



Dizziness in Older People

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Definition of Dizziness :

An impairment in spatial perception and stability.

Category :

- (1) Vertigo : the sensation of spinning or having one's surroundings spin about them. often associated with nausea and vomiting.
- (2) Presyncope : include light-headedness, feeling faint.
- (3) Disequilibrium: the sensation of being off balance, postural instability.

Epidemiology

-General population → 10% to 35%

-Beyond 60 years → 30%

-Beyond 85 years → 50%

Characteristic of dizziness in older people

Compared to young patients

- more common
- more persistent
- caused by a variety of etiologies
- less likely to be due to a psychological cause
- less rotatory vertigo
- more non-specific dizziness and instability

General Diagnostic Approach of Dizziness

1. A complete medical history is invaluable.

1)duration and intensity

2)constant or episodic

3)Precipitating factors :

triggered or spontaneous

4)Associated symptoms :

hearing loss, vision changes, headache

5)Recent events :

trauma, bleeding

6)Medications :

polypharmacy (5 or more drugs)

7) Toxin and alcohol

2. Blood pressure

3. Cardiologic examination

4. Neurologic examination

5. Laboratory

Table 1. Differential Diagnosis of Dizziness and Vertigo: Common Causes

<i>Cause (most to least frequent)</i>	<i>Clinical description</i>
Peripheral causes	
Benign paroxysmal positional vertigo	Transient triggered episodes of vertigo caused by dislodged canaliths in the semicircular canals
Vestibular neuritis	Spontaneous episodes of vertigo caused by inflammation of the vestibular nerve or labyrinthine organs, usually from a viral infection
Meniere disease	Spontaneous episodes of vertigo associated with unilateral hearing loss caused by excess endolymphatic fluid pressure in the inner ear
Otosclerosis	Spontaneous episodes of vertigo caused by abnormal bone growth in the middle ear and associated with conductive hearing loss
Central causes	
Vestibular migraine	Spontaneous episodes of vertigo associated with migraine headaches
Cerebrovascular disease	Continuous spontaneous episodes of vertigo caused by arterial occlusion or insufficiency, especially affecting the vertebrobasilar system
Cerebellopontine angle and posterior fossa meningiomas	Continuous spontaneous episodes of dizziness caused by vestibular schwannoma (i.e., acoustic neuroma), infratentorial ependymoma, brainstem glioma, medulloblastoma, or neurofibromatosis
Other causes	
Psychiatric	Initially episodic, then often continuous episodes of dizziness without another cause and associated with psychiatric condition (e.g., anxiety, depression, bipolar disorder)
Medication induced	Continuous episodes of dizziness without another cause and associated with a possible medication adverse effect
Cardiovascular/metabolic	Acute episodic symptoms that are not associated with any triggers
Orthostatic	Acute episodic symptoms associated with a change in position from supine or sitting to standing

Medications that can cause dizziness.

Anticonvulsants

Phenytoin, carbamazepine

Antihypertensives

Adrenergic blockers (propranolol, terazosin)

Diuretics (furosemide)

Vasodilators (isosorbide, nifedipine)

Ototoxic drugs and vestibular suppressants

Gentamicin,

Anticholinergics

Psychotropic agents

Sedatives (barbiturates and benzodiazepines)

Antidepressant (TCA)

Miscellaneous drugs

Amiodarone

Peripheral Causes

1. Benign Paroxysmal Positional Vertigo (BPPV)

- about 50% of dizziness

- brief bouts of vertigo provoked by changing the orientation of the head to gravity

- caused by otoconial debris that enter post canal

Dx :Dix-Hallpike maneuver (sensitivity: 79%,specificity:75%)

Tx: Epley maneuver (1st : 70%,nearly100 % on successive)

