APPROACH TO THE HISTORY AND EXAMINATION IN DIZZINESS

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Dizziness is the quintessential symptom presentation in all of clinical medicine. It is common and the potential causes are vast, ranging from self-limited transient disorders to severe and life-threatening conditions. Factors that discriminate among these disorders can be subtle. Many different components can be used when considering the potential causes and deciding about tests and treatments. In this presentation, the common elements used in the bedside evaluation of dizziness are presented and their pros and cons are discussed.

The common components used in the data collection phase are presented in Table 1. Despite physician reliance on the history and physical elements in decision-making, rigorous studies of these elements are rare. Rigorous studies require systematic data and outcome collection, independence of elements in provider assessments, blinding to outcome determination, long-term follow-up, and measures of item reliability (inter-, and intra-observer agreement).[1]

The traditional teaching is to use the type of symptom (e.g., vertigo, lightheadedness, imbalance) as the first branch point in making decisions about likely causes, evaluation, and treatment. This is a limited approach however, because most patients report more than 1 type of dizziness, symptom types overlap among the various causes, patients are frequently vague in their descriptions of dizziness, and frequently are not reliable in selecting their type of dizziness.[2-4] Patient with common peripheral vestibular disorders often times do not report vertigo, whereas as patients with cardiac or psychiatric disorders often times do.

The examination of the vestibular system is often underused or misinterpreted.[5, 6] Providers who report negative experiences with the Dix-Hallpike test and canalith repositioning maneuver typically rely on HPI elements when asked how they discriminate between vestibular neuritis and BPPV, and also report incorrectly that uni-directional spontaneous nystagmus indicates of BPPV.[7] This suggests that providers need an improved understanding of the vestibular system examination so that they can appropriately emphasize the critical elements.

Table 1. History of Present Illness and Examination Components

COMPONENT	**OTHER INFORMATION**
History of Present Illness	
Type of Symptom (e.g., vertigo, lightheadedness, imbalance)	Pros: At times, the type of symptom strongly suggests localization or a cause. Spinning somewhat more associated with peripheral vestibular disorders in an ENT clinic.[8] Cons: Patients with vertigo do not have lower odds of stroke among ED dizziness patients.[9] Patients are typically vague in their dizziness descriptions, report multiple types, and are often unreliable in the type selected.[3, 4, 10]
Timing (frequency, duration)	Pros: Fit constructs of underlying disorders. More reliably reported than type of symptom.[4] Important for assessing impact on quality of life. Cons: Typically overlap among disorders, particularly in acute phases.
Chronicity (time since onset)	Pros: In the absence of exam abnormalities, a long time since onset makes a structural neurological disorder very unlikely. Cons: Chronicity can be misleading if a patient has multiple causes of dizziness.
Triggers	Pros: Fit constructs of underlying disorders. More reliably reported than type of symptom.[4] Cons: Typically overlap among disorders, particularly in acute phases.
Onset (Sudden vs gradual)	Pros: Likely to be reliably reported, and fits within the constructs of various disorders. Cons:
Severity	Pros: Likely to be reliably reported, and fits within the constructs of various disorders. Cons: Substantial individual variation
Course	Pros: Fit constructs of underlying disorders. Cons: Typically overlap among disorders, particularly in acute phases.

