Navigating vertigo: Insights from Dubai

Dr Vishal Pawar
MBBS, DNB Medicine, DNB Neurology
SCE Neurology (RCP, UK)
Fellow of European Board of Neurology
International vestibular diploma
Specialist Neurologist
Aster & Medcare specialty clinic
Discovery Gardens
Dubai
neurovishal@gmail.com

Disclosure

- Speaker engagement with Academia
- Informed consent taken from the patients shown in the presentation

Learning objective

How to approach a patient with vertigo

To learn the common causes of dizziness in Dubai population

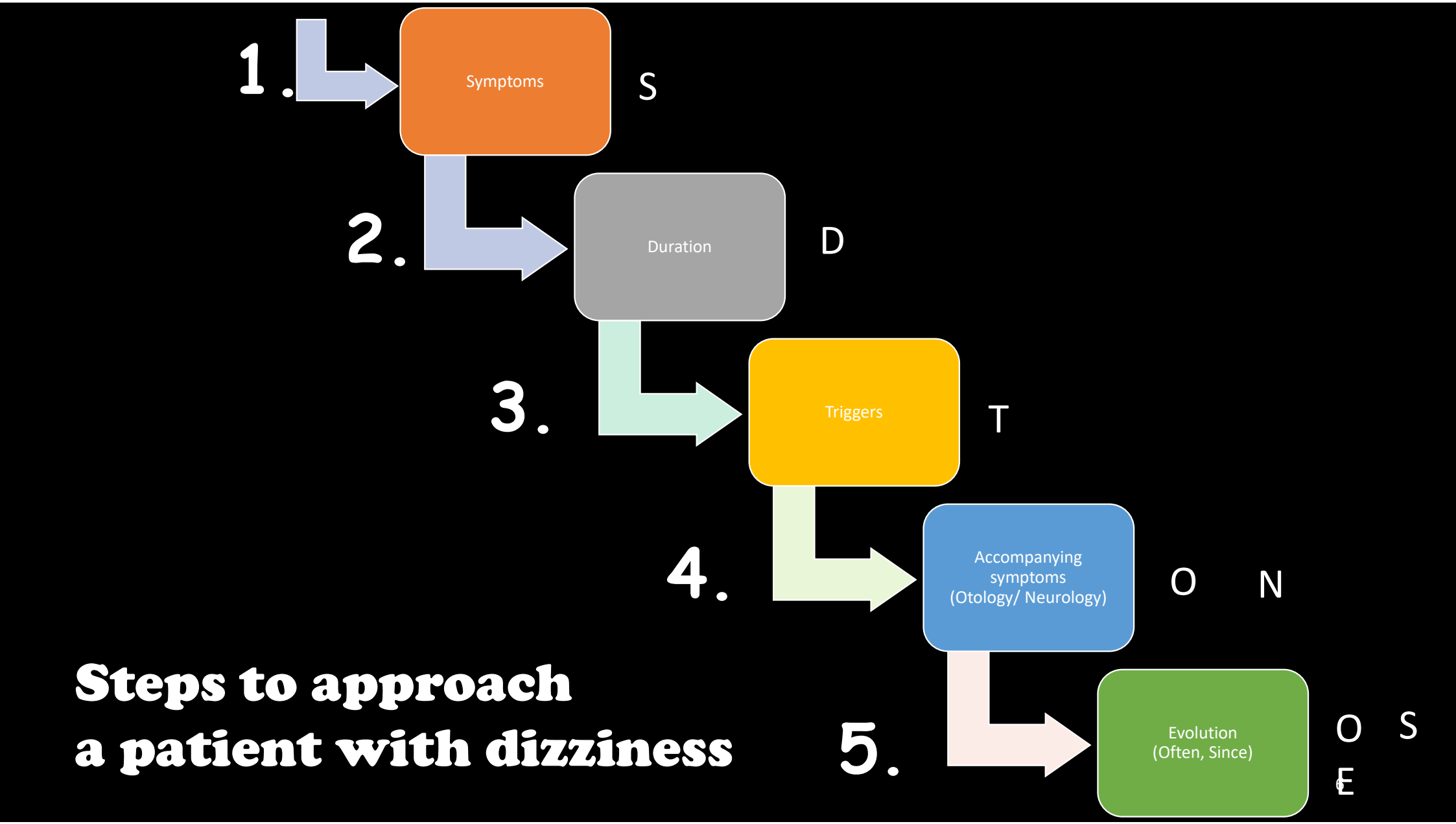
Vestibular symptoms

- Dizziness and vertigo are one of the **most frequent** complaints among medical outpatients.
- The causes range from **trivial to life threatening.**

KroenkeK, Mangelsdorff D. Common

Vestibular disorders

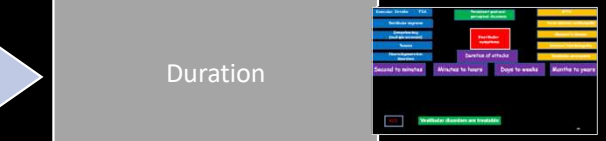
- Peripheral vestibular
- Central Vestibular
- Functional
- Psychiatric
- Hemodynamic
- Other causes


1.
Symptoms
S
2.
Duration
D
3.
Triggers
T
4.
Accompanying symptoms (Otology/ Neurology)
O N
5.
Evolution (Often, Since)
O S E
Steps to approach a patient with dizziness

Steps to approach a patient with dizziness

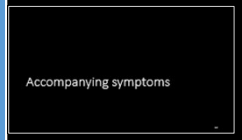
1. Symptoms

2. Duration



3. Triggers

4. Accompanying symptoms (Otology/ Neurology)



5. Evolution (Often, Since)

Dizziness or giddiness-450 descriptions

Visual induced vertigo

Fear of Open places

Anxiety

Visual distortion

Motion sensitivity

Weakness

Whirling

Tilting

Fear of falling

Lightheadedness

Rotating

Rocking

Confusion

Head swimming

Black-out

Wooziness

Pushing

Faint

Spinning

Swaying

Non-specific disorientation

Imbalance

Movement of visual scene

Drunk

Reeling

Fear of heights

Fear of Crowded places

Cambell, William W. DeJong's The neurologic Examination, Lipincott Williams & Wilkins. 2005.

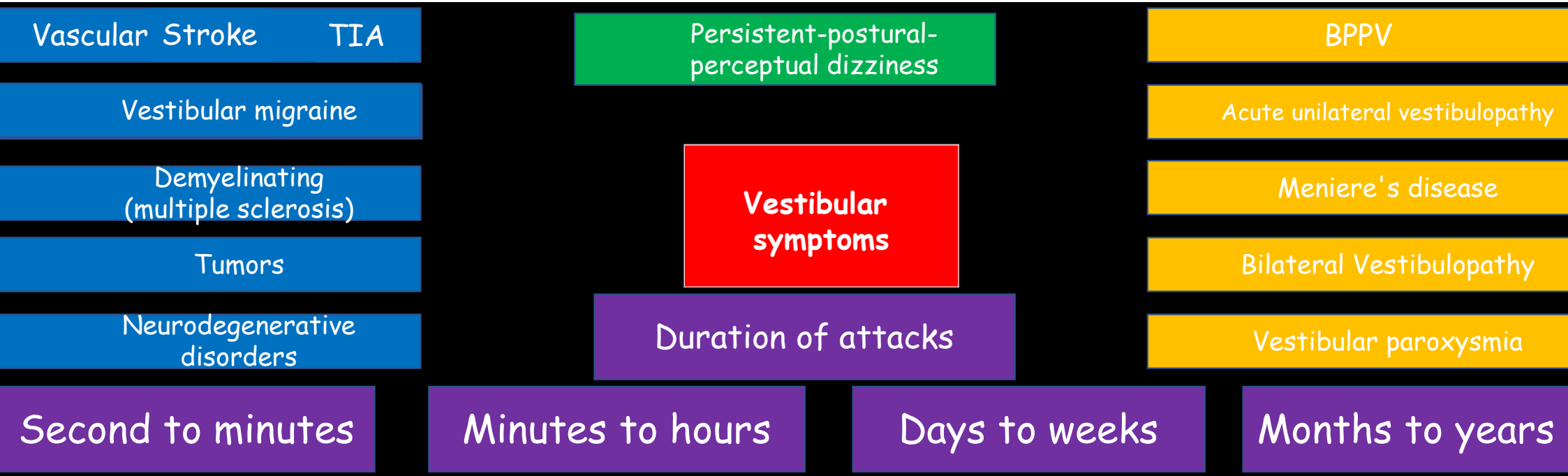
Barany society classification of Vestibular symptoms

Vertigo	Dizziness	Vestibulo-visual symptoms	Postural symptoms
Self motion- when no movement Sense of distorted self-motion	Sense of disturbed or impaired Spatial orientation	– External vertigo – Oscillopsia – Visual lag – Visual tilt – Movement-induced blur	– Unsteadiness – Directional pulsion – Balance-related near fall – Balance-related fall