Dix-Hallpike Maneuver

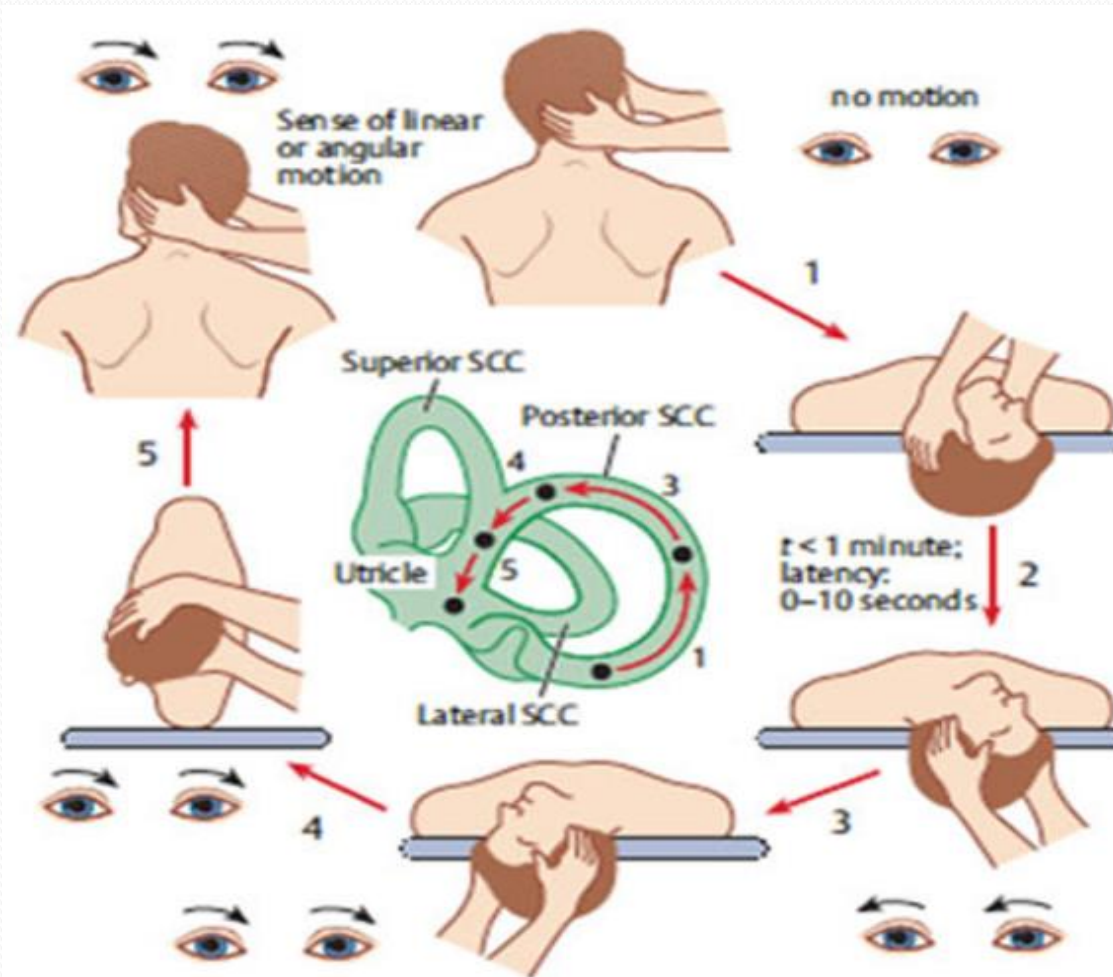
Tests for **canalithiasis** of the **posterior semicircular canal**, which is the **most common cause of benign paroxysmal positional vertigo (BPPV)**



- 1 With the patient sitting up, turn the head 45 degrees to one side
- 2 Lie the patient down with head overhanging the edge of the bed and look for nystagmus
- 3 Repeat on the contralateral side

Positive if the maneuver provokes paroxysmal vertigo and nystagmus

Epley maneuver



D. Epley repositioning maneuver (right side affected).

2. Vestibular neuritis

- The second most common
- Viral origin, Hx of URI
- Self-limited
- Vertigo(at rest and positional), nausea, ataxia, nystagmus.
spontaneous nystagmus → DDx from BPPV

