



PRACTICE

10-MINUTE CONSULTATION

Acute vertigo

Diego Kaski *consultant neurologist*¹, Kiran Agarwal *general practitioner*², Louisa Murdin *consultant audiovestibular physician*³

¹National Hospital for Neurology and Neurosurgery, London, UK; ²Eastwick Park Medical Practice, Surrey, UK; ³Ear, Nose and Throat Department, Guy's and St Thomas' NHS Foundation Trust, Guy's Hospital, London, UK

What you need to know

- Benign paroxysmal positional vertigo (BPPV) can be quickly diagnosed within a consultation with the Dix-Hallpike manoeuvre. BPPV should be treated with a repositioning manoeuvre, not medication
- Postural restrictions after repositioning manoeuvres are no longer recommended
- Refer urgently as a suspected stroke if patients have associated neurological symptoms and signs or prolonged continuous vertigo and vascular risk factors

A 56 year old woman visits her general practitioner. She says she feels like her head is spinning. She has associated nausea but no vomiting. She is able to walk unaided but feels very unsteady.

Assessing a patient with vertigo is a diagnostic challenge for the clinician, particularly in the acute setting where symptoms can be extremely debilitating.¹ However, the most common cause of vertigo, benign paroxysmal positional vertigo (BPPV), can be diagnosed and often successfully treated within a consultation. This article describes how to briefly assess someone with acute vertigo, to identify the likely diagnosis and guide initial management.

What you should cover

Taking a history

If the patient describes dizziness, ask about the *quality* of the symptom: vertigo is a sensation of false movement of the world, or an internal sensation of movement, tilt, or spatial disorientation.² Clinical features of the causes of acute vertigo are described in the infographic (fig 1).

The severity and overwhelming nature of vertigo and anxiety that it provokes often make it hard to establish a clear picture of the patient's experience of vertigo. People with acute vertigo tend to experience anxiety owing to the physiological link between vestibular inputs and the autonomic nervous system and limbic structures, which create a fight or flight response.

High state anxiety levels are a negative predictor of long term clinical recovery following acute vertigo.¹

Vertigo can be of peripheral (inner ear, vestibular nerve), or central (brainstem, brain) origin (table 1). Brief (less than a minute) episodes of vertigo are more likely to have a peripheral cause, most commonly BPPV, particularly when triggered by head movements. However, head movements themselves can worsen vertigo of any cause.⁶ Similarly, the severity of the vertigo may not help differentiate central from peripheral causes of vertigo.

Focused examination

Assess gait and perform a neurological examination including a bedside assessment of hearing. A simple approach to examination is outlined in the infographic (fig 1).

We recommend considering performing the Dix-Hallpike manoeuvre in all patients presenting with vertigo, dizziness, falls, or imbalance. The Dix-Hallpike manoeuvre is a diagnostic positional manoeuvre that takes only one minute to perform (video, bmj.com). It is the only way to make a definitive diagnosis of BPPV, a very common, curable condition that may not always present with typical positional vertigo (especially in older adults).⁷ The estimated sensitivity range of 48-88% likely reflects the paroxysmal nature of the condition and possibly also variable expertise.⁸ A positive test is therefore considered sufficient for diagnosis of BPPV, but a negative test cannot rule out BPPV because of its paroxysmal nature. Although vertigo of any cause can be exacerbated by head movements and positional manoeuvres, BPPV is specifically and focally triggered by the Dix-Hallpike manoeuvre, with a characteristic pattern of symptom reproduction and physical findings (fig 1). In our opinion, positional manoeuvres should only be avoided where a neck vessel dissection is suspected or there is known severe cervical spine instability. There is no proven risk of harm from this assessment.⁹

Correspondence to L Murdin Louisa.Murdin@gstt.nhs.uk

This is part of a series of occasional articles on common problems in primary care. The *BMJ* welcomes contributions from GPs.

A HINTS (Head Impulse, direction-changing Nystagmus, and a Test of Skew) examination can be used to help identify posterior circulation stroke in patients with acute vertigo and one or more risk factors for stroke. Although it is highly sensitive and specific for identifying stroke when carried out by a neuro-otologist trained in eye movements in an acute hospital setting,¹⁰ its value in the primary care setting is uncertain.

What you should do

Assess whether urgent stroke assessment is required

Consider vertigo as a presentation of stroke in patients presenting with prolonged (>24 hours) continuous vertigo and at least one vascular risk factor (age >60, hypertension, diabetes, smoking, obesity).^{11 12} Associated central neurological symptoms or signs of stroke (which should be considered in all patients) are described in the infographic.

Epley manoeuvre and management of BPPV

The Epley manoeuvre is an effective treatment for patients with BPPV confirmed with a positive Dix-Hallpike manoeuvre. It is a five step treatment repositioning manoeuvre that clears the otolith crystals that cause BPPV (videos, bmj.com). Compared with no treatment, in specialist settings the Epley manoeuvre has an odds ratio of 5.1 (95% confidence interval 2.3 to 11.4) for conversion of a positive to negative Dix-Hallpike test.² A recent multicentre randomised controlled trial in primary care found reduced vertigo in patients with baseline nystagmus in the Dix-Hallpike test that was maintained throughout follow-up for up to one year.¹³

Patients who have been successfully treated for BPPV should have a full resolution of symptoms after 24-48 hours. Postprocedural postural restrictions such as wearing a soft collar or sleeping in the upright posture after a repositioning manoeuvre are no longer recommended.¹⁴ Those with persistent recurrent episodes may require a further repositioning manoeuvre.