Vestibular disorders can cause Visual symptoms

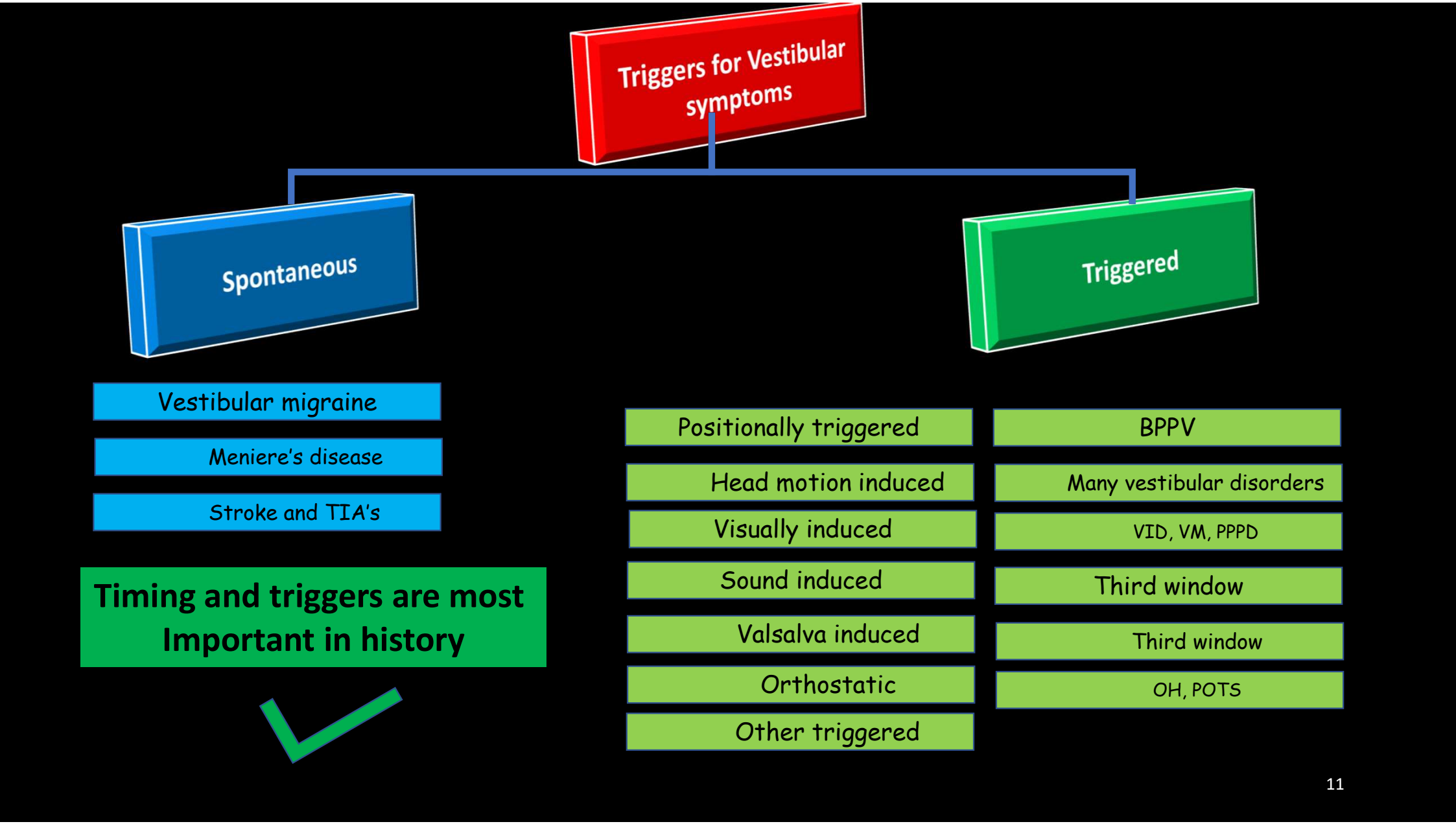
Ophthalmologist

Alexandre Bisdorff et al. Classification of Vestibular Disorders of the Barany Society, Classification of vestibular symptoms: Towards an international classification of vestibular disorders. Journal of Vestibular Research 19 (2009) 1–13



80%

Vestibular disorders are treatable


Triggers for Vestibular symptoms
Spontaneous
Triggered
Vestibular migraine
Meniere's disease
Stroke and TIA's
Timing and triggers are most Important in history
Positionally triggered
BPPV
Head motion induced
Many vestibular disorders
Visually induced
VID, VM, PPPD
Sound induced
Third window
Valsalva induced
Third window
Orthostatic
OH, POTS
Other triggered

Orthostatic

Head-motion induced

Positional

Visually-induced dizziness

Accompanying symptoms

Central cause

Headache

Diagnostic criteria of
Definite Vestibular migraine

Vestibular symptoms (A)

Moderate to severe intensity (A)

5 min – 72 hours (A)

≥ 5 episodes (A)

Past or current history of migraine (B)

Half episodes with any one of the following three
1) Headache 2) Photo and phono 3) Visual aura (C)

- a) unilateral location
- b) pulsating quality
- c) moderate or severe intensity
- d) aggravation by routine physical activity

Not better accounted for by another ICHD-3 diagnosis or by another vestibular disorder (D)

International classification of headache disorders-3, 2018

Persistent postural perceptual dizziness (Functional dizziness)

- Upright posture
- Agoraphobia
  - Crowded places (Malls, supermarkets)
  - Open places (Airport)
- Visually induced dizziness
- Dizziness while driving (Motorist vestibular disorientation syndrome)

Hearing loss and or tinnitus

- Meniere's disease
- Anterior inferior cerebellar artery infarction
- Labyrinthitis
- Vestibular paroxysmia
- Peri-lymph fistula

Daroff, Robert B. Bradley's Neurology in Clinical Practice. Philadeplhia. Elsevier Saunders,2012.

Vascular risk factors

- Diabetes
- Hypertension
- Dyslipidemia
- Obesity
- H/o Smoking
- High ABCD^2 score

Daroff, Robert B. Bradley's Neurology in Clinical Practice. Philadeplhia. Elsevier Saunder

2 Minute Medicine®	ABCD2 Score	2minutemedicine.com
Risk Factor		**Points**
Age ≥60 years		1
Blood pressure elevation (systolic >140 mmHg and/or diastolic ≥90 mmHg)		1
Clinical features		
Unilateral weakness		2
Speech disturbance without weakness		1
Duration of symptoms		
≥60 minutes		2
10-59 minutes		1
Diabetes mellitus		1

ABCD2 Score	Patients	2-day risk (%)	7-day risk (%)	90-day risk (%)
Low (0-3)	1,628	1.0	1.2	3.1
Moderate (4-5)	2,169	4.1	5.9	9.8
High (6-7)	1,012	8.1	11.7	17.8

Table I. The ABDC2 Score. | 2minutemedicine.com

Anxiety and depression assessment

GAD-7

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

Total Score ___ = Add Columns ___ + ___ + ___

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all ☐ Somewhat difficult ☐ Very difficult ☐ Extremely difficult ☐

Score	Risk Level	Intervention
0-4	No to Low Risk	None
5-9	Mild	Provide general feedback, repeat GAD-7 at follow up, consider adjusting treatment plan if not improving in last 4 weeks
10-14	Moderate	Further evaluation recommended; For active treatment plans consider adjustment; For text therapy clients monitor for synchronous therapy
15+	Severe	Adjust treatment plan; focused assessment of safety plan and pharmacotherapy evaluation/ re-evaluation; If emergent need then consider referral to higher level of care; Client is not a good candidate for text therapy/asynchronous

Cause
Complicate
Consequence

PHQ-9

Subject Name _____ **Date**_____

Since your hospitalization, how often have you been bothered by any of the following problems? Circle your response.

	Not at all	Some	Often	Nearly all of the time
Little interest or pleasure in doing things	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3
Trouble falling or staying asleep, or sleeping to much	0	1	2	3
Feeling tired or having little energy	0	1	2	3
Poor appetite or overeating	0	1	2	3
Feeling bad about yourself – or that you are a failure or have let your family down	0	1	2	3
Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
Moving or speaking so slowly that other people could have noticed. Or the opposite –	0	1	2	3

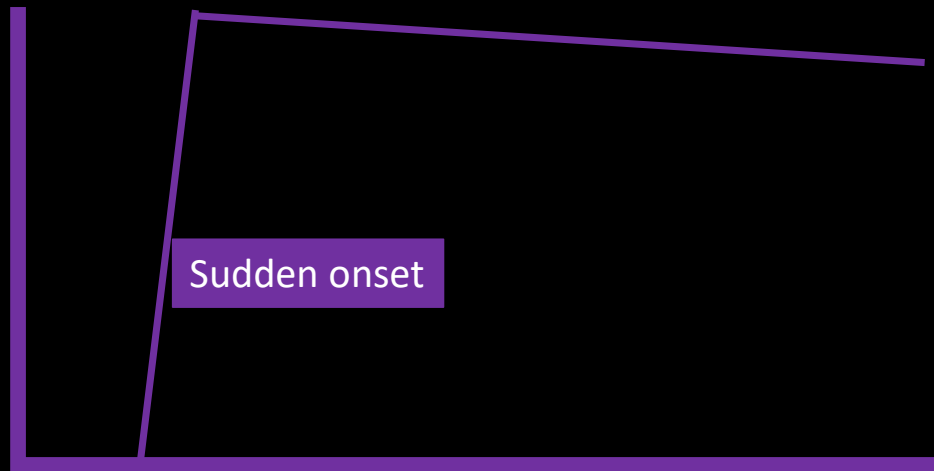
Proposed Treatment Action by PHQ 9 Score

PHQ-9 Score	Depression Severity	Proposed Treatment Actions
0-4	Non – Minimal	None
5-9	Mild	Watchful waiting; repeat PHQ 9 at follow-up
10-14	Moderate	Review treatment plan if not improving in past 4 weeks; Consider discussion of additional support such as pharmacotherapy
15-19	Moderately Severe	Consider adjusting treatment plan and/or frequency of sessions; Discuss additional supports such as pharmacotherapy; For SonderMind Anytime Messaging clients, consider converting from asynchronous to synchronous therapy channels
20-27	Severe	Adjust treatment plan; focused assessment of safety plan and pharmacotherapy evaluation/ re-evaluation; If emergent then refer to higher level of care; Likely Not a candidate for asynchronous/text therapy

Acute persistent continuous dizziness lasting days to weeks a/w nausea, vomiting, head motion intolerance