Tx: medications(meclizine) and vestibular rehabilitation

3. Meniere's disease

- Vertigo, tinnitus and unilateral hearing loss, headache
- Unknown etiology.
- Underlying pathology : excess endolymphatic fluid pressure
→ inner ear dysfunction

Tx:

- 1) Lifestyle changes : dietary salt intake to less than 2g/d
reducing alcohol and caffeine.
- 2) Thiazide diuretic therapy can be added if not controlled
- 3) Transtympanic injections of glucocorticoids

Central causes

Characteristic

- Disequilibrium and ataxia rather than true vertigo **!!!**
- May mimic a more benign peripheral disorder **!!!**
- A stroke may present with no focal neurologic signs **!!!**

1. VESTIBULAR MIGRAINE

-Episodic vertigo and headache

-Between 20 and 50 years of age.

Dx:-At least five episodes of vestibular symptoms of moderate or severe intensity lasting five minutes to 72 hour.
-One or more migraine features.

Tx: Avoiding migraine triggers
Stress relief, adequate sleep and exercise
Vestibular suppressant.

2. VERTEBROBASILAR ISCHEMIA

Cause: The occlusion of blood supply of vertebrobasilar system

C/M: Vertigo : the initial sx in 48%
Diplopia, Dysarthria, ataxia.

DX : -A history of brainstem symptoms
-Neurologic exam
-Imaging

Tx : Depends on pathologies

A scenario in acute onset of severe dizziness or vertigo

-BPPV and stroke should always be considered
BPPV : most common, Stroke : most severe
→ruling out stroke is critical, particularly in the elderly.

❖ HINTS Assessment Protocol

(3-step bedside oculomotor examination)

- (1) Head impulse test
- (2) Nystagmus directionality
- (3) Test of skew

→highly sensitivity and specificity to differentiate peripheral causes from central causes, compared with early MRI (false (-) in 50 % up to 48hrs)

❖ **HINTS “plus”** includes acute hearing loss as a sign of anterior inferior cbl artery infarction

→ highly accurate, a sensitivity of 98%,specificity of 85%

1. Head-Impulse Test

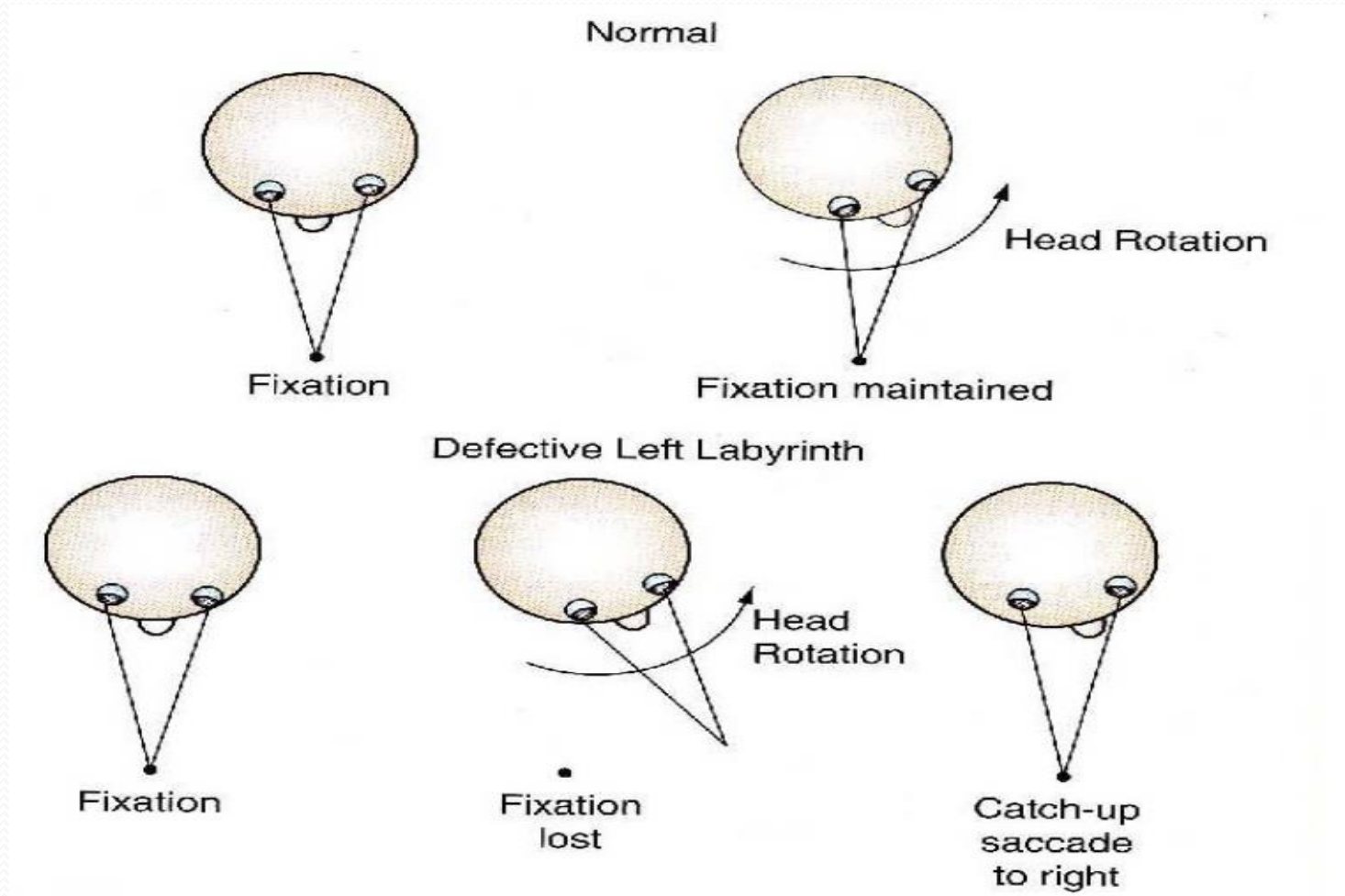
(Test of vestibulo-ocular reflex function)

