therapy](#).
- Surgery is rarely indicated but might be required for:
 - Life-threatening complications of chronic middle ear disease - eg, [intracranial abscess](#).
 - Neoplasms involving otological structures - eg, [acoustic neuroma](#).
 - Trauma to the middle or inner ear - eg, a perilymph fistula.

Further reading

- [Sandhu JS, Rea PA](#); Clinical examination and management of the dizzy patient. *Br J Hosp Med (Lond)*. 2016 Dec 2;77(12):692-698. doi: 10.12968/hmed.2016.77.12.692.
- [Kattah JC](#); Use of HINTS in the acute vestibular syndrome. An Overview. *Stroke Vasc Neurol*. 2018 Jun 23;3(4):190-196. doi: 10.1136/svn-2018-000160. eCollection 2018 Dec.

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Authored by:	Peer Reviewed by: Dr Krishna Vakharia, MRCGP	
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