A step by step Approach to VERTIGO

from a physician's perspective

ELICIT HISTORY

EXAMINE CLINICALLY

INVESTIGATE

TREAT SENSIBLY

RESTORE NORMALCY

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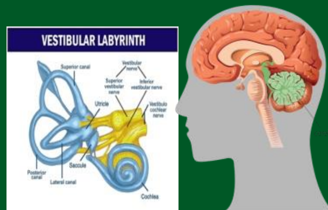
THE PHYSICIAN'S JOB

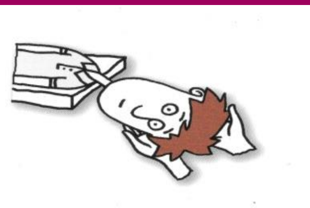
Identifying sinister causes of vertigo / imbalance

Ruling out non-neurotological causes that mimic vertigo

Diagnosing the site of lesion & nature of pathology

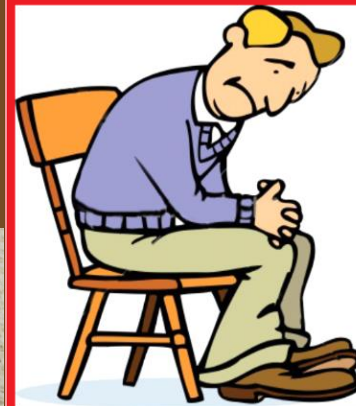


Treating the causative pathology *with exact* ***Disease - specific*** *therapy*



Providing symptomatic relief *without camouflaging the symptom of vertigo*

Treating the co-morbidities



Restoring normal balance function

APPROACH TO THE PATIENT

Does this patient really have a disorder in the vestibular system or is it a case of :-

1. Orthostatic Hypotension
2. Neurocardiogenic syncope
3. Acute extrapyramidal disorder
4. Panic attack

if there is really a disorder in the vestibular system then,…………..

APPROACH TO THE PATIENT

Does this patient really have a disorder in the vestibular system or is it a case of :-

Orthostatic Hypotension

- ❑ Neurocardiogenic syncope
- ❑ Acute extrapyramidal disorder
- ❑ Panic attack

-Abrupt fall of blood pressure on sudden standing,
- sinking sensation,
- blurring of vision,
- blackouts.

APPROACH TO THE PATIENT

Does this patient really have a disorder in the vestibular system or is it a case of :-

- ❑ Orthostatic Hypotension

Neurocardiogenic syncope →

- ❑ Acute extrapyramidal disorder
- ❑ Panic attack

Inadequate blood supply to the brain

LOC and falls when standing or getting up from sitting posture.

APPROACH TO THE PATIENT

Does this patient really have a disorder in the vestibular system or is it a case of :-

- ❑ **Orthostatic Hypotension**
- ❑ **Neurocardiogenic syncope**
- ❑ **Acute extrapyramidal disorder** →
- ❑ **Panic attack**

-involuntary movement from repetitive or sustained muscle contraction manifested as

- **muscle twitching, tremor,**
- **spasm of some muscles of the limbs and trunk**
- **abnormal fixed posture.**
- **Dystonia-** Involuntary muscle contractions causing repetitive or twisting movements

prochlorperazine & cinnarizine aggravates EPS

APPROACH TO THE PATIENT

Does this patient really have a disorder in the vestibular system or is it a case of :-

- Orthostatic Hypotension
- Neurocardiogenic syncope
- Acute extrapyramidal disorder
- Panic attack →

acute anxiety attack with a fear / feeling that something awfully catastrophic is about to happen, -thought of 'impending death'; body responds to it by a fight or flight response.

shortness of breath, a choking or tightening sensation in the throat, chest pain, nausea or stomach discomfort, dizziness, feeling of losing control over the body, impending faint, palpitations and pounding of the chest

if there is really a disorder in the vestibular system then,………….

IDENTIFYING THE SINISTER ONES

- **Symptoms:-**
  1) CNS symptoms viz.- *headache, diplopia, motor or sensory disturbance, LOC, drowsiness.*
  2) Aural symptoms- *deafness / tinnitus / fullness*
  3) Instability not vertigo
  4) Vertigo lasting more than 4 weeks
  5) Gradually deteriorating vertigo
- **Signs:-**
  6)Vertical nystagmus or any abnormal eye movement
  7) Skew deviation of the eyes
  8)Motor /sensory loss/any other abnormal CNS signs e.g., planter extensor, hyper deep tendon reflexes
  9)HINTS sign is positive

Some red flags to be aware of in patients presenting with vertigo :

- **Headache** – *40% chance of a stroke in posterior circulation*
- **Gait ataxia –** *may be only sign of cerebellar stroke initially*
- **Very sudden onset –***possibly a vascular origin (CVA)*
- **Vertigo with hearing loss** – *may be labyrinthitis but may also be a stroke in region of AICA*

Never undermine the possibility of a cerebellar stroke in all pts of acute vertigo

Commonest emergency room presentations with VERTIGO when a physician is called in