Tempo of vestibular disorder

Acute vestibular syndrome



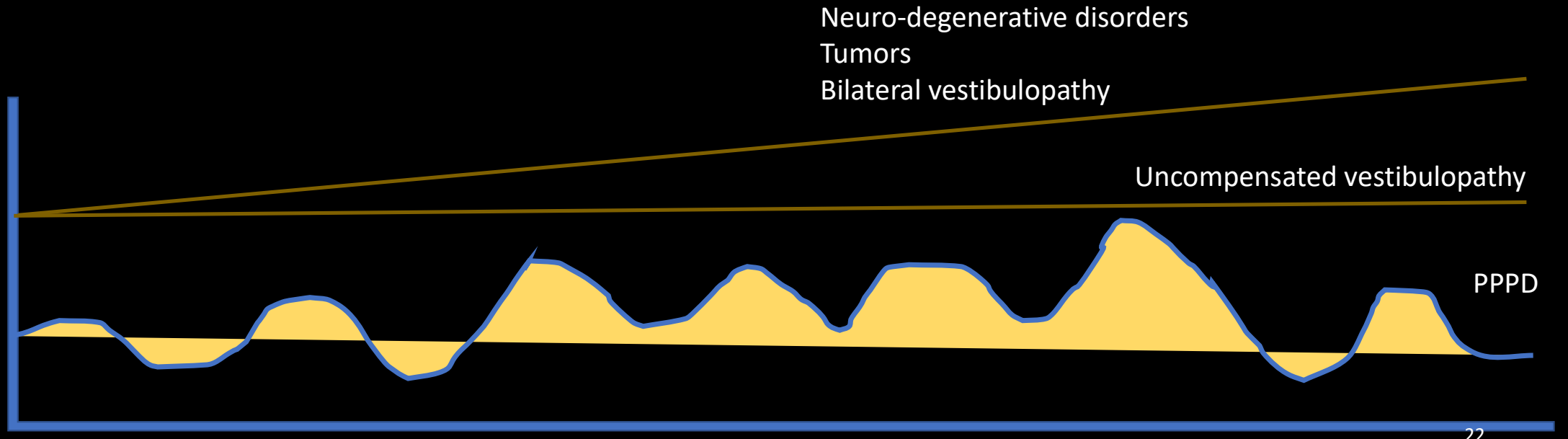
- Acute unilateral vestibulopathy (Vestibular neuritis)
- Posterior circulation stroke

Dizziness lasting weeks to months or longer

Tempo of vestibular disorder

Acute vestibular syndrome

Chronic vestibular syndrome



Episodic dizziness, spontaneous or triggered lasting for < 1 min to hours

Tempo of vestibular disorder

Acute vestibular syndrome

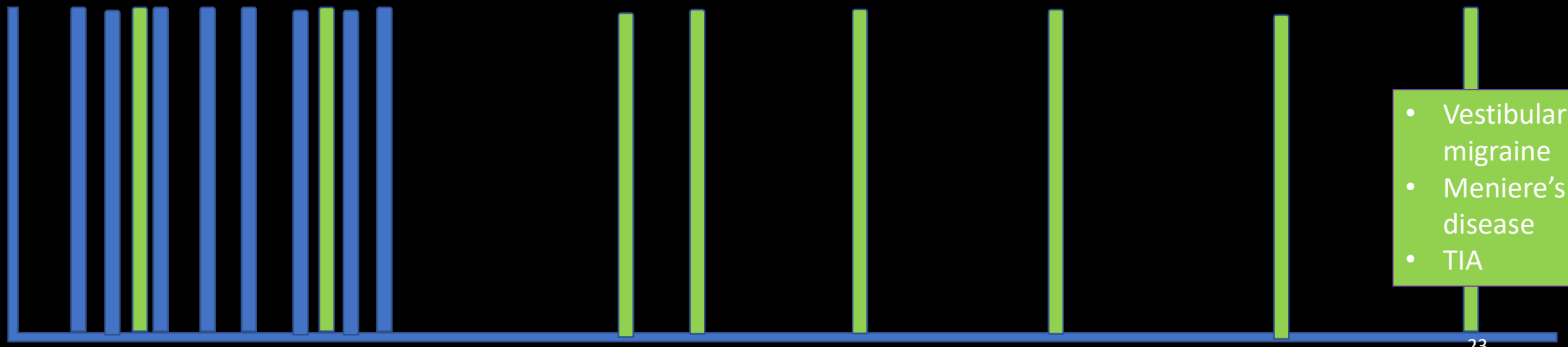
Episodic vestibular syndrome

Chronic vestibular syndrome

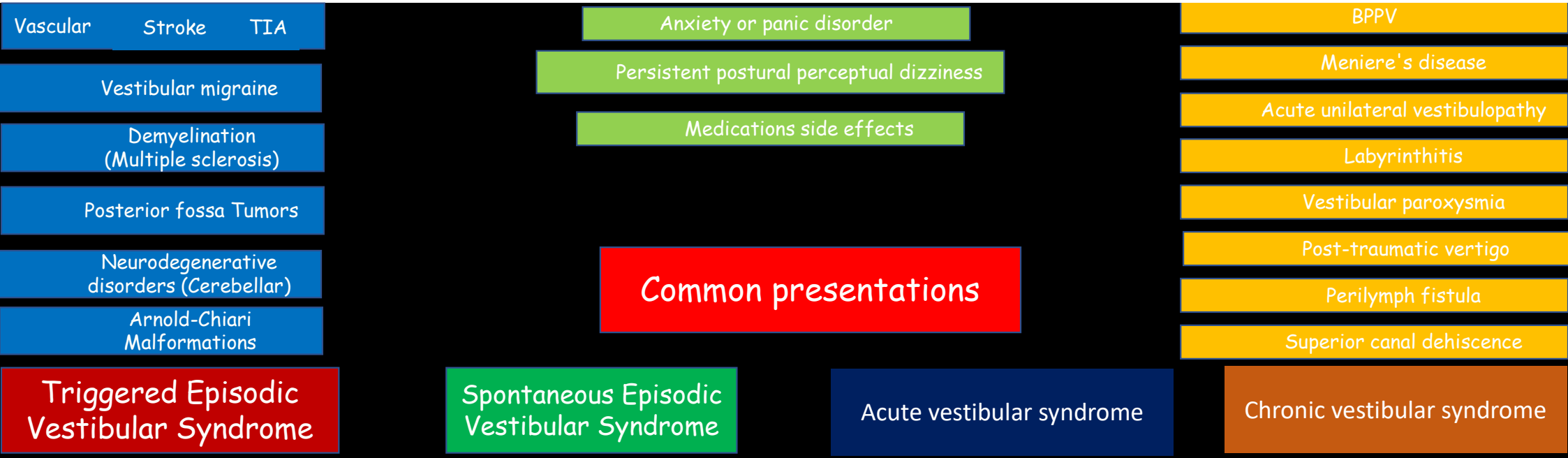
Triggered Episodic Vestibular Syndrome

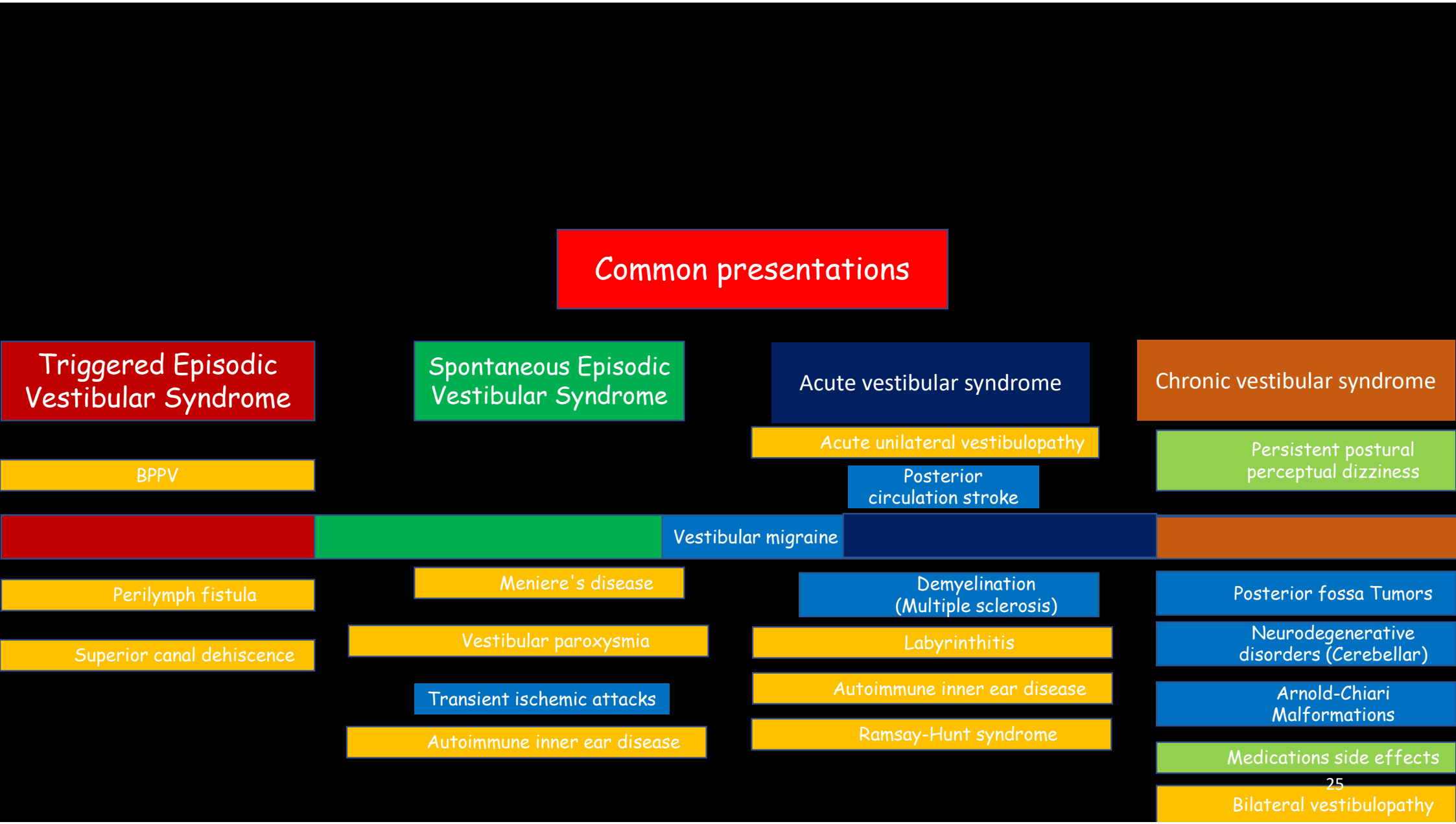
Spontaneous Episodic Vestibular Syndrome

