

Incidence, History and Differential Diagnosis of BPPV

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Case

60 year old woman presents with dizziness. She describes sudden-onset room-spinning vertigo when rolling over in the morning to turn off her alarm clock. It lasts about 30 seconds at a time and she experiences nausea with it. She usually feels off-balance the rest of the day following an episode and is afraid to lie flat now; she has switched her alarm clock to the other side of the bed for fear of provoking an attack.

Exam—see video

Dix-Hallpike positioning shows upbeating, torsional nystagmus with left ear down that fatigues. After Epley maneuvering twice, she is symptom-free.

Incidence

- BPPV is the most frequent vestibular disorder: its cumulative incidence in the general population amounts during lifetime to 10% (1). Recurrence occurs in 50% of patients (2).

History

- BPPV was first described by Bárány in 1921, noting brief duration, positional association and concluding BPPV an otolithic disorder. In 1952, Dix and Hallpike performed the provocative positional testing named in their honor and still used today for diagnosis. They further defined nystagmus characteristic to BPPV and went on to localize the pathology to the proper ear during the maneuver. Brandt and Daroff first introduced simple exercises for treatment of BPPV in 1980, followed by Semont's liberatory maneuver in 1988 and Epley's canalith repositioning maneuver in 1992. Finally in 2015, the consensus document of the Committee for the Classification of Vestibular Disorders of the Bárány Society describing diagnostic criteria for BPPV is published.

Importance

- BPPV is disabling and creates many downstream effects. Initial insult of vertigo is incapacitating and prevents those afflicted from performing daily activities. BPPV inflicts a considerable personal and socio-economic burden due to disabling qualities (3). With anticipation of recurrence and unpredictability of onset in some cases, many patients are rendered anxious and apprehensive to normal activities in fear of triggering another disabling event. As their anxiety grows, inappropriate compensatory mechanisms are employed and result in myriad comorbidities such as neck strain, cervicogenic headache, migraine exacerbation and chronic subjective dizziness.

Under-treatment

- BPPV is highly under-treated and inadequately assessed. In a study by Kerber et al in 2013, adult patients discharged from the ED with dizziness, vertigo, or imbalance documented at triage were studied (4). Of 3,522 visits identified, Dix-Hallpike testing was performed on only 137 (3.9%) and canalith repositioning maneuver was performed on only 8 of those (0.2%). Although difficult to extrapolate how many patients precisely had BPPV within this cohort, based on population data by von Brevern et al (2007), it is feasible that hundreds of cases were not only missed, but inappropriately exposed to harmful and unnecessary testing (1).

Diagnostic criteria

- From the consensus document of the Committee for the Classification of Vestibular Disorders of the Bárány Society (5), diagnostic criteria for BPPV are described.
- BPPV has been previously labeled as benign positional vertigo, paroxysmal positional vertigo, vestibular lithiasis, but is commonly accepted now as benign paroxysmal positional vertigo (BPPV). Although arguments have been made for labeling BPPV as positioning instead of positional as it is the act of head movement, not maintenance in a specific position, that triggers vertigo, due to convention and widespread use, positional is the accepted term by Bárány society.

Criteria for canalolithiasis of the posterior canal (5)

- A. Recurrent attacks of positional vertigo or positional dizziness provoked by lying down or turning over in the supine position
- B. Duration of attacks <1 minute
- C. Positional nystagmus elicited after a latency of one or few seconds by the Dix-Hallpike maneuver or side-lying maneuver (Semont diagnostic maneuver). The nystagmus is a combination of torsional nystagmus with the upper pole of the eyes beating toward the lower ear combined with vertical nystagmus beating upward (toward the forehead) typically lasting <1 minute
- D. Not attributable to another disorder

Important caveats to diagnostic criteria from ICVD (5)

- Prolonged, mild unsteadiness is common in BPPV. Positional dizziness, instead of vertigo, is described in some BPPV patients. Vertigo can be described as external or internal and is commonly associated with vegetative symptoms. Positional vertigo symptomatology can overlap with orthostatic dizziness and thus should be ruled out effectively. The nystagmus of BPPV can have a latency of up to 40 seconds in rare cases and should fatigue spontaneously within 40 seconds in most cases. Typically, positional nystagmus increases rapidly in intensity and then declines more slowly. Positional nystagmus disappearing directly after repositioning maneuver is supportive of the diagnosis, but persistence does not necessarily exclude BPPV.

Differential diagnosis of BPPV

- Vestibular Migraine
- Meniere's Disease
- Labyrinthine Concussion
- Alcohol Intoxication
- Labyrinthitis
- Central positional nystagmus due to space occupying lesion i.e. vestibular schwannoma
- Vertebral artery insufficiency
- Orthostatic hypotension

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