STROKE 2%

MENIERE'S DISEASE 3%

VESTIBULAR NEURITIS 15%

MIGRAINOUS VERTIGO 15%

NON-VESTIBULAR (E.G., SYNCOPE/ ORTHOSTATIC HYPOTENSION/ PANIC ATTACK/PSYCHOGENIC VERTIGO, ANXIETY) 30%

BPPV 35%

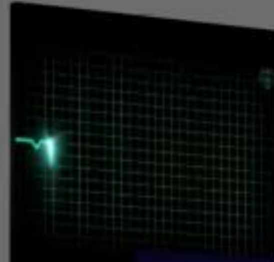
How to approach- *simple & sinister things first*

Postural blood pressure & blood sugar

1

Arterial saturation

2



ECG with carotid massage

3

Cerebellar tests

4

Basic neurological exam

5

WHEN THESE ARE RULED OUT…

To keep in mind:-

& hypoglycemia

Cardiac dys

Cerebellar stroke

Lateral medullary syndrome

Postural blood pressure & blood sugar

1

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exam

5

HINTS- *a clinical test based on derangement of otolithic pathways*

1

Very useful clinical test in ER for patients presenting with acute vertigo called Acute Vestibular Syndrome (AVS)

2

Used to differentiate Cerebellar Stroke Vs Vestibular Neuritis in patients presenting with acute vestibular symptoms

3

HINTS examination is more sensitive than MRI in detecting cerebellar stroke in first 48hrs in patients *(Newman-Toker 2013)*

HINTS Test- a combination of 3 tests

TS — **Test of Skew**
Refixation in (alternate) Cover Test

N — **Nystagmus**
Fast-phase Alternating

HI — **Horizontal Head Impulse**
Impulse Normal

DIAGNOSING THE PATIENT

Differentiating between the different presenting symptoms

Analysis of symptoms in History Taking

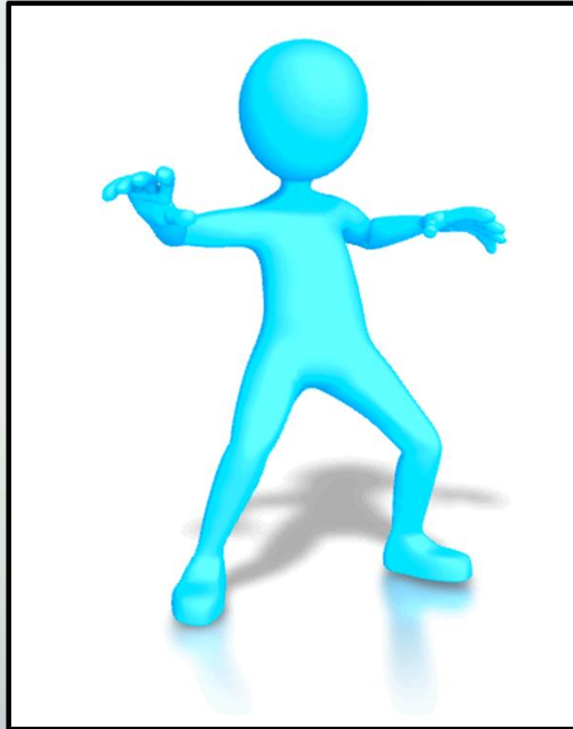
"The room is spinning/ My head is whirling"

VERTIGO

Careful neurological & otological examination

VESTIBULAR DISEASE

Analysis of symptoms in History Taking



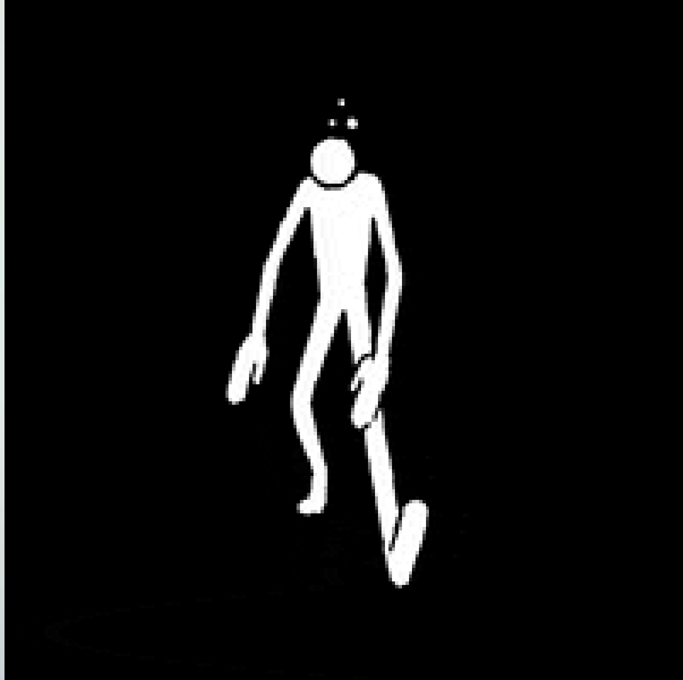
"I might fall / I am feeling imbalanced/ I can't stand without support"