BPPV



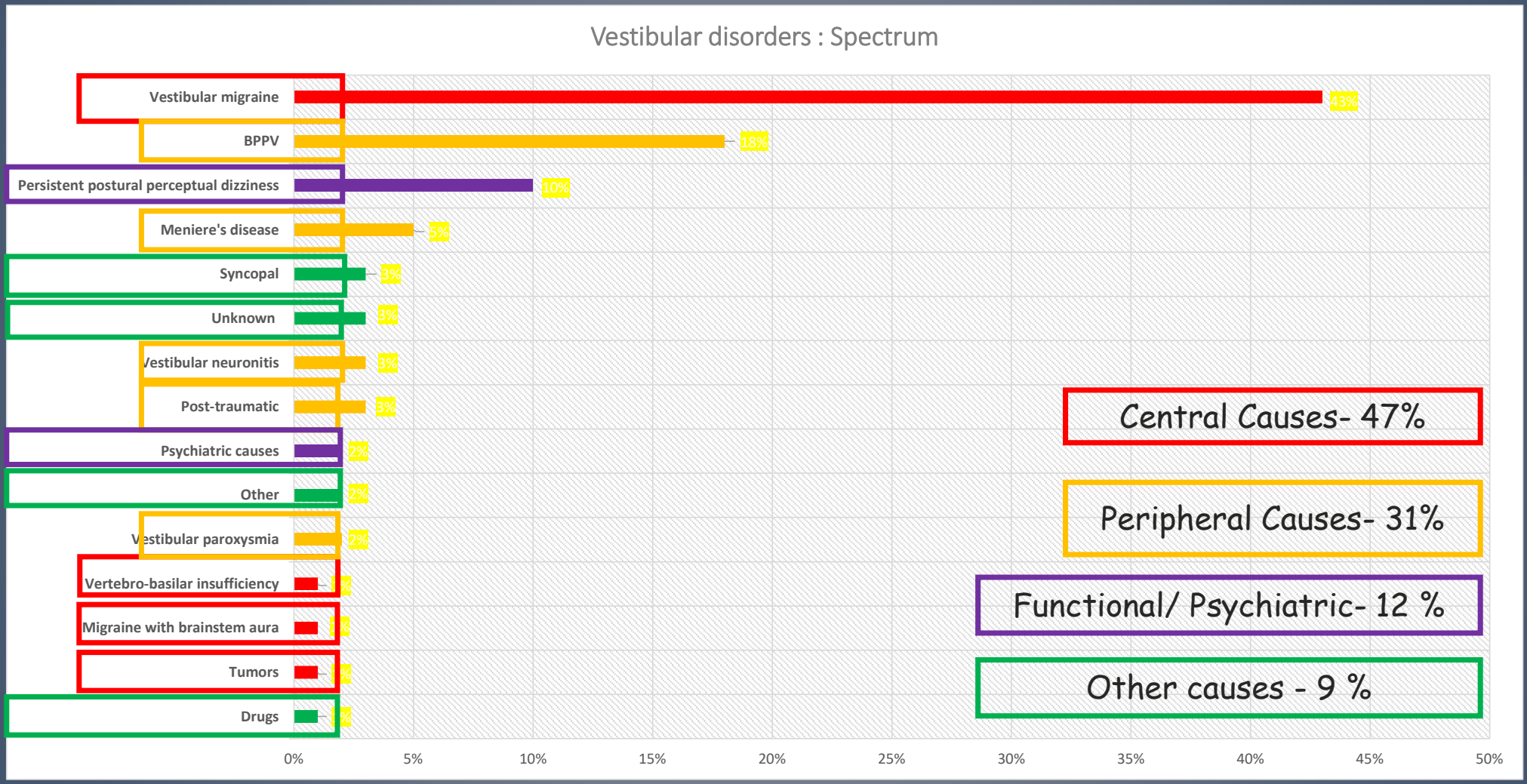
- Vestibular migraine
- Meniere's disease
- TIA

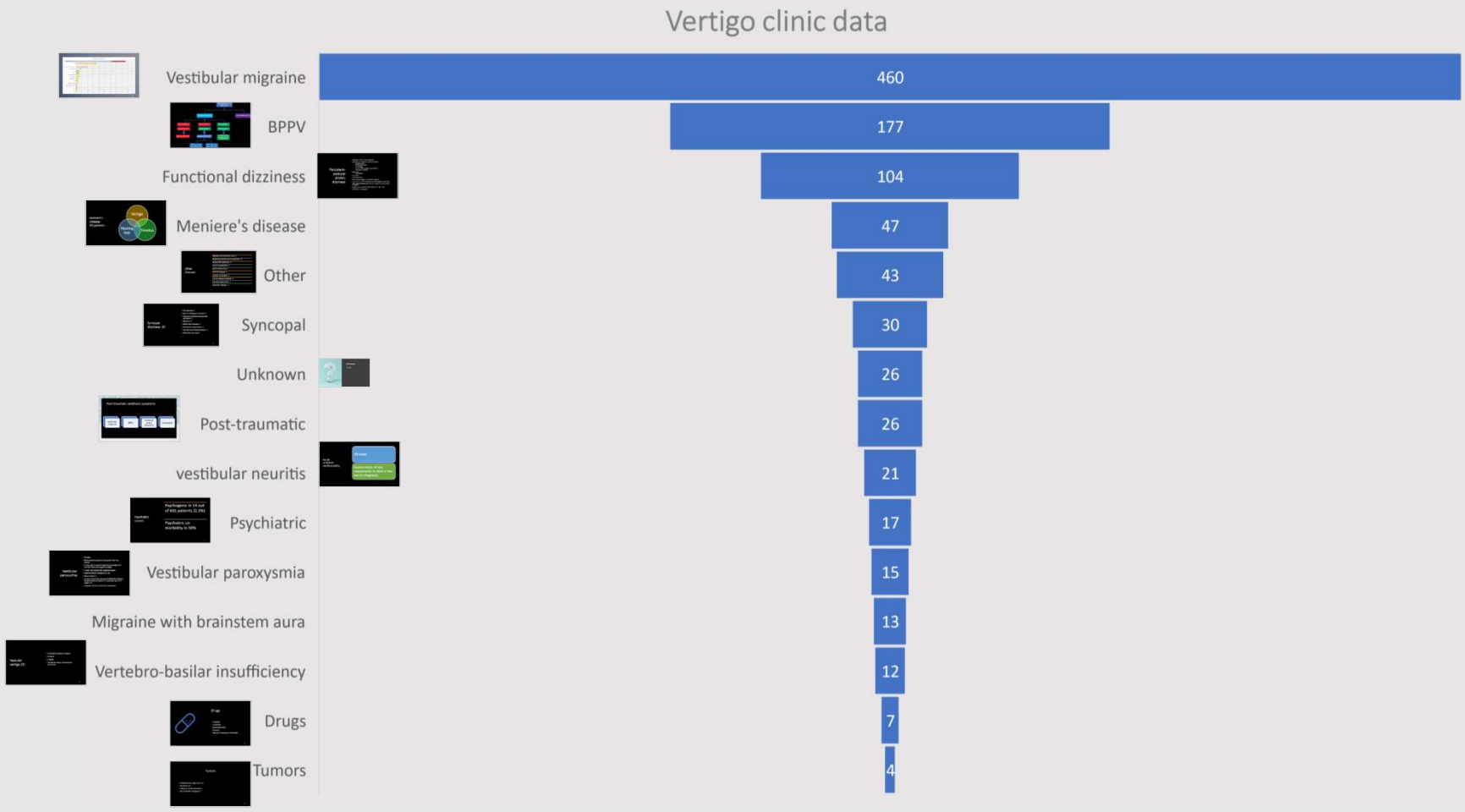

Vascular
Stroke
TIA
Vestibular migraine
Demyelination (Multiple sclerosis)
Posterior fossa Tumors
Neurodegenerative disorders (Cerebellar)
Arnold-Chiari Malformations
Triggered Episodic Vestibular Syndrome
Anxiety or panic disorder
Persistent postural perceptual dizziness
Medications side effects
Common presentations
Spontaneous Episodic Vestibular Syndrome
Acute vestibular syndrome
BPPV
Meniere's disease
Acute unilateral vestibulopathy
Labyrinthitis
Vestibular paroxysmia
Post-traumatic vertigo
Perilymph fistula
Superior canal dehiscence
Chronic vestibular syndrome