Examination	
Spontaneous nystagmus	
Uni-directional horizontal	Most common cause: Acute unilateral vestibulopathy (e.g., vestibular neuritis). Pros: Stroke less likely in ED presentations with constant symptoms and imbalance or nystagmus.[11] Cons: Fair reliability.[11]
Any other	Most common cause: Toxicity, central lesion. Pros: Stroke more likely in ED presentations with constant symptoms and imbalance or nystagmus.[11] Cons: Fair reliability.[11]
Gaze-evoked bi-directional nystagmus	Most common cause: Toxicity (anti-epileptic medications), central structural lesion. Pros: Stroke more likely in ED presentations with constant symptoms and imbalance or nystagmus.[11] Cons: Fair reliability.[11]
Positional nystagmus	
Triggered & transient	
Upbeat/Torsional	Cause: BPPV, posterior canal. Pros: Gold standard for posterior canal BPPV.[12, 13] Cons: Requires proper technique (can't go too slow). Brings on symptoms.
Horizontal Direction change	Most common cause: BPPV, horizontal canal. Pros: Gold standard for horizontal canal BPPV. Cons: Need to be aware of geotropic and apogeotropic patterns. This pattern can be mimicked by non-BPPV disorder such as lesion of cerebellum and vestibular migraine.[14]
Downbeat	Pros: Gold standard for anterior canal BPPV Cons: Central lesions also a concern, even when transient.[15]
Persistent	
Downbeat	Pros: Strong indicator of central pathology. Cons:
Head-thrust test (Head impulse test)	Pros: When considered in with other elements and specific scenario, contributes to discriminating stroke from non-stroke.[11, 16] In setting of chronic dizziness can indicate bilateral vestibulopathy Cons: Highly dependent on technique, suboptimal reliability, false positives.[11]
Smooth pursuit	Pros: Impairment is strong indicator of cerebellar dysfunction in correct clinical context. Cons: Some impairment with increasing age. Non-localizing without other context information.
Saccades	Pros: Reduced accuracy or velocity as strong indicator of brainstem or cerebellar pathology Cons: Rarely important element, other than for Progressive Supranuclear Palsy, and Niemann-Pick Type C.
Coordination	Pros: Strong indicator of central pathology. Cons: Variable reliability.[17]
Gait	Pros: Generally reliable measures.[18, 19] Functional measure. Cons: Imbalance scores generally non-localizing.
Auditory assessment, bedside	Pros: CALFRAST assessment with excellent validity and reliability[20] Cons: CALFRAST not validated as measure of asymmetry, or structural pathology.

Other	
Age	Pros: Readily obtainable, reliable. Contributes to probability of stroke among ED presentations with constant symptoms and imbalance or nystagmus.[11] Cons:
Co-morbidities	Pros: Readily obtainable, generally reliable. Diabetes contributes to probability of stroke among ED presentations with constant symptoms and imbalance or nystagmus.[11] Cons:
Blood pressure	Pros: Readily obtainable, generally reliable. Systolic blood pressure contributes to probability of stroke among ED presentations with constant symptoms and imbalance or nystagmus.[11] Cons:

Elements of the HPI are important for considering the potential causes and formulating further evaluation and treatment, but HPI items should not be over-emphasized. The HPI substantially overlaps in the acute phases of many causes of dizziness. For example, although BPPV is traditionally not considered when patients report constant dizziness, it is well known that many BPPV patients do not feel normal in between paroxysmal episodes.[13] In addition, patients with vestibular neuritis or stroke typically feel much better, at times even without dizziness, when sitting still but are worse with movement. The exam is the critical element in distinguishing vestibular neuritis from BPPV in the acute stage. The typical features for common causes of dizziness are presented in Table 2.

Table 2. Symptom and examination characteristics of common causes of dizziness.

Disorder	Timing	Triggers	Exam
BPPV Posterior Canal	Recurrent episodes, seconds	Turning in bed, looking up	Triggered/Transient (Upbeat/Torsional) nystagmus on the DHT
BPPV Horizontal Canal	Recurrent episodes, seconds	Turning in bed, looking up	Triggered/Transient (Horizontal) nystagmus on the DHT or supine positional test. Change direction based on position.
Acute unilateral vestibulopathy (e.g., vestibular neuritis)	Days to weeks	None, but worsening with position changes can mimic BPPV	Spontaneous unidirectional horizontal nystagmus, corresponding abnormal head impulse test
Meniere Syndrome	>20minutes to hours	Often spontaneous. Possibly sodium intake	Fluctuating unilateral hearing loss, fullness, tinnitus
Stroke	Days to weeks	None, but worsening with position changes can mimic BPPV	Central nystagmus, normal head impulse test, other neurologic signs or symptoms
Migraine associated dizziness	Minutes to days	Food, stress, lack of sleep	Various patterns of nystagmus

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