Practice Tips

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Treating vertigo in the office

Particle repositioning maneuver

Vertigo is a common complaint that has traditionally been a management challenge for family physicians. The prevalence of vertigo and benign paroxysmal positional vertigo (BPPV) increases with age,[1] and the limitation imposed by dizziness puts older patients at risk of functional decline, falls, and depression.

Benign paroxysmal positional vertigo is one of the most common causes of vertigo of peripheral origin.[2] Working with the Regional Geriatric Program at St Mary's of the Lake Hospital in Kingston, Ont, I have had experience with several elderly patients who suffered from vertigo due to BPPV for periods ranging from months to several years. All patients were severely compromised as a result of their dizziness. Consultation with the Vestibular Rehabilitation Program[3] at our hospital introduced me to the particle repositioning maneuver, which allowed these patients to return to normal living.

Before describing the procedure, it is helpful to review the etiology of BPPV. The vertigo and nystagmus of BPPV are produced by gravity-induced alteration of endolymphatic pressure resulting in deflection of the cupola of the posterior semicircular canal. We now think that debris accumulates in the posterior semicircular canal, indirectly affecting sensory firing from the cupola when patients move their heads.[4] Patients with BPPV commonly report vertigo or, sometimes, nonspecific dizziness when lying down or turning over in bed and sometimes when extending their necks ("top-shelf vertigo").

The Dix-Hallpike maneuver (also known as the Hallpike maneuver) is familiar to most family physicians and is helpful in assessing vertigo and BPPV.[5] **Tables 1** and **2** review the procedure and offer some tips for interpretation. If a patient complains of vertigo, and especially if the Dix-Hallpike maneuver is suggestive of BPPV, one of several particle repositioning maneuvers should be considered.[6,7] These procedures have a cited success rate of 60% to 80%[6-9] with a low recurrence rate (5% to 15%).[6]

Table 1. The Dix-Hallpike maneuver[5]

To diagnose benign paroxysmal positional vertigo, try turning the head 45° on both the right and left side to determine which ear is affected
Patient should be seated on examining table so that the head can be lowered below the level of the table
Move patient rapidly to supine position with the head turned 45° to affected side
Head should be lowered so that the affected ear is 30° to 45° below horizontal with the chin pointing slightly up
Note the presence, latency, duration, and direction of nystagmus
Sit patient back up
Repeat with head turned to opposite side

Procedure

Figure 1 illustrates the maneuver used in the vestibular rehabilitation program[7] at St Mary's of the Lake Hospital. It can be done in the office in less than 10 minutes.

The maneuver should be explained to patients,

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Table 2. Dix-Hallpike maneuver findings in patients with benign paroxysmal positional vertigo[10]

A positive Dix-Hallpike maneuver result is visible nystagmus and vertigo lasting up to 30 seconds
Onset of vertigo and nystagmus should have a latency of 1 to 2 seconds (compared with the immediate onset with central causes)
Peripheral causes usually provoke more severe vertigo than central causes, sometimes with associated nausea and vomiting
Symptoms last 10 to 30 seconds
The Dix-Hallpike maneuver usually provokes mixed torsional and vertical nystagmus with the upper pole of the eyes moving toward the affected ear and vertically beating toward the forehead (nystagmus might not be fixed when the cause is central)
Vertigo and nystagmus diminish with repeated maneuvers when benign paroxysmal positional vertigo is the cause, but frequently persist with central causes
No other associated neurologic or gait findings should be present

and they should be told to expect to experience vertigo, but only briefly. Antiemetics are not routinely used before the maneuver because nausea is usually very short-lived or absent. Physical therapists working in the Vestibular Rehabilitation Program report that patients rarely vomit during the procedure. Patients should attempt to keep their eyes open during position changes. The maneuver is done as follows.

- Patient sits on examining table in position similar to that used for the Dix-Hallpike maneuver.
- Lower patient back (supporting head and neck), as in the Dix-Hallpike maneuver, with the neck extended and the head turned 45° toward the affected side so that the ear that precipitates vertigo is downward.
- Maintain position for 2 minutes.
- Rotate head to a 45° angle on the opposite side so that unaffected ear is facing down.
- In one continuous motion, roll patient onto his or her side so that the affected ear is pointing up and the face is pointing to the floor (head has maintained same orientation to body as patient is rolled onto side).
- Maintain this position for 2 minutes.
- Sit patient up with head held in same position, then turn head to face forward with chin angled down 20° and hold for 2 minutes.
- It might help to repeat twice or more if symptoms are not extinguished.
- Remind patient of instructions to:
  - sleep with head elevated at 45° for 2 nights,
  - avoid positions that provoke vertigo for 48 hours, and
  - after 48 hours, test positions that usually provoke vertigo.

Discussion

The maneuver is safe and well tolerated, especially if patients are well prepared. Caution should be exercised with older patients with severe osteoarthritis of the neck because the positioning could cause discomfort.

The maneuver should not be done when patients have unstable cardiac conditions or severe carotid stenosis. Very rarely, patients develop vertigo when their heads are in positions other than the presenting ones if particles migrate into the horizontal or anterior canals.[10,11] Repeating the particle repositioning maneuver will not help if this occurs. If the initial attempt is not successful, the maneuver should be repeated. If the repeat maneuver is unsuccessful or if features noted on history or during the Dix-Hallpike maneuver are suggestive of a central cause, referral to ear, nose, and throat specialists, to neurologists, or for neuroimaging should be considered.

References

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Figure 1. Four positions of the particle repositioning maneuver for the right ear: *A) Patient seated, B) Patient with head turned 45° for 1 to 2 minutes, C) Head rotated to opposite side before moving to final position, D) Patient rolls in one continuous movement and remains in this position for 2 minutes before sitting up.*