Dizzy Dilemmas in Older People

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Main messages

• Dizziness is common
• Older people often have more than one type of dizziness
• In vertigo, pattern recognition followed by proper examination (including eye movements) is key
• In older people dizziness has serious consequences eg falls, fractures and loss of independence – a holistic approach is required
• Dizziness is treatable!
How common is dizziness in older people?

Marsingh et al. Dizziness reported by elderly patients in family practice: prevalence, incidence, and clinical characteristics. *BMC Family Practice* 2010; 11:2
## Facts n figures 1

<table>
<thead>
<tr>
<th>Causes of acute and recurrent vertigo</th>
<th>% of all vertigo in primary care</th>
<th>% of all vertigo in specialist clinics</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPPV (common)</td>
<td>40%</td>
<td>10-27%</td>
</tr>
<tr>
<td>Vestibular neuritis (common)</td>
<td>40%</td>
<td>10-44%</td>
</tr>
<tr>
<td>Migraine (probably common)</td>
<td>14%</td>
<td>7-10%</td>
</tr>
<tr>
<td>Meniere’s (uncommon)</td>
<td>Debatable</td>
<td>3-11%</td>
</tr>
<tr>
<td>Stroke (uncommon)</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Cerebello-pontine tumours (rare)</td>
<td>Not available</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

## Facts n figures 2

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>% of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPPV</td>
<td>31</td>
</tr>
<tr>
<td>Vestibular neuritis</td>
<td>28</td>
</tr>
<tr>
<td>Migrainous vertigo</td>
<td>12</td>
</tr>
<tr>
<td>Anxiety</td>
<td>11</td>
</tr>
<tr>
<td>Stroke</td>
<td>4</td>
</tr>
<tr>
<td>Pre-syncope</td>
<td>4</td>
</tr>
</tbody>
</table>

Simplified dizzy tree

**Lightheaded**
- Postural
  1. OH

**Vertigo**
- Unrelated to posture
  1. Cardiac
  2. Anxiety or stress

**Disequilibrium**
- 1 Uncompensated vestibular disorder
- 2 BPPV
- 3 MFDE
- 4 Neurological disorders

**Single attack of prolonged vertigo**
- 1 Vestibular neuritis
- 2 Stroke

**Recurrent attacks**
- 1 BPPV
- 2 Migraine
- 3 Meniere’s
Mini-tutorial: eye movements in vertigo

Standard neurological and ENT examination is often negative in dizzy patients
Examination of eye movements: look for

1. Primary gaze / spontaneous nystagmus
   – Ask patient to fix gaze on a clearly visible object ahead

2. Gaze-evoked nystagmus
   – Take a fixation target (eg your pen) 30 degrees to the right, left, up and down, at an average fixation distance of 30cm*

3. Pursuit
   – Repeat the above and look for jerky eye movements. Saccadic (jerky) pursuit indicates a central lesion but is a normal finding in old age

4. A normal or abnormal head-thrust test
   – Ask patient to fix gaze on your nose, or an object just behind you, and keep their eyes on the target while you move their head briskly 30 degrees to the right, then left

5. Positional nystagmus
   – Observe for any ___what type___ of nystagmus during a Hallpike Manoeuvre
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Vertigo

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Vestibular neuritis or ‘neuronitis’
(a.k.a. acute unilateral peripheral vestibulopathy)

History
- Acute onset, often on waking
- 25% experience a gradual onset over several hours and some experience ‘warnings’ a day or two before
- Oscillopsia, n&v, veering to one side, head movement makes things worse
- No focal neurological symptoms at any time
- 50% patients have a preceding respiratory tract infection

Examination
Signs of acute unilateral vestibular failure and nothing else:
1. Veering towards the affected side
2. Spontaneous horizontal nystagmus (with a torsional component) away from the affected side
3. Abnormal head thrust test on the affected side
Resolution of eye signs in acute vestibular neuritis

Acute stage

Sub-acute stage

 Arrow
Single attack of prolonged vertigo: red flags

• Focal neurological symptoms or signs at any time
• Abnormal eye movements not consistent with acute unilateral vestibular failure
• Acute hearing loss
• Headache
What would you do in this situation?

A previously independent 80 year old lady presented to ED with acute onset vertigo and unsteadiness that morning. There were no other symptoms at any time.

Her past medical history included hypertension, type 2 diabetes and a previous myocardial infarction.

She could no longer mobilise independently.

The standard neurological examination was normal. Examination of her eye movements showed horizontal nystagmus on looking to the left and right, saccadic pursuit, a normal head thrust test and a negative Hallpike Manoeuvre on both sides.