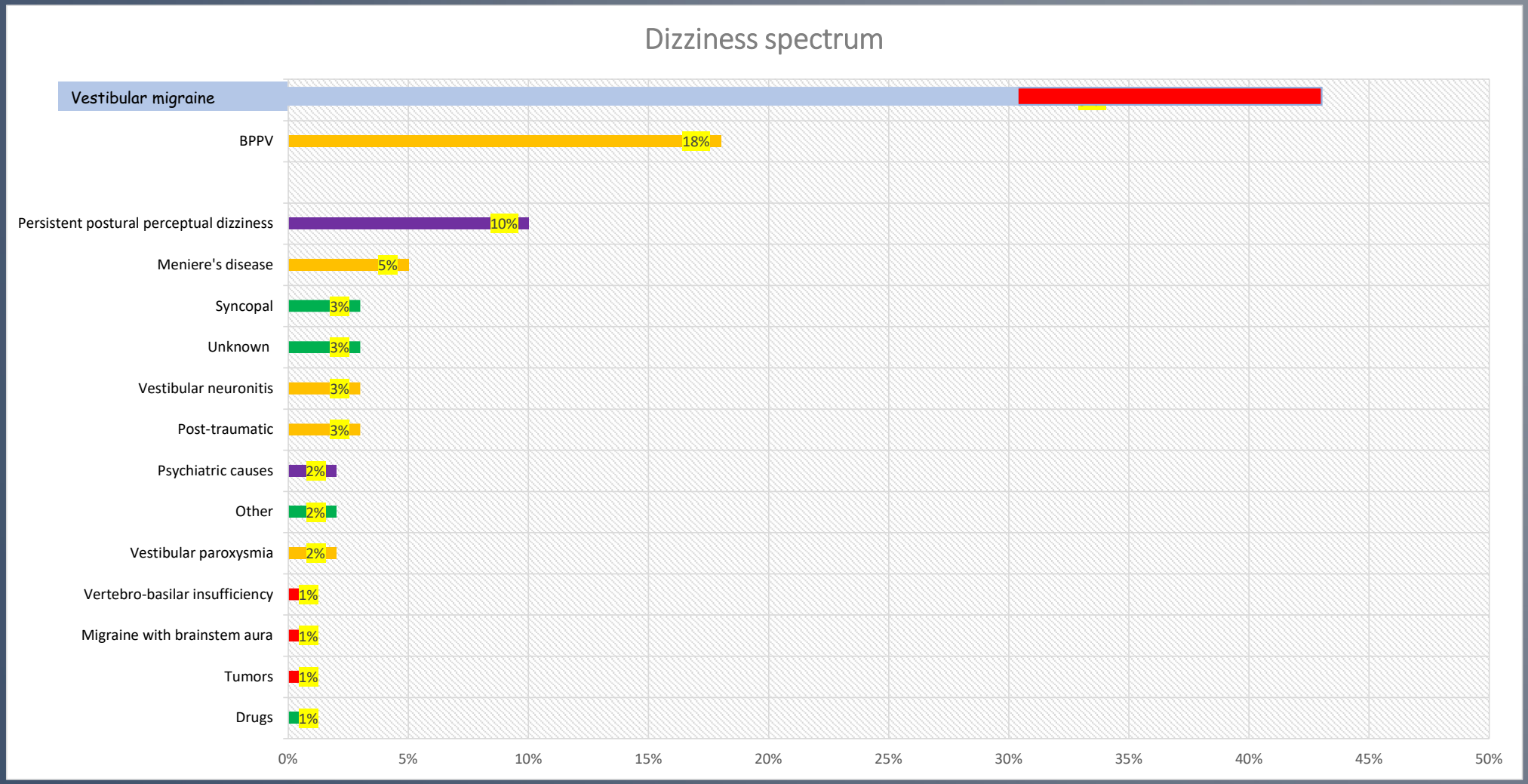

Common presentations
Triggered Episodic Vestibular Syndrome
Spontaneous Episodic Vestibular Syndrome
Acute vestibular syndrome
Chronic vestibular syndrome
BPPV
Acute unilateral vestibulopathy
Posterior circulation stroke
Persistent postural perceptual dizziness
Vestibular migraine
Perilymph fistula
Meniere's disease
Demyelination (Multiple sclerosis)
Posterior fossa Tumors
Superior canal dehiscence
Vestibular paroxysmia
Labyrinthitis
Neurodegenerative disorders (Cerebellar)
Transient ischemic attacks
Autoimmune inner ear disease
Arnold-Chiari Malformations
Autoimmune inner ear disease
Ramsay-Hunt syndrome
Medications side effects
Bilateral vestibulopathy

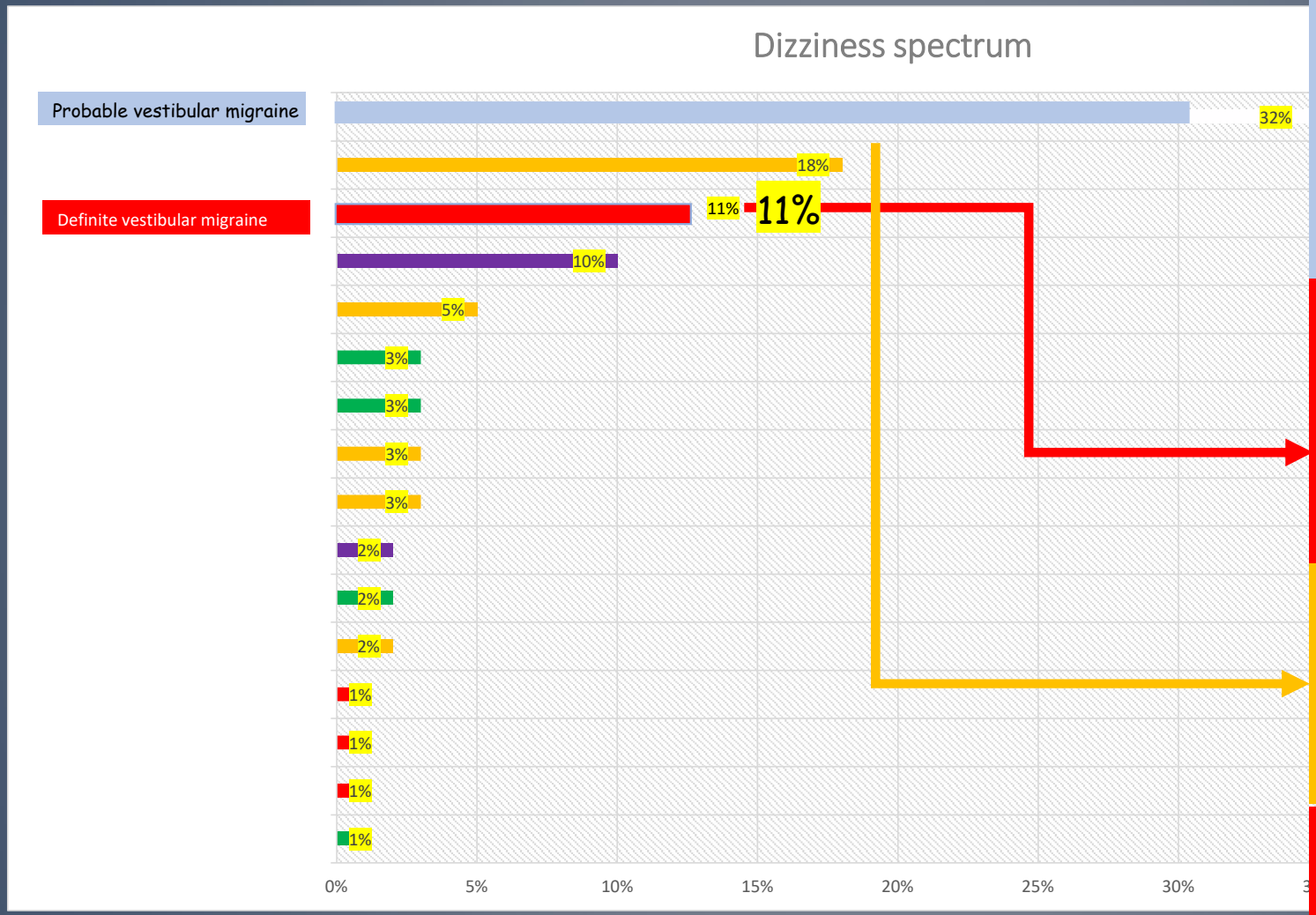
Dizziness registry- Lessons learnt

- Prospective registry
- 2910 cases in last 57 months
  (27th Jan 2019-24th Oct 2023)
- Data analyzed - 1002 cases till 8th Dec 2020
- Age group 14-83 years
- 64 Nationalities


Vestibular disorders : Spectrum
Vestibular migraine
BPPV
Persistent postural perceptual dizziness
Meniere's disease
Syncopal
Unknown
Vestibular neuronitis
Post-traumatic
Psychiatric causes
Other
Vestibular paroxysmia
Vertebro-basilar insufficiency
Migraine with brainstem aura
Tumors
Drugs
43%
18%
10%
5%
3%
3%
3%
3%
2%
2%
2%
1%
1%
1%
1%
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%
Central Causes- 47%
Peripheral Causes- 31%
Functional/ Psychiatric- 12 %
Other causes - 9 %


Vertigo clinic data
Vestibular migraine
460
BPPV
177
Functional dizziness
104
Meniere's disease
47
Other
43
Syncopal
30
Unknown
26
Post-traumatic
26
vestibular neuritis
21
Psychiatric
17
Vestibular paroxysmia
15
Migraine with brainstem aura
13
Vertebro-basilar insufficiency
12
Drugs
7
Tumors
4


Dizziness spectrum
Vestibular migraine
BPPV
18%
Persistent postural perceptual dizziness
10%
Meniere's disease
5%
Syncopal
3%
Unknown
3%
Vestibular neuronitis
3%
Post-traumatic
3%
Psychiatric causes
2%
Other
2%
Vestibular paroxysmia
2%
Vertebro-basilar insufficiency
1%
Migraine with brainstem aura
1%
Tumors
1%
Drugs
1%
0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%



Probable vestibular migraine

- Vertigo was not a presenting complaint in many
- Didn't affect quality of life
- < 5 min
- < 5 attacks
- < 50% attacks associated with 2/4 migrainous features

Definite vestibular migraine

- Vertigo was a presenting complaint
- Affected quality of life
- Duration was > 5 min

BPPV remains the most common cause of positional vertigo if only definite migraine is considered

Vestibular migraine is leading cause of spontaneous episodic vertigo

Vestibular migraine- Review of literature

Mean age of onset 40

38 years

Can affect children

8 years

As late as 72 years

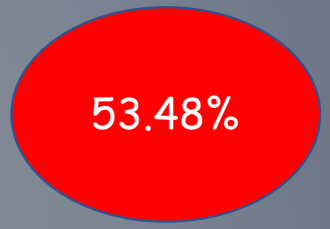
83 years

Age

Carrie Elizabeth. *Vestibular Migraine*. In: UpToDate, Post, TW (Ed), UpToDate, Waltham, MA, 2018