DISEQUILIBRIUM / UNSTEADINESS

Careful Neurological and complete physical examination

Non-vestibular neurological disease

Analysis of symptoms in History Taking



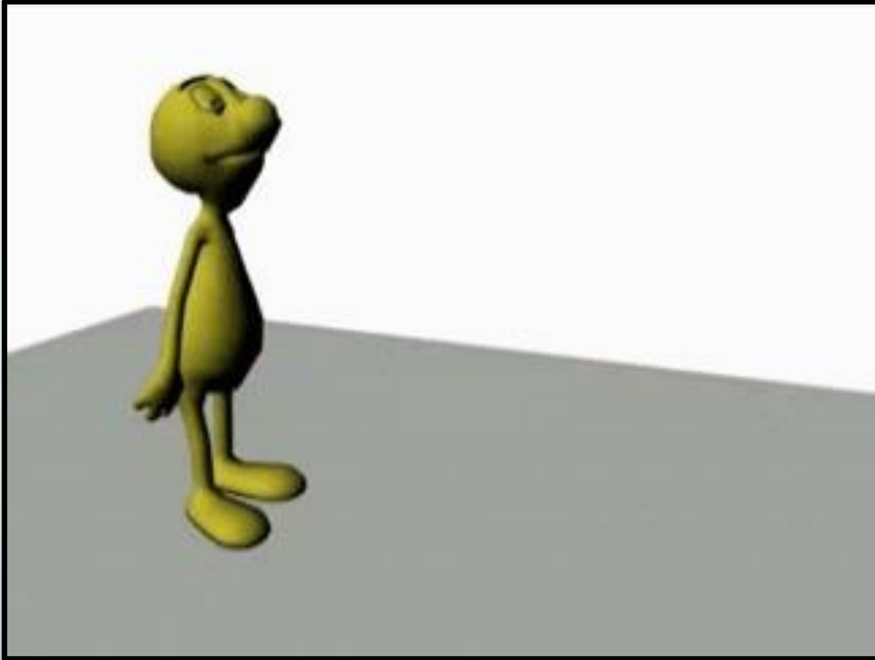
"I am always dizzy/
I fear falling/
I feel lightheaded/
I feel heaviness in head"

Light Headedness
Unsteadiness/Dizziness
Fear of fall

Exclude "Organic" disease

Psychiatric / psychogenic disease

Analysis of symptoms in History Taking



"I might faint/ I feel I am sinking/ I get blackouts"

(PRE)SYNCOPE

Cardiac examination, test for Orthostatic Hypotension

Cardiovascular disorders

Important Questions in History Taking

How often do you have attacks of vertigo?

Single	Multiple
Stroke	Meneire's Disease
Labyrinthitis	Vestibular Migraine
Vestibular Neuronitis	Chronic recurrent vestibulopathy
TIA (usually)	BPPV
Trauma/ Labyrinthine concussion	SCCD
	Vascular insufficiency (?? !!)
	Multiple sclerosis

Important Questions in History Taking

Is there anything you know that makes you feel dizzy? (precipitating factors)

Provoking factor	Suggestive cause
Altered head position	BPPV
Suddenly standing/ prolonged standing	Orthostatic hypotension
Neck extension	Vertebrobasilar insufficiency
Stress	Psychiatric/ Vertiginous Migraine
Changes in ear pressure	Perilymphatic fistula/Superior SCCD
Headache	Vertiginous Migraine

Million Dollar Questions in History Taking

- ***What medications are you currently taking?***

Million Dollar Questions in History Taking

DIABETES THYROID DISORDER
LIPID METABOLISM DISORDER

- *What medications are you currently taking?*
- *Any Metabolic disorders ?*

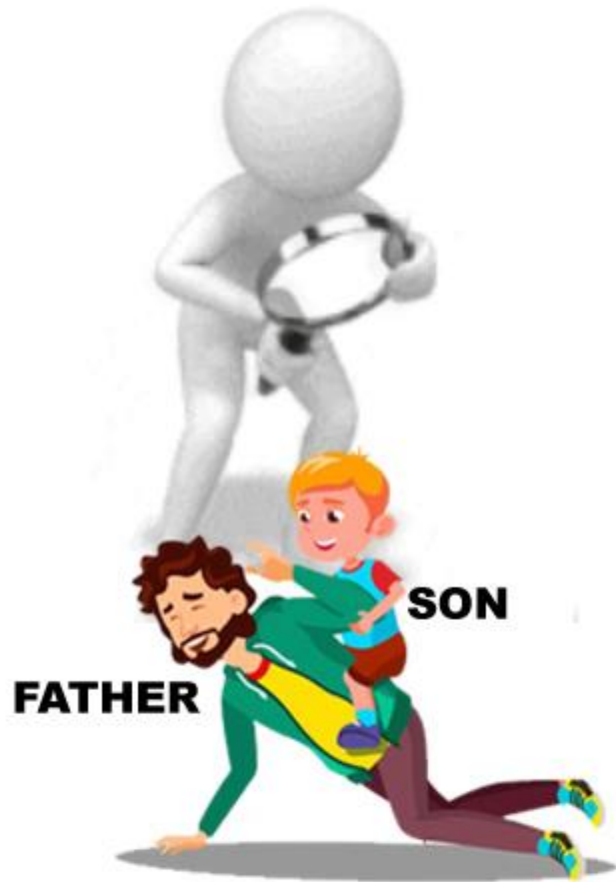
Million Dollar Questions in History Taking