Patient's head is thrust 10 degrees to the right and then to the left while the patient's eyes remain fixed on the examiner's nose.

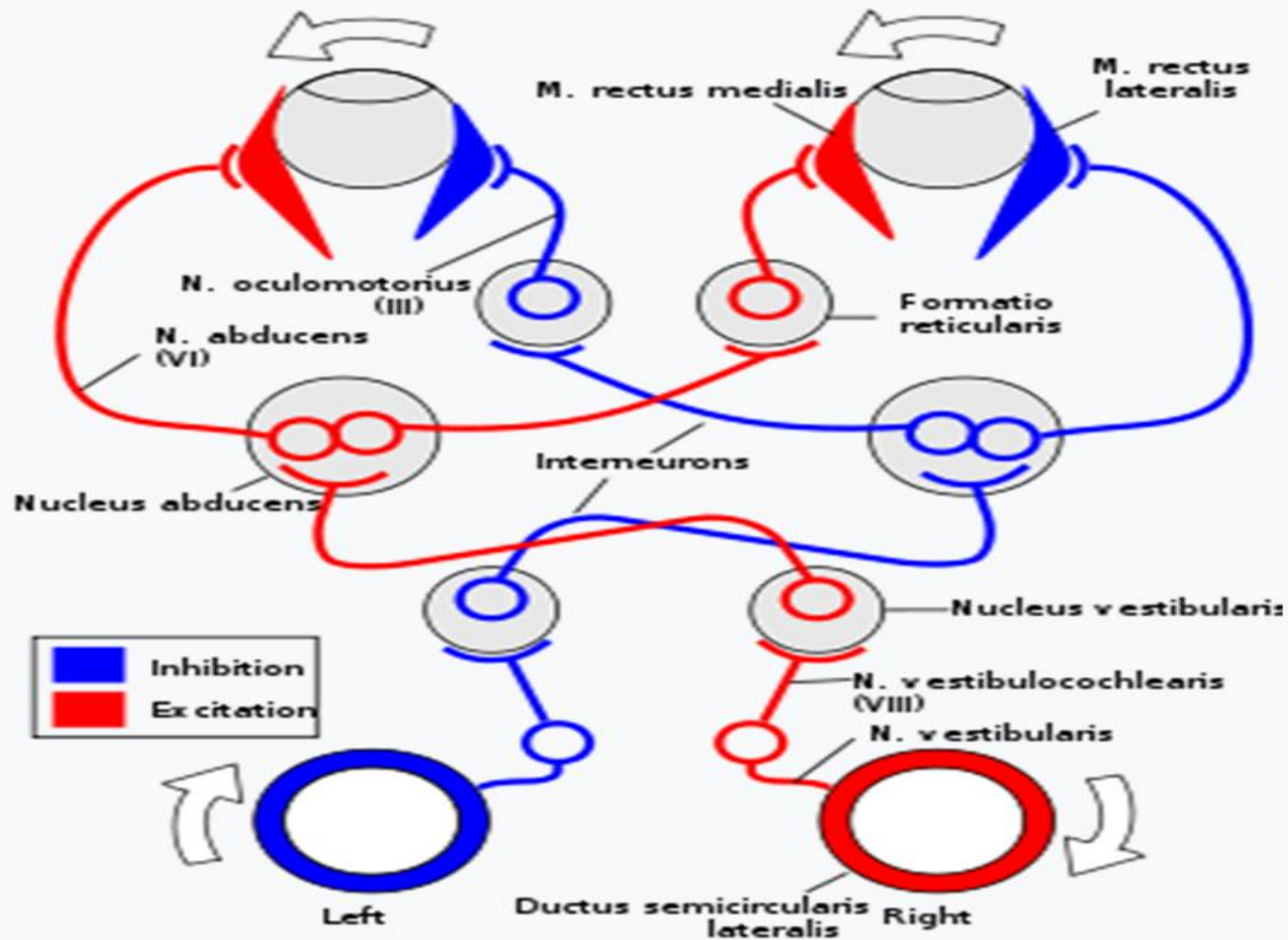
Corrective saccade → peripheral etiology

No eye movement → central etiology

(Head-Impulse Test)