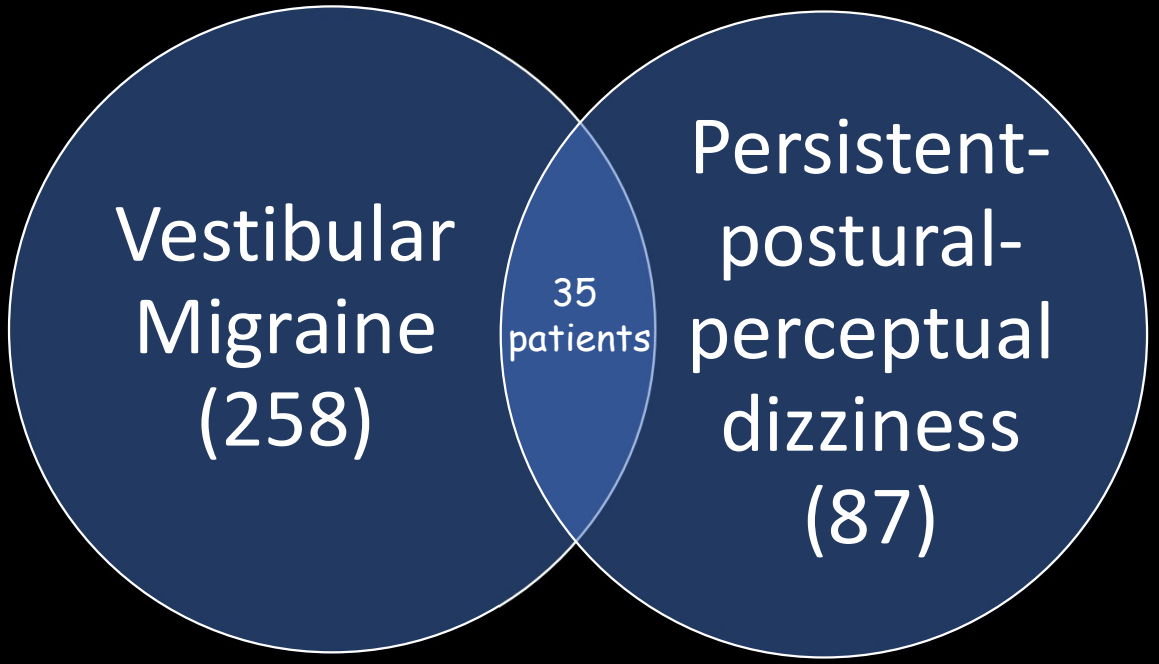
Gender

- More common in females (60-83%)

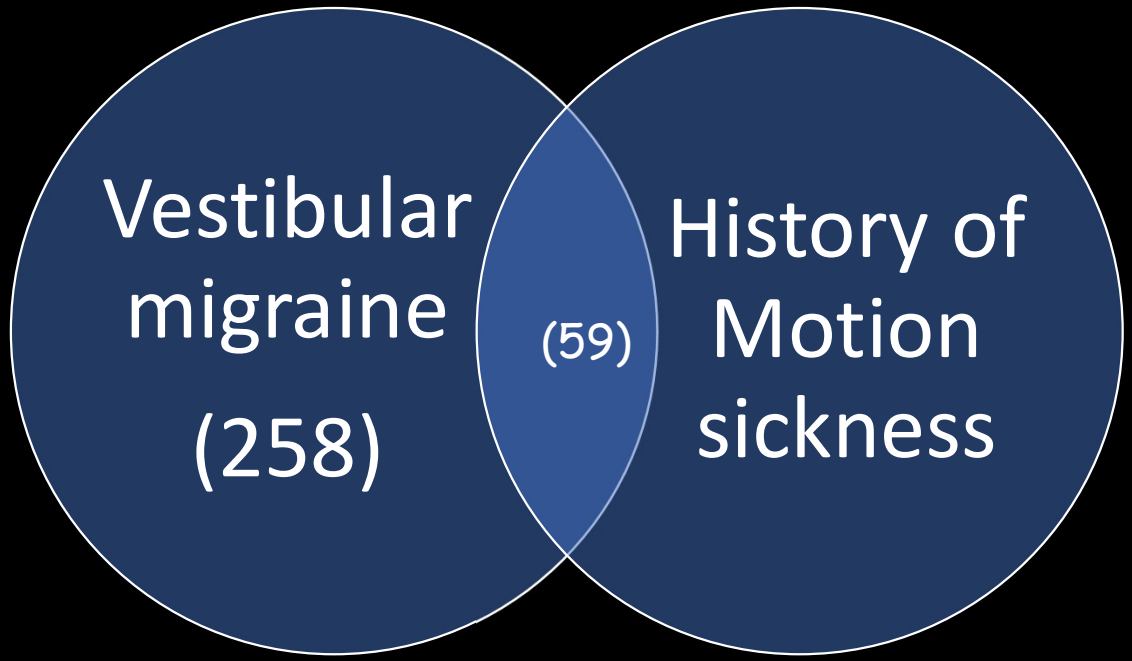


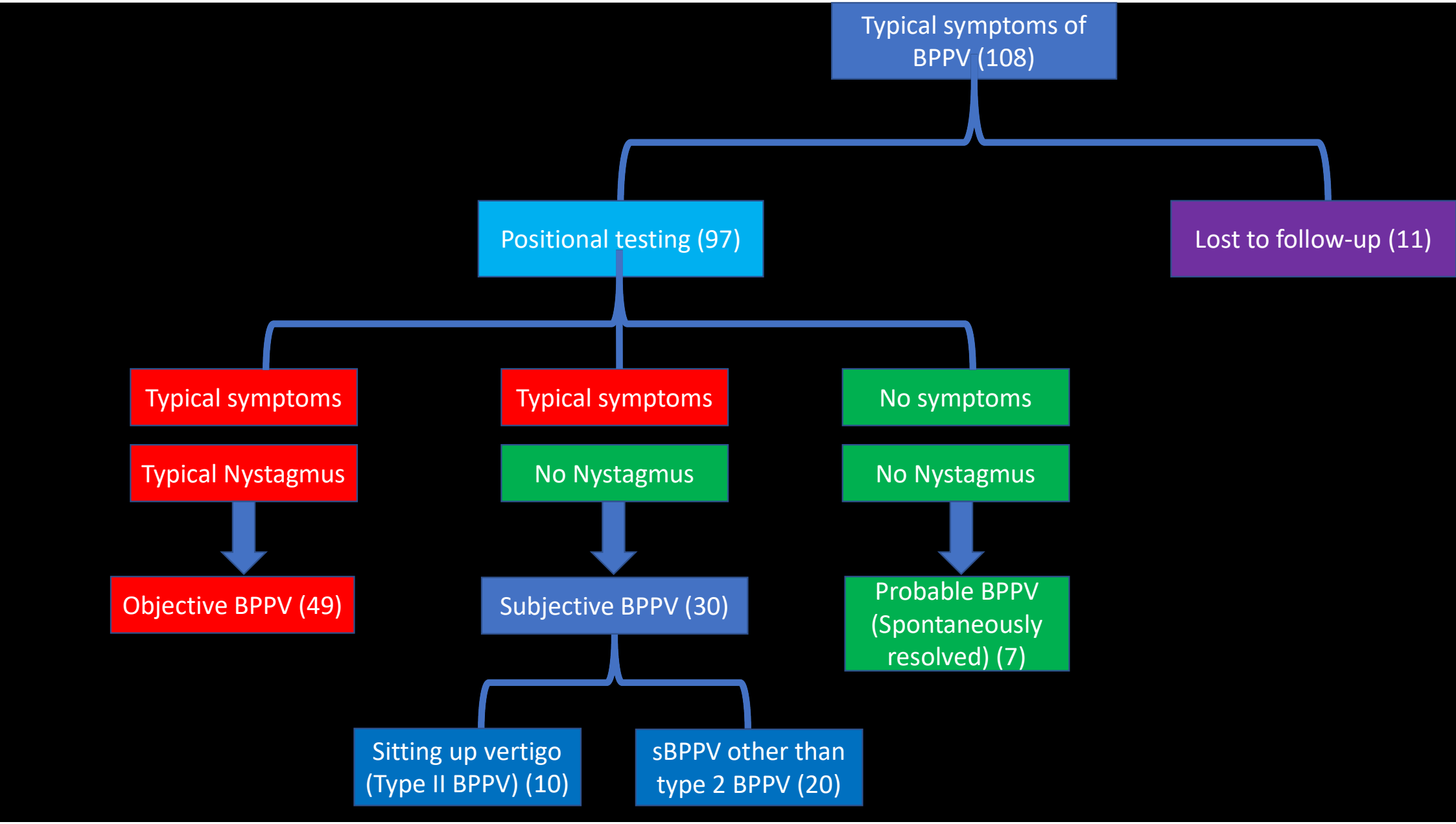
Carrie Elizabeth. *Vestibular Migraine*. In: UpToDate, Post, TW (Ed), UpToDate, Waltham, MA, 2018

13.5% patients with Vestibular migraine had co-morbid/triggered Persistent-postural-perceptual dizziness