DEPRESSION ANXIETY

SCHIZOPHRENIA

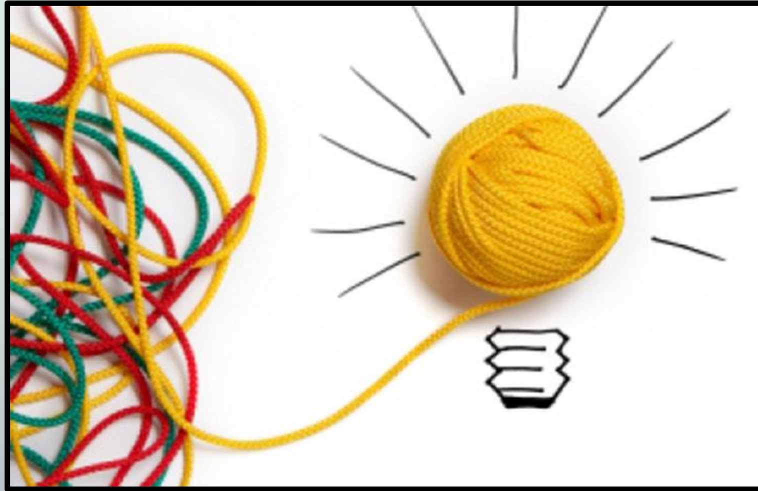
- *What medications are you currently taking?*
- *Any Metabolic disorders ?*
- *Any Psychological disorders ?*

Million Dollar Questions in History Taking



- *What medications are you currently taking?*
- *Any Metabolic disorders ?*
- *Any Psychological disorders ?*
- *Any Family history ?*

Combining inputs from History Taking

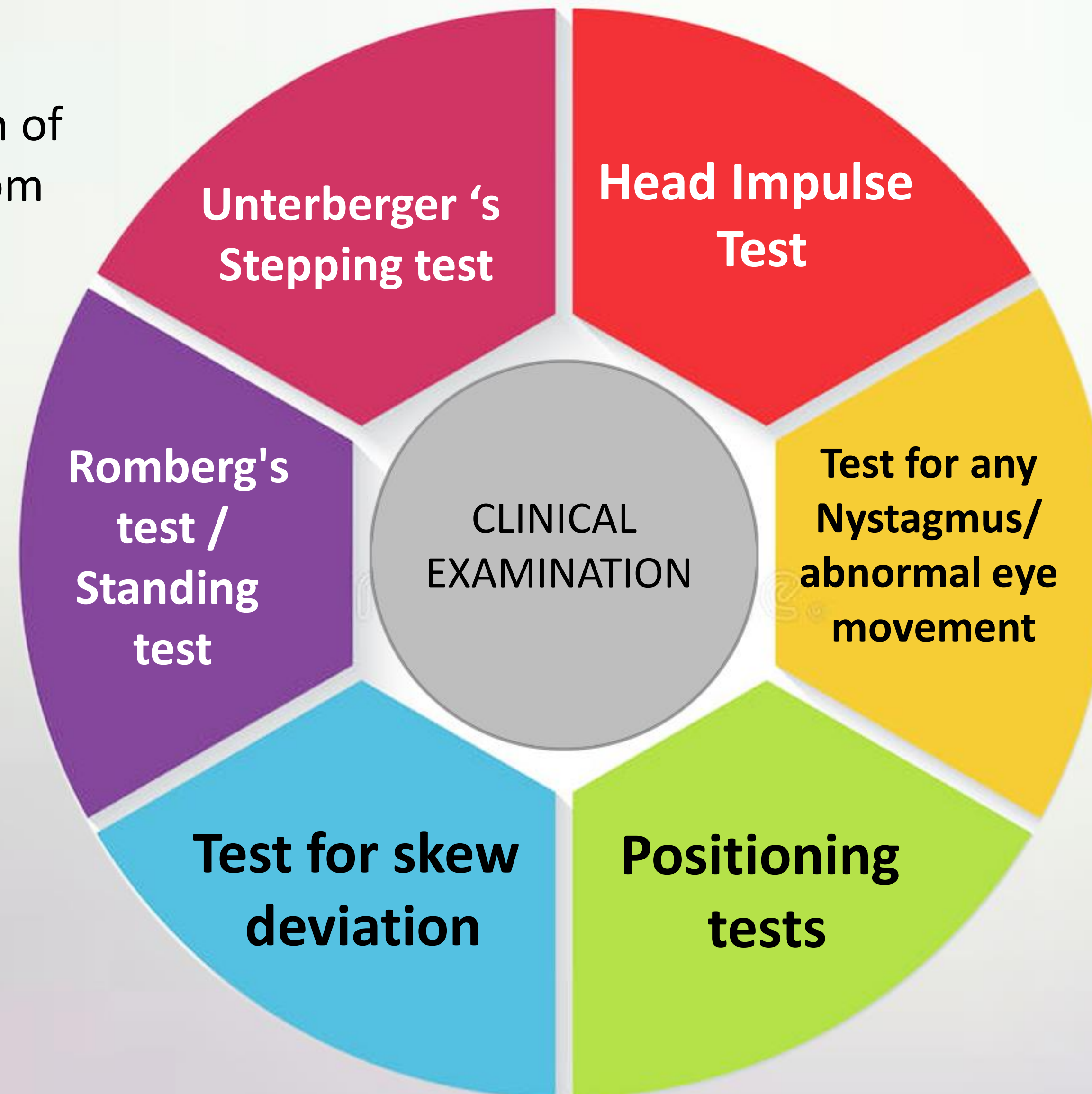


-Nature of symptom
-Duration of each episode
-Single or Multiple attacks
-Precipitating factors
-Accompanying symptoms