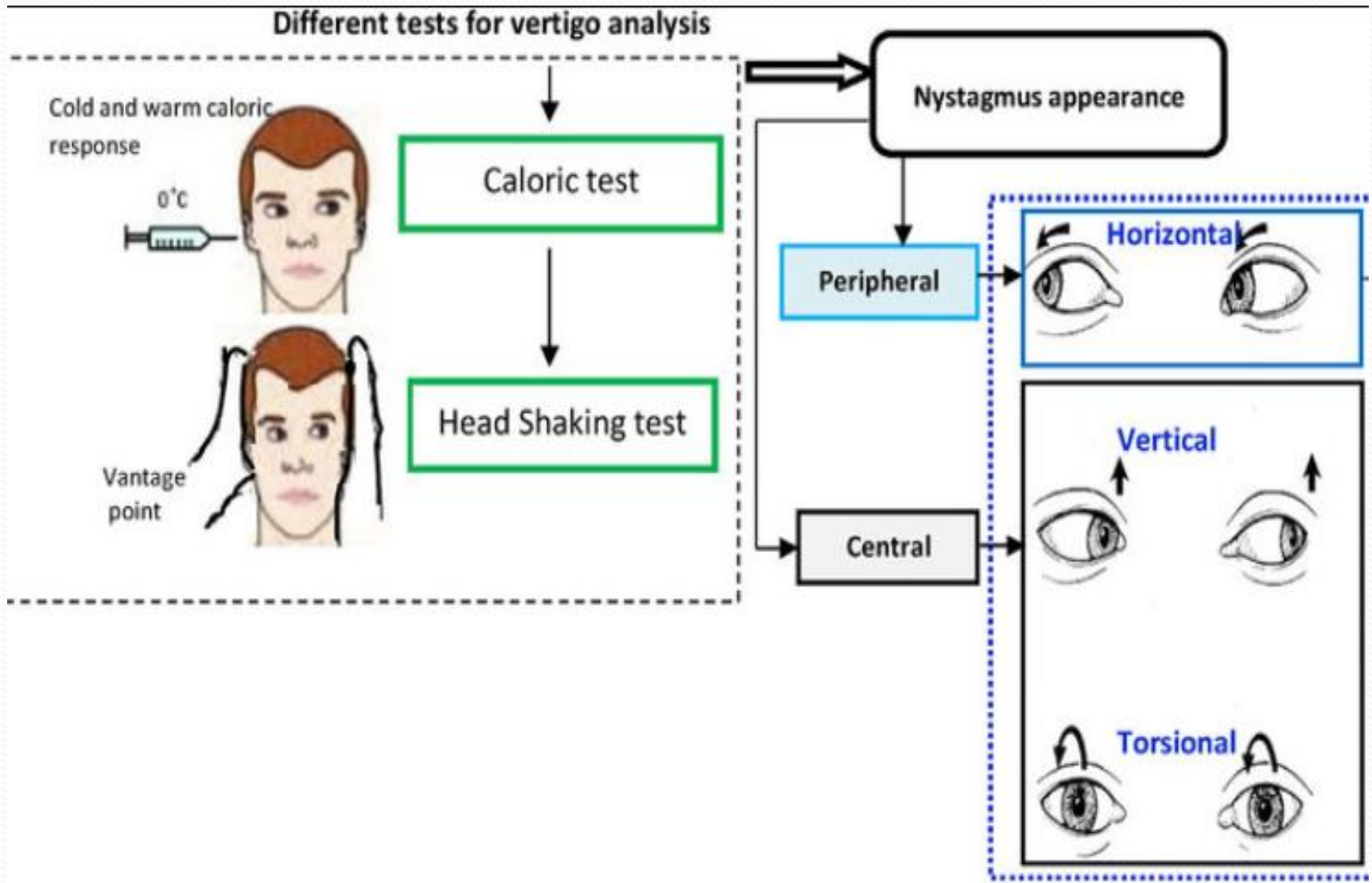


Vestibulo-ocular reflex



Holding gaze held steadily by producing eye movements in the direction opposite to head movement

Nystagmus



Central	Peripheral
Usually vertical, pendular (horizontal and jerk is uncommon)	Typically horizontal and jerk
Fast beat towards side of lesion	Fast beat away from side of lesion
Not relieved by gaze fixation	Relieved by gaze fixation
Cerebellar sign	No cerebellar sign

Test of Skew

Assessed by asking the patient to look straight ahead, then cover and uncover each eye.

In normal --→ motionless.

In abnormal -→ vertical deviation after uncovering
(refixation saccade)

- fairly specific for brainstem involvement.
- If abnormal, suggests posterior fossa stroke.

Test of Skew



- *Skew*: Ketidaksejajaran vertikal okular dalam *alternate cover test*
- Ketidakseimbangan tonus vestibuler kanan-kiri (input otolitik/ graviseptif) ke sistem okulomotor
- Amati adanya gerak mata saat cover di-switch