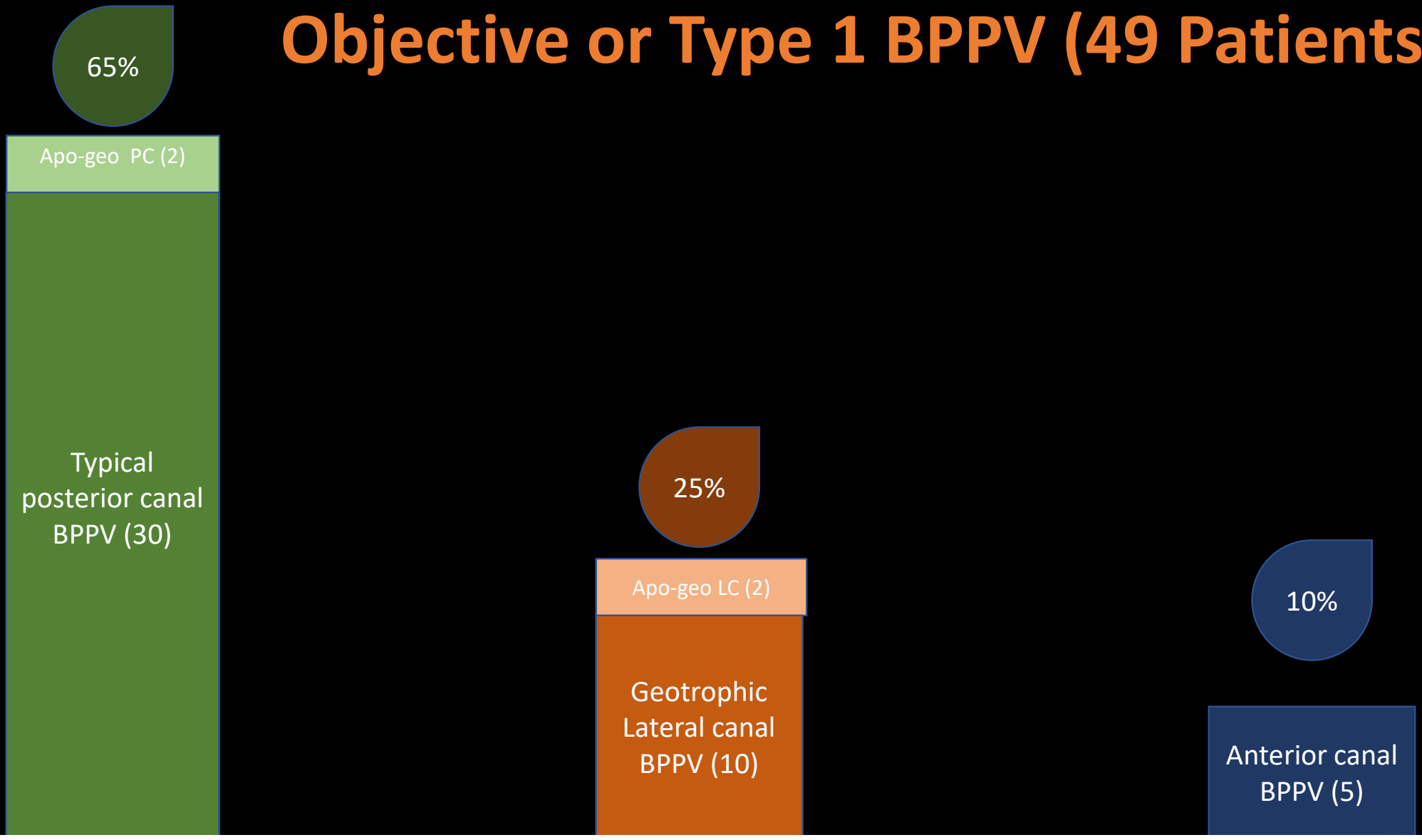


22% patient had history of motion sickness




Typical symptoms of BPPV (108)
Positional testing (97)
Lost to follow-up (11)
Typical symptoms
Typical Nystagmus
Typical symptoms
No Nystagmus
No symptoms
No Nystagmus
Objective BPPV (49)
Subjective BPPV (30)
Probable BPPV (Spontaneously resolved) (7)
Sitting up vertigo (Type II BPPV) (10)
sBPPV other than type 2 BPPV (20)

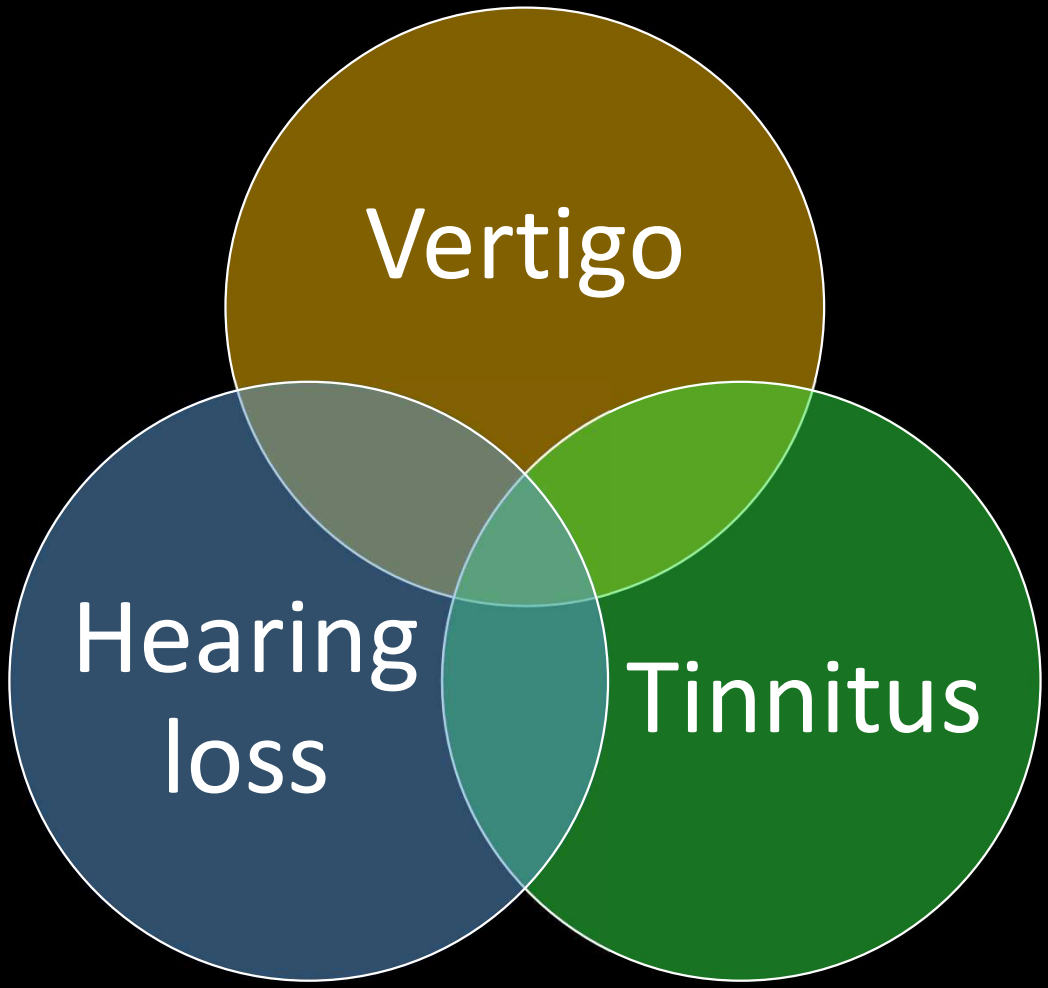
Objective or Type 1 BPPV (49 Patients)

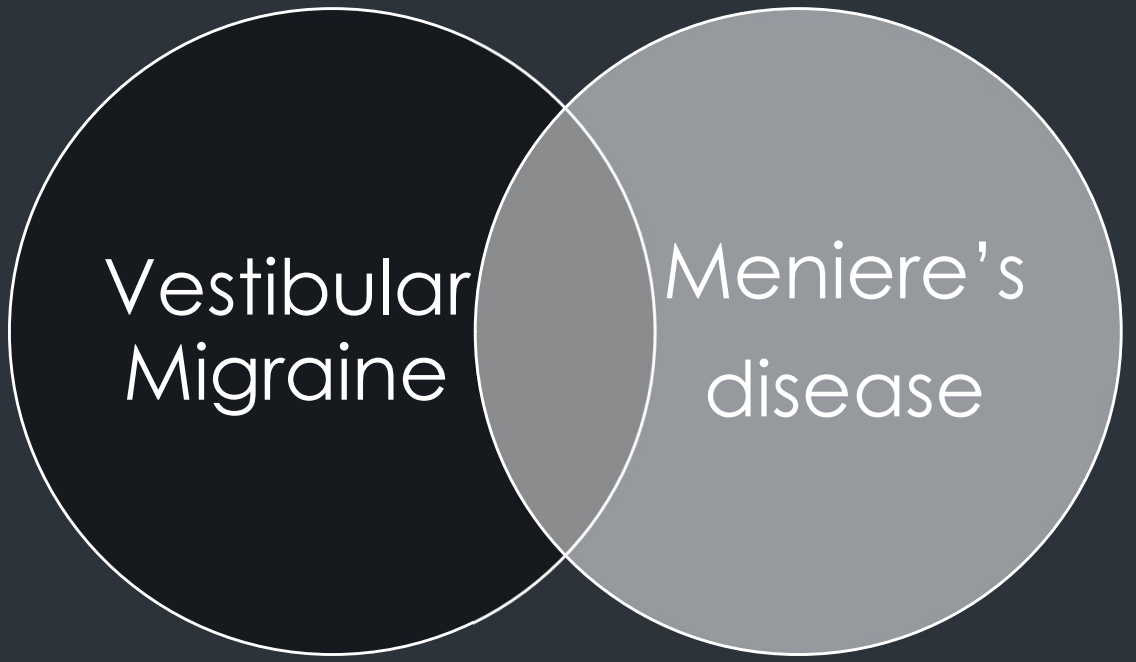


Persistent-postural phobic dizziness

- Total cases -260 (86 cases Analysed)
- Symptoms are triggered in specific situations
  - Upright posture
  - During head motion
  - Visual triggers
  - Crowded places (Malls, supermarkets)
  - Open places (Airport)
- Relieved by
  - Supine position
- Pure 34/86
- Co-morbid 52/86
- Most common trigger was Vestibular migraine
- Can occur due to non-vestibular disorders (Epilepsy, depression)
- **VNG: Hyperventilation test -**Dizziness without any characteristic nystagmus
- Respond very well to the SSRI / SNRI / TCA / VRT / CBT
- Venlafaxine , Escitalopram

Meniere's disease-
30 patients





Vestibular migraine	Vestibular migraine	Overlap syndrome	Meniere's disesase	Meniere's disesase
	Episodic tinnitus, ear fullness	13%	Migraine	

Carrie Elizabeth. *Vestibular Migraine*. In: UpToDate, Post, TW (Ed), UpToDate, Waltham, MA, 2018