CLINICAL EXAMINATION in pts of Acute Vertigo

Procedures and interpretation of all clinical tests can be had from my website

vertigoclinic.in



The other tests reqd :-

1) **OCULOMOTOR tests**
2) **Basic NEUROLOGICAL tests**
3) **CEREBELLAR tests**

CLINICAL EXAMINATION Specific to Vestibular System

Unterberger 's Stepping test

Head Impulse Test

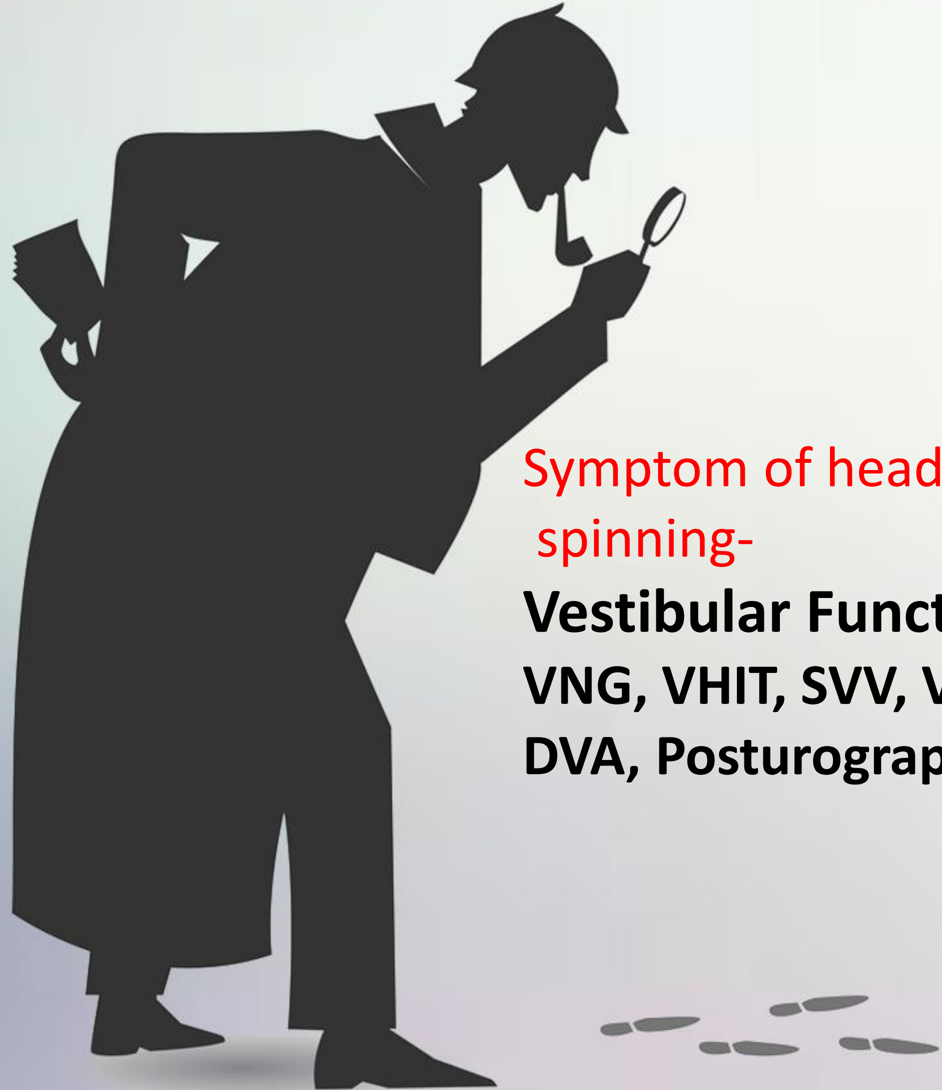
Test for any Nystagmus/ abnormal eye movement