Lesi Sentral

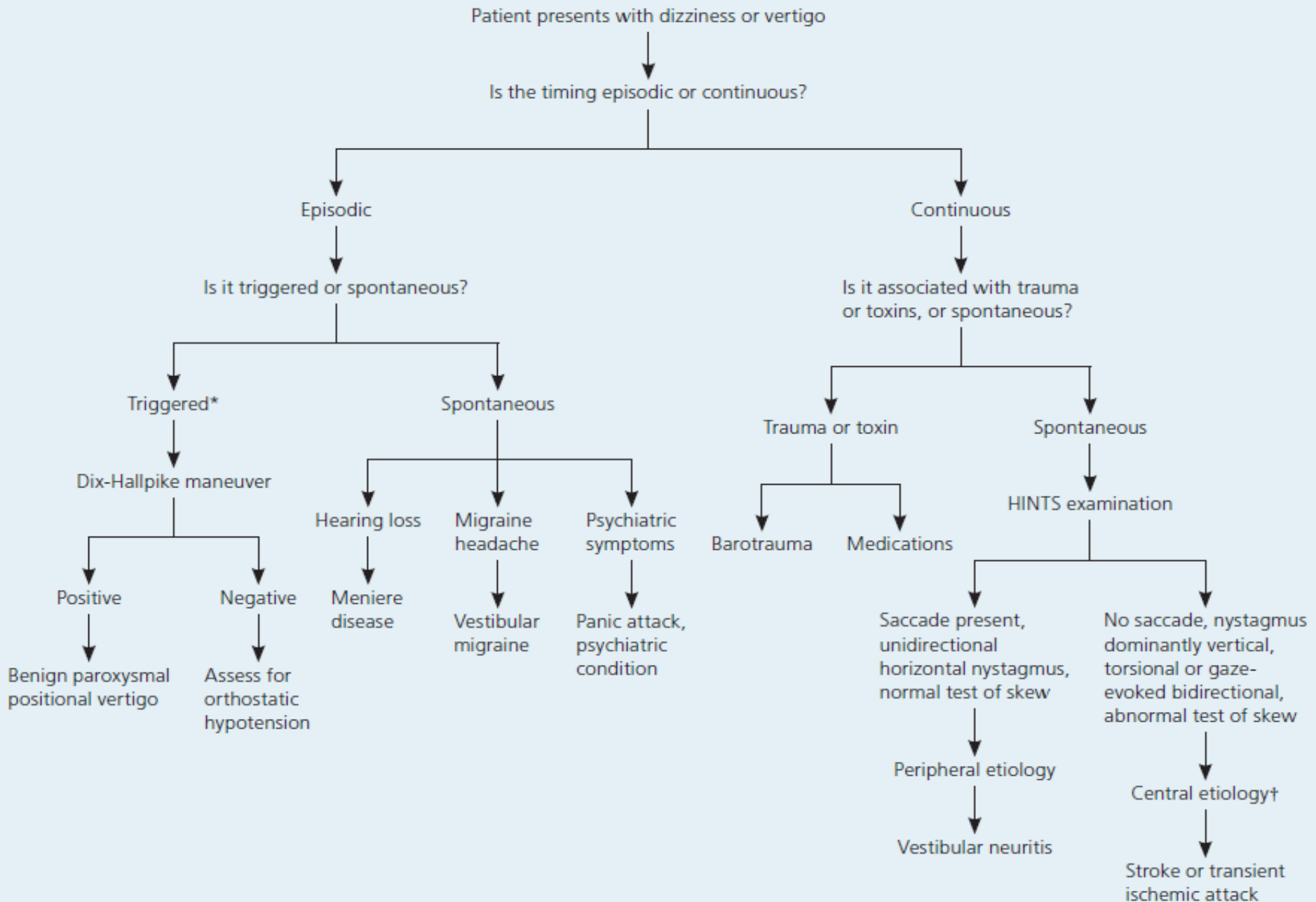
*Refixation in (alternate)
Cover Test*

HINTS

	Peripheral Vertigo	Central Vertigo
Head Impulse Test	Abnormal; corrective saccade to midline with rotation of head	Normal; no corrective saccade
Nystagmus	Unidirectional; horizontal	Horizontal & direction-changing; vertical; torsional
Test of Skew	No skew deviation	Skew deviation present

If any one of 3 signs of central vertigo → Central vertigo
→ CVA study

Assessment of Dizziness



MANAGEMENT OF PATIENTS WITH DIZZINESS

-Disease-directed therapy should be initiated.
reducing symptoms and risk factors,
and reducing fall risk.

1)Medication :

Antihistamines Anticholinergics,Antidopaminergics
Benzodiazepines,Phenothiazines.

→may be useful discontinuation after 3 days
as compromising physiologic compensation,
prolonging symptoms of dizziness,and dependency.

2) Vestibular rehabilitation (VR) :

Perform as soon as possible
after an acute vestibular syndrome,
regardless of etiology.

→ catalyzes compensation.
decreasing dizziness symptoms
reducing falls.



Thank you !!!

(References)

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