Let’s Not Go for a Spin: Common Causes and Treatment for Vertigo

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Presentation Overview

- What is Dizziness?
- Introduction to Benign Paroxysmal Positional Vertigo (BPPV)
- Inner Ear Functional Anatomy
- Types of BPPV
- Examination and Treatment for BPPV
- Brief review of other causes of vertigo
What Does “Dizziness” Mean to You?

Definitions:

• Dizziness: The sensation of disturbed or impaired spatial orientation without a false or distorted sense of motion
  • Not:
    • Vertigo
    • Unsteadiness
    • Syncope

(Newman-Toker, DE; Edlow, JA 2015)
What Does “Dizziness” Mean to You?

Definitions:

• Vertigo: The sensation of self-motion (of head/body) when no self-motion is occurring
  • Or the sensation of distorted self-motion during an otherwise normal head movement

• Unsteadiness: The feeling of being unstable while seated, standing, or walking without a particular directional preference
  • Previously called disequilibrium or imbalance

(Newman-Toker, DE; Edlow, JA 2015)
What Does “Dizziness” Mean to You?

Definitions:
• Presyncope: The sensation of impending loss of consciousness
  • This sensation may or may not be followed by syncope
• Syncope: Transient loss of consciousness due to transient global cerebral hypoperfusion characterized by rapid onset, short duration, and spontaneous complete recovery
  • Syncope usually leads to loss of postural control and falling

(Newman-Toker, DE; Edlow, JA 2015)
Benign Paroxysmal Positional Vertigo (BPPV)

- Most common cause of vertigo
- Most common vestibular disorder
- Peak onset between 50-60 years of age
- At 80 years of age, cumulative prevalence is almost 10%
- In idiopathic cases, women outnumber men ≈ 2:1
- Rarely seen in children

(Kim & Zee, 2014; von Brevern, 2013)
BPPV: Typical Clinical Presentation

- Brief attacks of vertigo, lasting 10 to 60 seconds
- Provoked by head movements
  - Turning over in bed
  - Lying down
  - Tilting head up
  - Tilting head down (bending forward)

(von Brevern, 2013)
Inner Ear Functional Anatomy

(Eggers & Zee 2002)
BPPV: Types

- Canalithiasis
  - Otolithic debris are dislodged from utricle and fall into semicircular canal

- Cupulolithiasis
  - Otolithic debris adhere to cupula

(Parnes 2003)
Semicircular Canal Orientation

(Parnes 2003)
Inner Ear Functional Anatomy
Testing for BPPV: The Dix-Hallpike Maneuver

• Test for semicircular canal involvement
  • Posterior
  • Anterior

• To Perform:
  • In long sitting position:
    • Rotate neck 45 degrees
    • Extend neck 20 degrees

(Furman & Cass *NEJM*, 1999)
Testing for BPPV: The Dix-Hallpike Maneuver

• To Perform (continued):
  • Maintain neck position
  • Quickly move patient from upright to supine position
  • Maintain position for at least 30 seconds

• Positive Test (Posterior Semicircular Canal):
  • Up-beating, torsional nystagmus toward affected ear

(Furman & Cass *NEJM*, 1999)
Testing for BPPV: The Dix-Hallpike Maneuver

(Furman & Cass NEJM, 1999)
BPPV Treatment:
The Epley Canalith Repositioning Procedure (CRP)

(Furman & Cass NEJM, 1999)
BPPV Case Study

47-Year-Old Female:

- Chief Complaint: “About a month ago, I got dizzy when I got into bed at night.”
  - Dizzy = “Spinning”
  - “Now, it is not nearly as severe. But it still happens when I lie down and roll.”
- Denies aural symptoms with vertigo
- History of migraine headaches
BPPV Treatment Efficacy: The Epley Canalith Repositioning Procedure (CRP)

• Cochrane Review
  • Safe, effective treatment for posterior canal BPPV
  • Most studies report a positive response to treatment in about 80-90% of cases.
  • High recurrence rate of BPPV after treatment
  • No serious adverse effects of treatment
  • Some patients unable to tolerate due to cervical spine problems
  • Rates of nausea varied from 16.7% to 32%

(Hilton & Pinder 2014)
Testing for BPPV: Supine Roll Test (Pagnini-McClure Maneuver)

• Test for horizontal semicircular canals

• To Perform:
  • Patient supine with cervical spine flexed 30 degrees
  • Quickly rotate head 90 degrees to one side
  • Maintain position for at least 30 seconds
  • Return head to center
  • Quickly rotate head 90 degrees to the other side

(Fife 2012)
Horizontal Semicircular Canalithiasis Treatment: The Lempert (BBQ) Roll Maneuver

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(Fife 2012)
What About Self Treatment at Home?

Potential Problems

Timothy C. Hain, MD:

- If BPPV has not been confirmed, one may be attempting to treat another condition (such as a brain tumor or stroke) with positional exercises
  - May delay proper treatment.
- Most maneuvers require knowledge of the affected side.
  - Sometimes this can be difficult to establish.

What About Self Treatment at Home?

Potential Problems

Timothy C. Hain, MD:

• Complications such as conversion to another canal, or severe vomiting can occur during the Epley maneuver, which are better handled in a doctor's office than at home.

• Occasionally during the Epley maneuver neurological symptoms are provoked due to compression of the vertebral arteries.

• Safer to have the first Epley performed where appropriate action can be taken.

([link](http://www.dizziness-and-balance.com/disorders/bppv/home/home-pc.html))
When “Dizziness” Is Not BPPV

- Meniere’s disease
- Vestibular neuritis
- Migraine headache
  - Vestibular migraine
- Orthostatic hypotension
- Vertebrobasilar ischemia
- Stroke
- Brain tumor
- Cardiac disease
- Anxiety or panic disorders

(Muncie, Sirman & James 2017)
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The University Balance and Mobility Clinic

Patient Populations Treated/Services Offered

- Vestibular Rehabilitation
  - BPPV (Treatment within 1-2 working days of referral)
  - Vestibular hypofunction
- Balance and Mobility Training
  - Neurologic: Parkinson’s Disease, Post Stroke, Multiple Sclerosis
  - Older adults
- Pelvic Floor Muscle Training
  - Stress Urinary Incontinence
  - Overactive bladder
    - Urgency Urinary Incontinence