Positioning tests

Test for skew deviation

Romberg's test /Standing test

INVESTIGATION



Symptom of hearing loss / tinnitus-

Audiological tests

PTA, BERA, EcochG

Symptom of head spinning-

Vestibular Function Tests

VNG, VHIT, SVV, VEMP, DVA, Posturography

Unsteadiness/ imbalance, ataxia, very sudden onset of vertigo

Imaging – MRI brain, MR-angiography

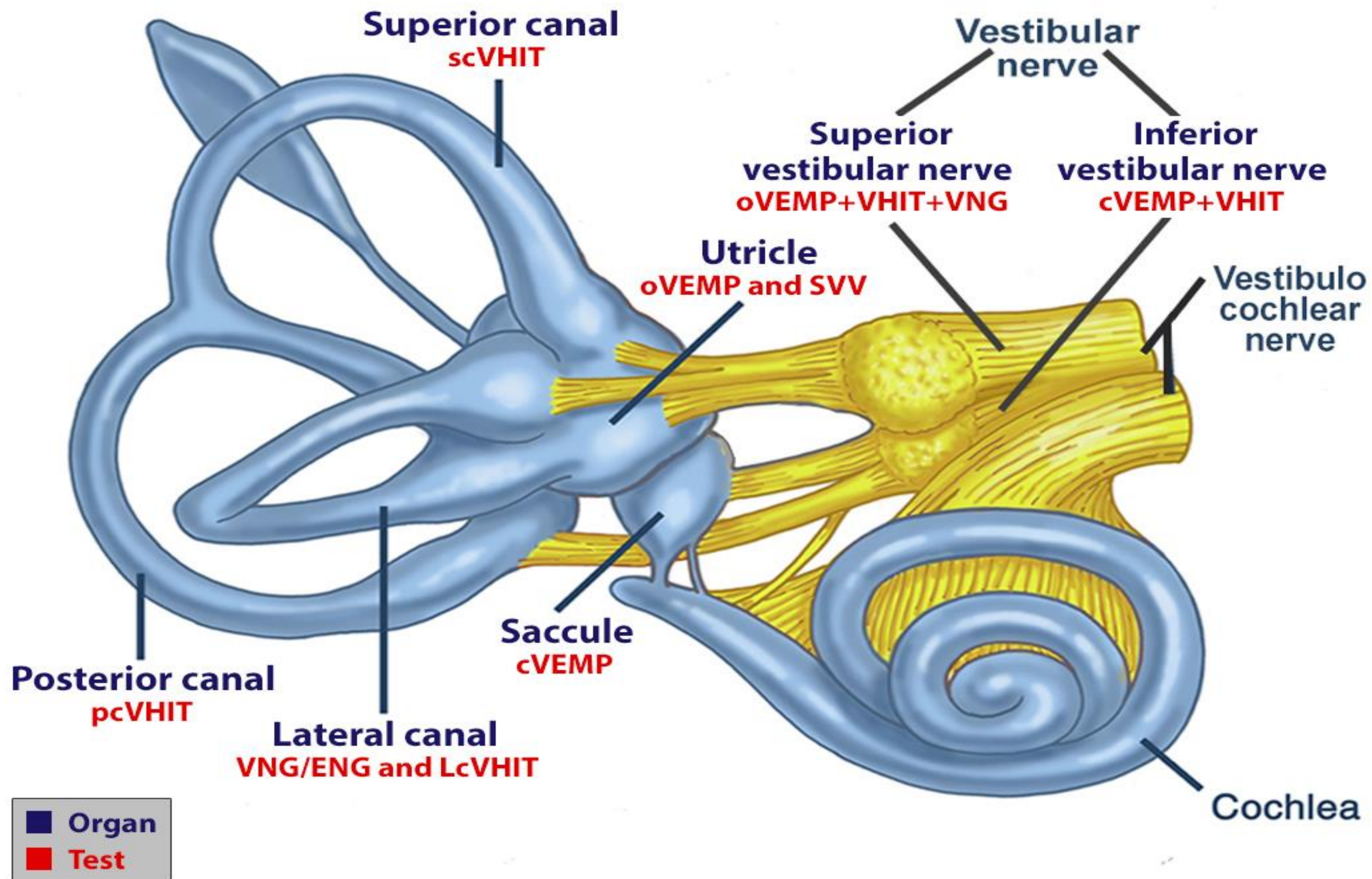
NCV, SSEP

The functional status of each part of the vestibular labyrinth can be evaluated by the sophisticated vestibular function tests….

Specific tests for each anatomical part

ANATOMICAL PART tested	NAME OF INVESTIGATION
Lateral SC canal	ENG / VNG (at low freq)
Lateral SC canal	vHIT (at high freq)
Anterior SC canal	vHIT (at high freq)
Posterior SC canal	vHIT (at high freq)
Utricle	oVEMP, SVV
Saccule	cVEMP
Sup Vest nerve	ENG/VNG/oVEMP
Inf Vest nerve	cVEMP
Oculomotor system	Oculomotor tests of VNG
Sense of gravitational vert	Sub. visual vertical (SVV)
Neural pathways	NCV, SSEP

VESTIBULOMETRY today



The functional status of each part of the vestibular labyrinth can be evaluated by the sophisticated modern vestibular function tests