Medication has no role in the treatment of BPPV.¹⁴ We do not routinely recommend Brandt-Daroff exercises. These involve repeated side lying movements, and are substantially less effective than a single repositioning treatment manoeuvre for BPPV.¹⁵

Other causes of vertigo

If stroke and BPPV have been excluded, the main differential diagnosis is between vestibular neuritis (often termed viral labyrinthitis) and vestibular migraine. In acute vestibular neuritis there may be horizontal unidirectional nystagmus. This means that the fast phase of the nystagmus will always beat in one direction, irrespective of the eye position or direction of gaze. We recommend that patients with vestibular neuritis take antiemetics to treat nausea or vomiting in the short term only. Encourage rest until the vomiting has settled, then as much movement as possible to facilitate central compensation and recovery.

Vestibular migraine may have migrainous features, including photophobia, phonophobia, and a dislike of movement (self and external).¹⁰ Episodes can last for minutes to days. The patient may also have a history of migraine headaches or a family history of migraine. Patients with vestibular migraine will typically have no nystagmus, and a normal head impulse test.¹⁶ Suspect Meniere's disease if there is a history of profound

vertigo episodes lasting less than an hour associated with unilateral auditory symptoms (hearing loss, tinnitus, aural fullness). Patients with suspected Meniere's disease should be referred to an ENT service as they are likely to require further investigation to rule out other causes of unilateral auditory symptoms and they may require specialist treatment such as intratympanic injections.

Antiemetics such as prochlorperazine, cyclizine, and cinnarizine can help reduce nausea and vomiting associated with vertigo of any cause, but usually do not resolve the vertigo itself. No high quality evidence supports use of betahistine for vertigo.¹⁷ Drivers who suffer from dizziness that is sudden and disabling must inform the Driver and Vehicle Licensing Agency.¹⁸

Education into practice

- BPPV is more common than many people think. How confident do you feel performing a Dix-Hallpike manoeuvre?
- The sensitivity of the Dix-Hallpike manoeuvre depends partly on the level of expertise and training in performing and interpreting this test. How could you develop an acute vertigo protocol in your clinic, where patients with acute vertigo are triaged to see a clinician trained in vertigo assessment and positional manoeuvres?
- For how long do you recommend patients with acute vertigo take antiemetics?

How patients were involved in the creation of this article

Patients were consulted about their experience of seeking medical help following episodes of acute vertigo. They reported frustration about the lack of a confident early diagnosis. Many patients reported feeling that their symptoms were dismissed or deemed insignificant. We therefore focused this article on an initial diagnostic approach and stressed the impact that vertigo can have on patients. We also highlighted the importance of recognising anxiety as an accompanying feature of vertigo, rather than as a cause of it.

How this article was created

We reviewed articles referred to within guidance and conducted a PubMed search of papers published after 2005 using the search terms "acute vertigo", "acute dizziness", "acute vestibular syndrome", and "vestibular stroke". We searched the Barany Society classification of vestibular disorders and searched for Cochrane reviews of "vestibular migraine." We added our personal archives of references to obtain a generalised overview of acute vertigo in relation to its diagnosis. For more specific elements, such as the application of the HINTS oculomotor assessment in acute vestibular syndrome, we performed specific PubMed searches in order to obtain more recent and relevant references.

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Table

Table 1 | Common causes of vertigo and key diagnostic features

Condition	Aetiology	Incidence	Clinical features	Management
Peripheral-inner ear				
BPPV	Loose otolithic debris often from minor trauma	107 per 100 000 population/year	Brief episodic positional dizziness only triggered by bending over, looking up, turning over in bed	Epley or Semont manoeuvre
Vestibular neuritis (sometimes termed viral labyrinthitis)	Presumed viral	3.5 per 100 000 population/year	Single attack of abrupt onset continuous spinning vertigo, nausea, and imbalance. Spontaneous nystagmus with the fast phase beating away from the side of the lesion, and abnormal head impulse test when the head is turned towards the affected side. Clinical diagnosis based on positive clinical signs with the absence of red flags for other neurological involvement ³	1-3 days of antiemetics, reassurance, and encouraging mobility
Meniere's disease	Presumed immune-mediated endolymphatic hydrops	10 to 150 per 100 000 population (point prevalence)	Episodic vertigo and imbalance with hearing loss, aural fullness, and tinnitus. There is typically fluctuating low frequency sensorineural hearing loss when measured on serial audiograms. Not diagnosed on first attack and is a specialist diagnosis ⁴	Despite limited evidence, betahistine 8 mg three times a day, and salt restriction often tried. If attacks are frequent, referral to ear, nose, and throat for consideration of intratympanic steroid injections
Central				
Vestibular migraine	Unknown	Unknown (estimated to be higher than BPPV, ⁵ Lifetime prevalence 1%)	Episodic vertigo (spinning, rocking, swaying) lasting seconds to days, associated with migrainous symptoms (eg, headache, photophobia, phonophobia, nausea) or a personal history of migraine headaches	Prochlorperazine as needed for attacks associated with vomiting or nausea. Consideration of migraine preventives if attacks are frequent (eg, propranolol, amitriptyline, topiramate)
Posterior circulation stroke	Vascular occlusion/haemorrhage	18 per 100 000 population	Acute prolonged vertigo associated with neurological features (headache, hearing loss, facial paraesthesia, Horner's syndrome, diplopia)	Referral to stroke, consideration of thrombolysis or thrombectomy
Cerebello-pontine angle tumour	Neoplastic	0.6 per 100 000 population	Progressive unilateral hearing loss; may have associated facial numbness or weakness and loss of corneal reflex.	Referral to neurosurgery for consideration of resection