Her CT head was normal.
<table>
<thead>
<tr>
<th>Site of infarct</th>
<th>Nystagmus</th>
<th>Other findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial AICA (labyrinth)</td>
<td>Identical to vestibular neuritis (ie horizontal-torsional towards healthy side)</td>
<td>Abnormal head thrust test but profound <strong>hearing loss</strong></td>
</tr>
<tr>
<td>Complete AICA</td>
<td>As above plus gaze-evoked nystagmus towards lesion</td>
<td>As above plus Horner’s, facial paralysis, saccadic pursuit, ipsilaterial limb ataxia</td>
</tr>
<tr>
<td>One vestibular nucleus</td>
<td>Purely torsional towards healthy side</td>
<td>Skew deviation (‘a stable squint’), saccadic pursuit</td>
</tr>
<tr>
<td>Brainstem at the root entry of the vestibular nerve</td>
<td>Identical to vestibular neuritis</td>
<td>Hearing symptoms, hemi-ataxia, Horner’s</td>
</tr>
<tr>
<td>PICA</td>
<td>Identical to vestibular neuritis plus gaze-evoked nystagmus towards lesion</td>
<td>Wallenberg’s syndrome</td>
</tr>
<tr>
<td>Cerebellar</td>
<td>Gaze-evoked nystagmus</td>
<td>Limb and/or truncal ataxia</td>
</tr>
</tbody>
</table>
The key question is whether the vertigo is peripheral (inner ear) or central (brain) in origin.

A patient with clear brainstem or limb symptoms (at any time), any red flags, or abnormal eye movements *apart from a peripheral vestibular nystagmus* has a central disorder until proven otherwise.
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Benign Paroxysmal Positional Vertigo

• Affects almost 1:10 older people, women twice as much as men

• A range of symptoms:
  – Brief vertigo with certain head movements
  – Disequilibrium: ‘My balance is wrong.’
  – More prolonged dizziness can occur

• A range of consequences:
  – Falls, fractures
  – Loss of independence

• Very treatable!
Migrainous vertigo
(a.k.a. vestibular migraine)

...not the same as basilar migraine

Proposed criteria for migrainous vertigo:
A. Episodic vestibular symptoms
B. Migraine according to the IHS criteria
C. At least one of the following migrainous symptoms during at least two vertigo attacks:
   – Migrainous headache
   – Photophobia
   – Phonophobia
   – Visual or other auras
D. Other causes ruled out by appropriate investigations

Proposed criteria for probable migrainous vertigo:
A. Episodic vestibular symptoms of at least moderate severity
B. At least one of the following:
   – Migraine according to the IHS criteria
   – Migrainous symptoms during vertigo
   – Migraine-specific triggers of vertigo
   – Response to anti-migraine drugs
C. Other causes ruled out by appropriate investigations
Meniere’s Disease
(a.k.a. idiopathic endolymphatic hydrops)

Clinical features
- Prevalence 0.2-2 per 1000 people cf migrainous vertigo 10 per 1000 people
- Recurrent attacks of vertigo with cochlear symptoms
- Fluctuating then progressive hearing loss
- Becomes bilateral in 40% of cases
- 40% also have BPPV

Investigations and treatment
- Vestibular suppressants for acute attacks
- Low salt diet, bendroflumethiazide, surgical options, ?regular betahistine
- Refer ENT
- Driving advice
- [www.tinnitus.org.uk](http://www.tinnitus.org.uk)
Other causes of recurrent attacks of vertigo

<table>
<thead>
<tr>
<th>Symptom</th>
<th>No of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual (diplopia, field defects)</td>
<td>29</td>
</tr>
<tr>
<td>Drop attacks</td>
<td>14</td>
</tr>
<tr>
<td>Unsteadiness, inco-ordination</td>
<td>9</td>
</tr>
<tr>
<td>Extremity weakness</td>
<td>9</td>
</tr>
<tr>
<td>Confusion</td>
<td>7</td>
</tr>
<tr>
<td>Headache</td>
<td>6</td>
</tr>
<tr>
<td>Hearing loss</td>
<td>6</td>
</tr>
<tr>
<td>Loss of consciousness*</td>
<td>4</td>
</tr>
<tr>
<td>Extremity numbness</td>
<td>4</td>
</tr>
<tr>
<td>Dysarthria</td>
<td>4</td>
</tr>
<tr>
<td>Tinnitus</td>
<td>4</td>
</tr>
<tr>
<td>Peri-oral numbness</td>
<td>2</td>
</tr>
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</table>

In theory, a single posterior circulation TIA might present with vertigo alone, but do not diagnose TIAs in cases of recurrent attacks of vertigo alone.

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How to take a history in dizziness

1. Tell me all about your dizziness ...
2. ‘Do you feel lightheaded, or are things moving as if you have just stepped off a roundabout?’
3. Symptoms associated with the dizziness?
   – Neurological
   – Migraine
   – Hearing/ears
4. Past medical history
5. Medication list
6. In recurrent dizziness: any triggers and whether completely back to normal between attacks
How to examine a patient with dizziness

• Lying and standing BP, pulse
• Watch the patient walk
• Neurological examination including cranial nerves
• Document eye movements!!
  – Spontaneous nystagmus
  – Gaze-evoked nystagmus
  – Pursuit
  – Head-thrust test
  – Positional nystagmus
• Depending on the history, an audiological examination may be required
Achieving excellence in diagnosis and management

• Lack of expertise in vestibular diagnosis and management has led to the widely held medical view that ‘dizziness’ is a difficult symptom to diagnose and treat.

• Modern care for hearing and balance disorders requires a whole system approach, in which the ‘ear problem’ is not considered in isolation, but as part of the patient’s overall health.

• Recommendations on training and referral to a specialist.
Further reading


Questions?
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