TREATMENT- in today's perspective

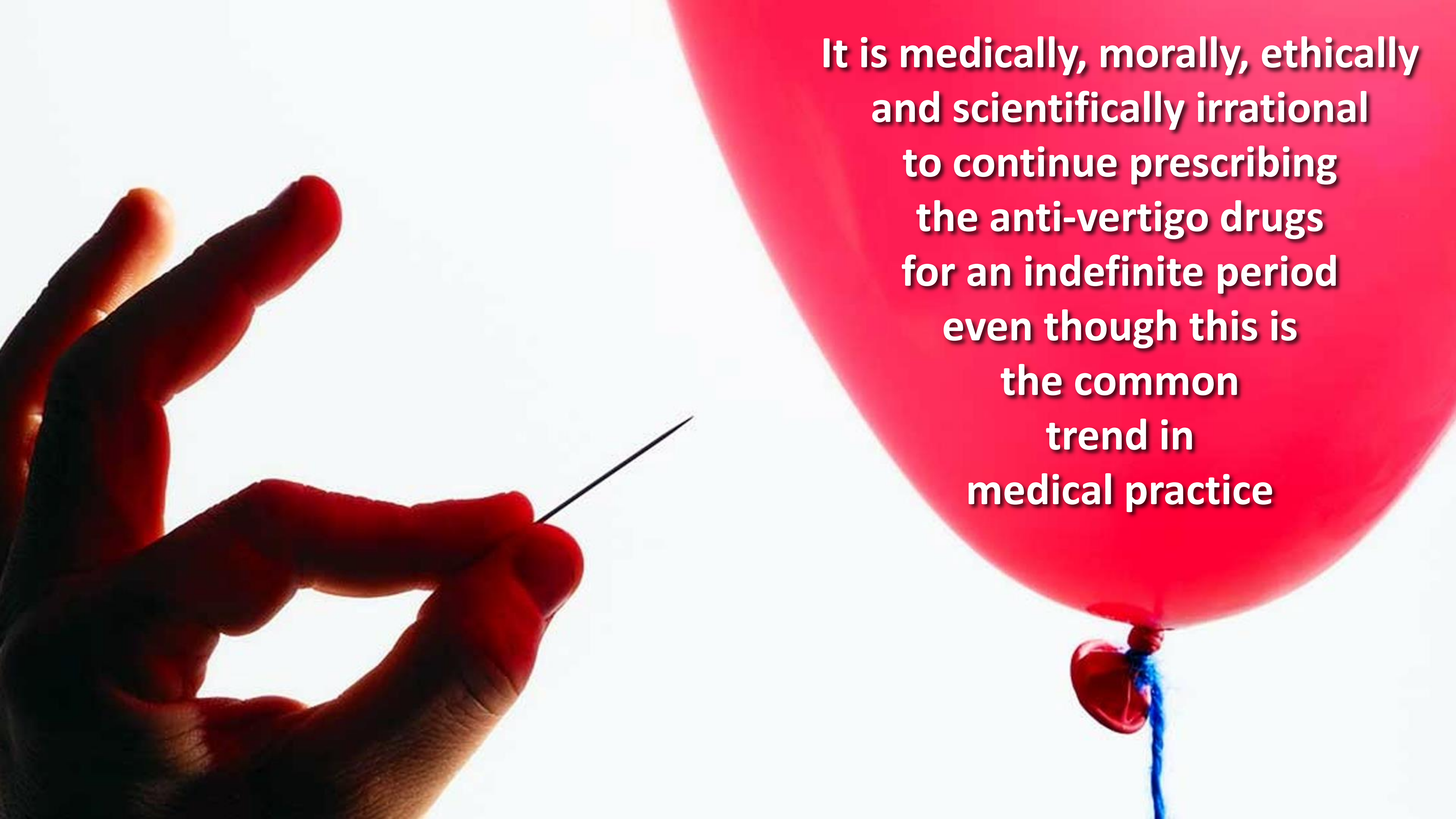
The current consensus of treatment is never ever to continue the vestibular suppressants / anti-vertigo drugs for more than 3-5 days at a stretch

…ses of acute *…e inherent ill-*

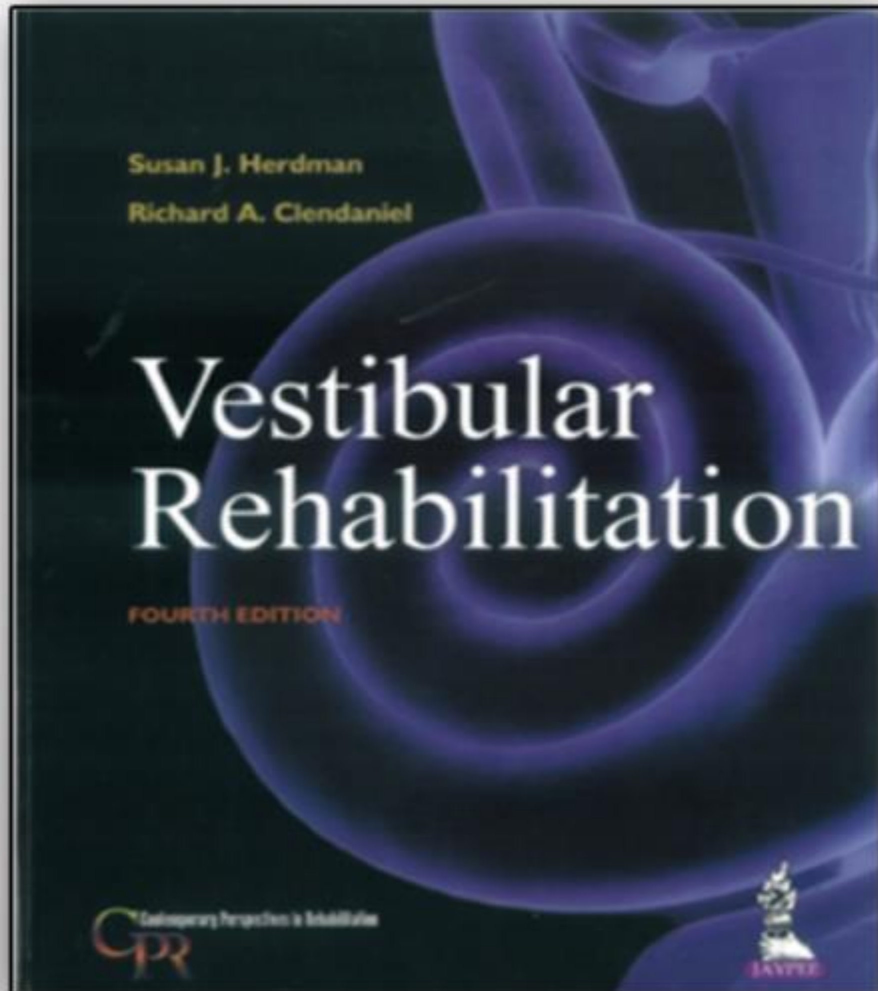
…t the cause of *…camouflage*

…l and cognitive

…deranged balance function- *possible only by physical therapy*


It is medically, morally, ethically
and scientifically irrational
to continue prescribing
the anti-vertigo drugs
for an indefinite period
even though this is
the common
trend in
medical practice

This is what the world believes today…



valacyclovir offer no therapeutic advantage.[36] There is a consensus that drugs exerting a "sedative effect" on the vestibular system should be used for only the first 24 hours.[10] Some drugs commonly used for treatment of vertigo, nausea,

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10. Baloh RW, Kerber KA. *Clinical Neurophysiology of the Vestibular System*. Fourth ed. New York: Oxford University Press, 2011.