Figure

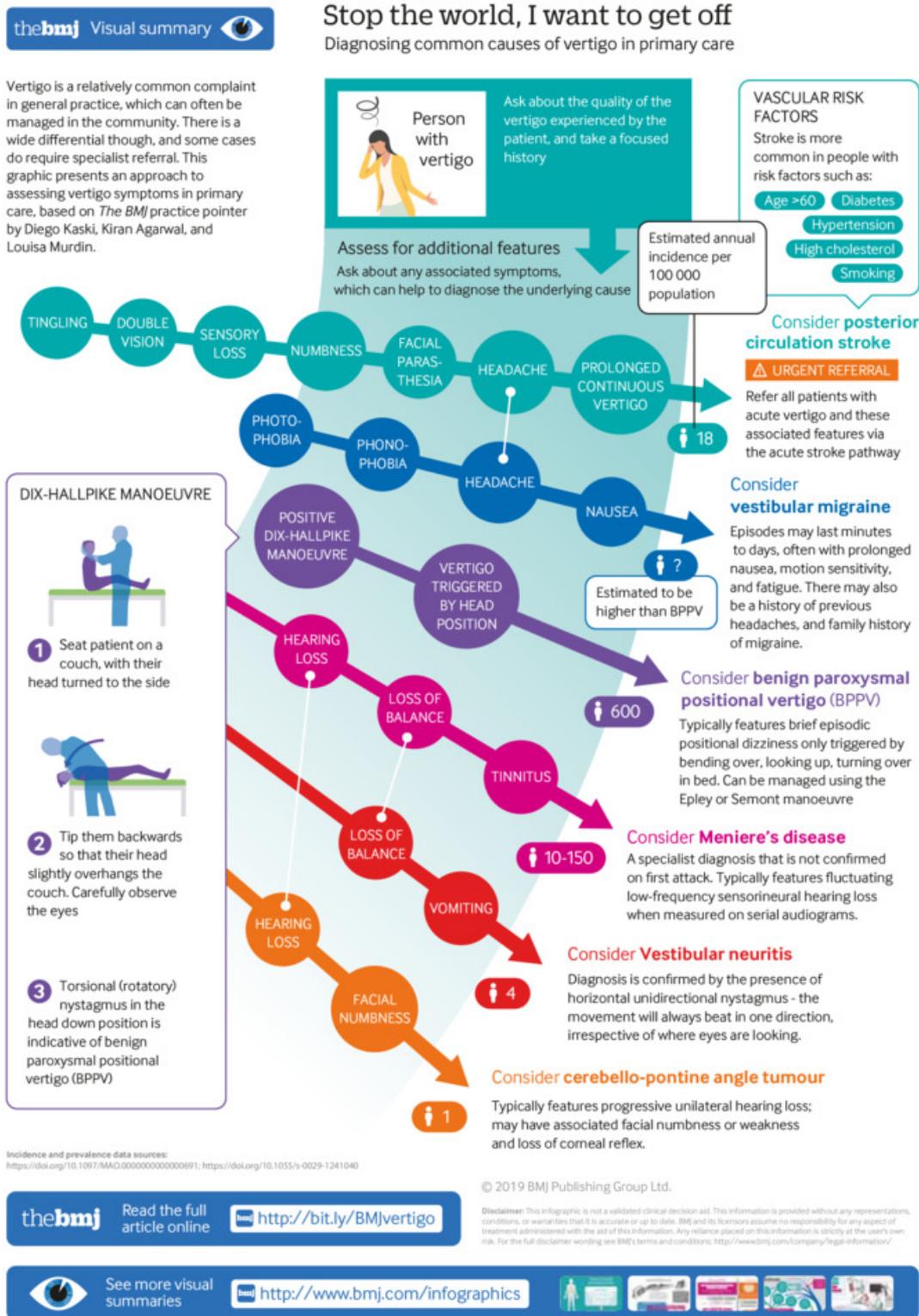


Fig 1 Diagnosing common causes of vertigo in primary care

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