More than 95% patients of vertigo/ imbalance are due to-

- BPPV………26%
- Vestibular neuritis………..4%
- Migraine related vertigo……….21%
- Psychogenic vertig
- Laby
- …………1%
- osterior column lesions………1%
- lateral vestibulopathy -?Ototoxicity………….1%
- Central vertigo due to oculomotor or other CNS diseases like extrapyramidal/ cerebellar disorders/ NPH …………..5%

Specific therapies exist for all of them and none require long continued non-specific therapy with anti-vertigo drugs

Treating specific causes

Stroke: Thrombolytics

Vestibular seizures :Antiepileptic drugs

Meniere's disease : *Diuretics/Betahistine*

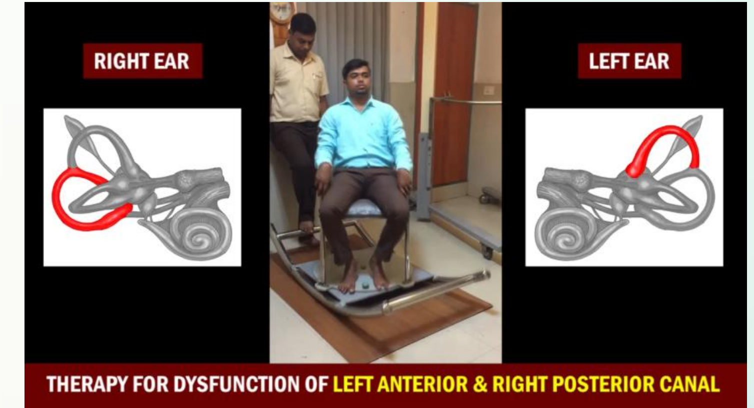
Psychogenic vertigo: SSRIs and Benzodiazepines

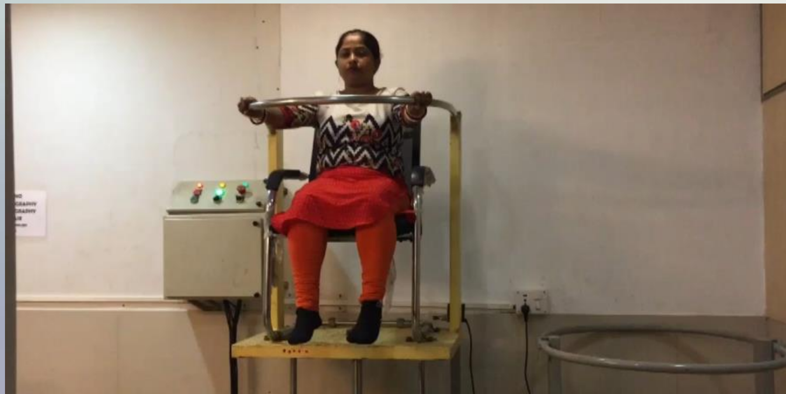
Vertiginous migraine: Migraine prophylactic medication

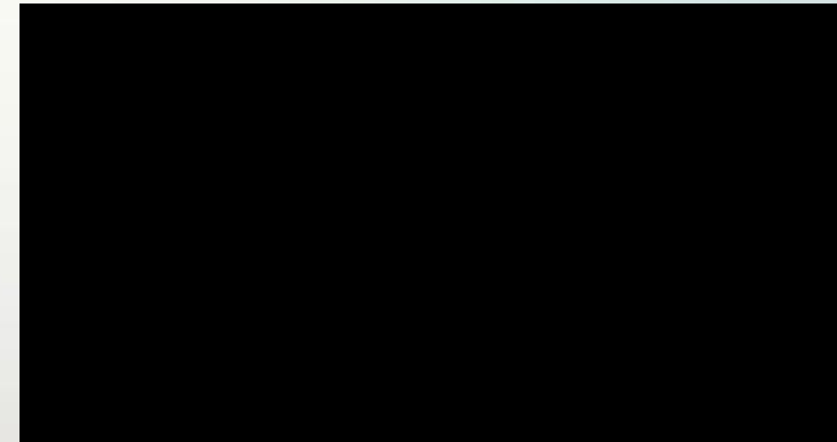
Vestibular neuritis : Steroids

BPPV : Liberatory maneuvers

RESTORING BALANCE by Specific Vestibular Physiotherapy







CONCLUSION

06 To ethically and rationally treat the patient by pharmacotherapy and physical therapy

To advise/carry out some investigations related to the vestibular

04

03 history and the probable cause of the balance disorder

02 To rule out sinister life-threatening causes of vertigo/imbalance

01 To find out whether there is actually any disorder in the balance system

Thank you for a patient hearing

A STEP BY STEP
APPROACH TO
VERTIGO