Acute unilateral vestibulopathy

18 cases

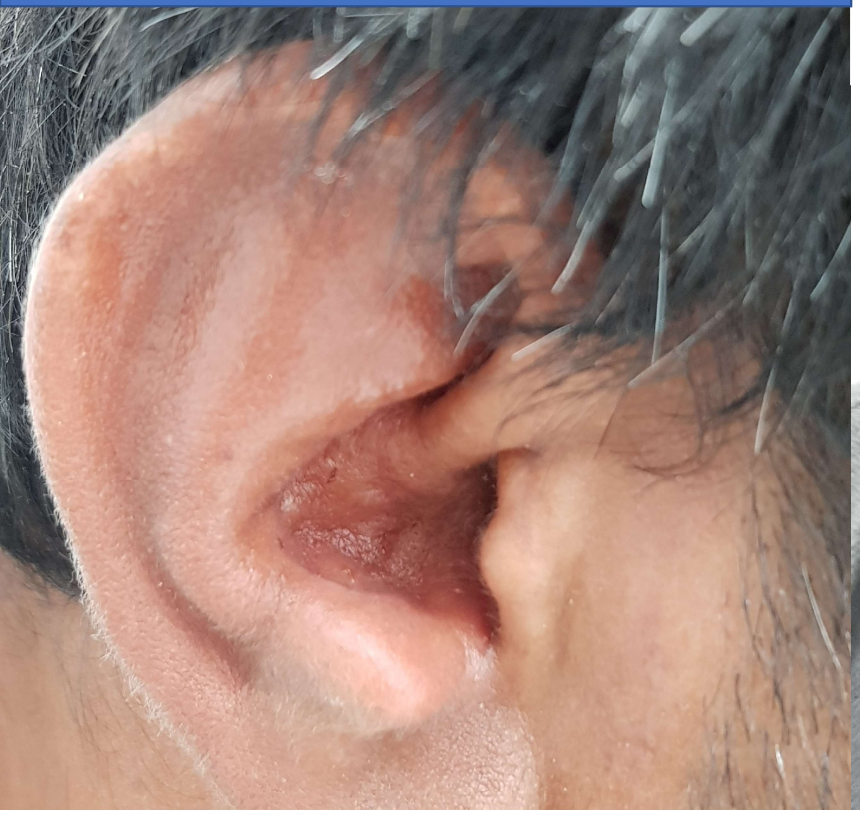
Examination of eye movements in dark is the key to diagnosis

HINTS plus testing

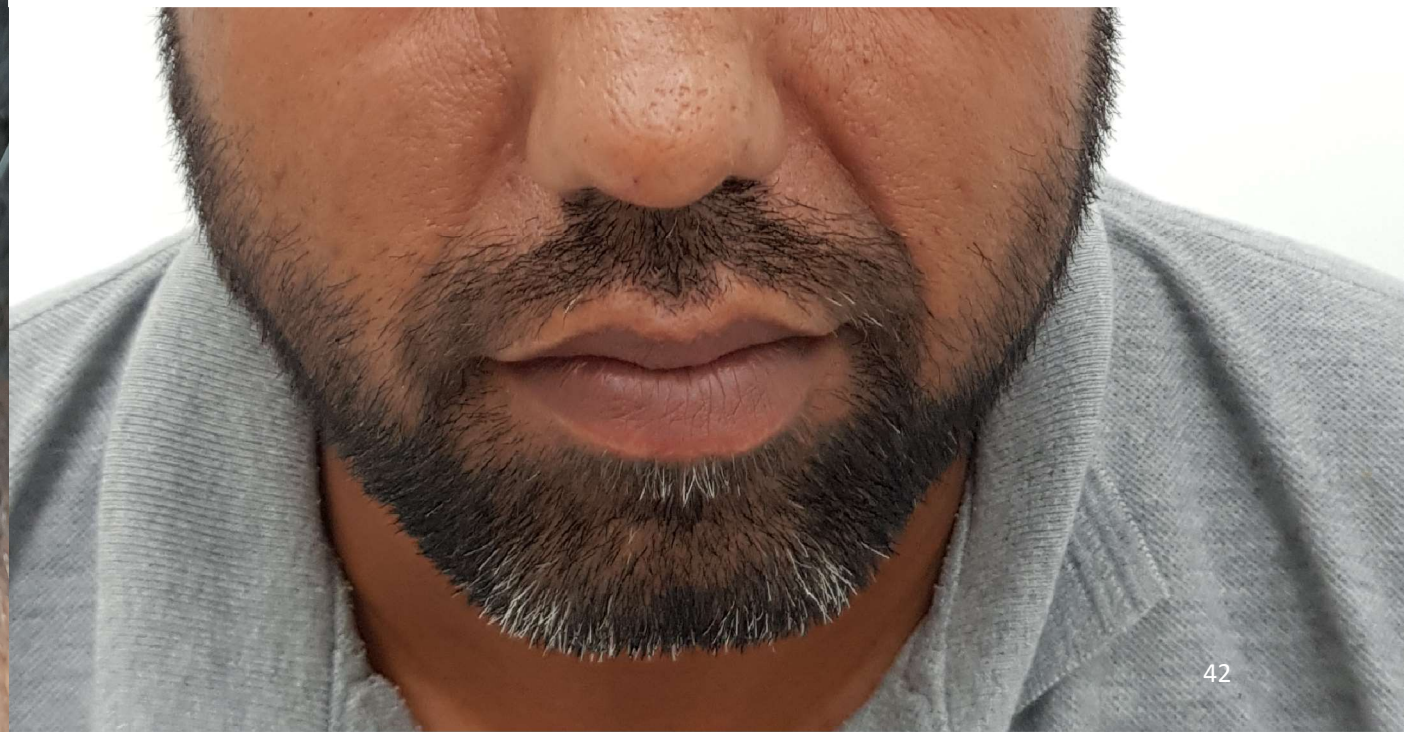
		Peripheral Vertigo	Central Vertigo
HI			
N			
TS			
+	Acute hearing loss	No	Yes

3 cases | Ramsay-Hunt syndrome

Vesicles in ear



Facial weakness



Post-traumatic vestibular symptoms

- Vestibular migraine
- BPPV
- Vertebral artery dissection
- Concussion

Psychiatric causes

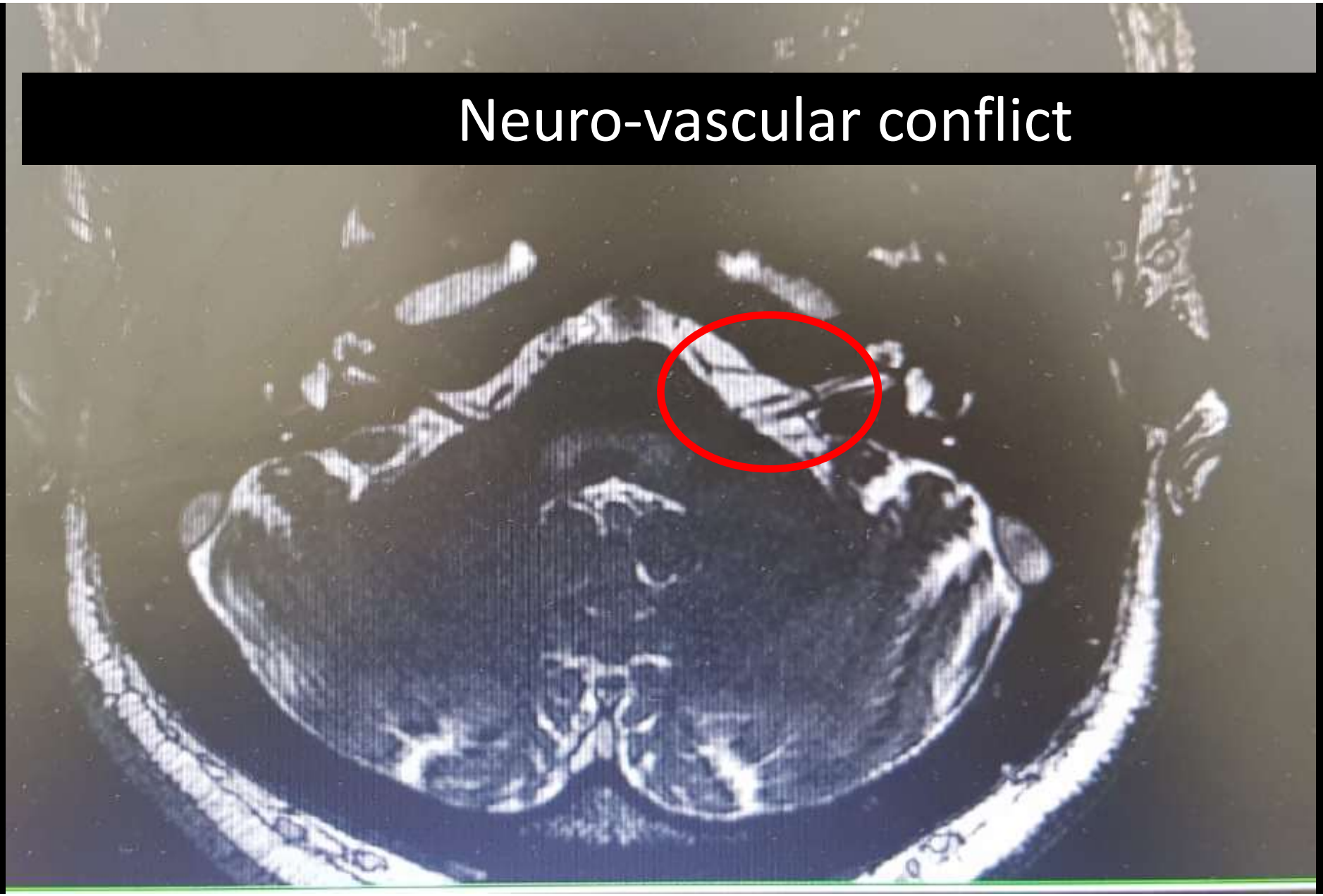
Psychogenic in 14 out of 601 patients (2.3%)

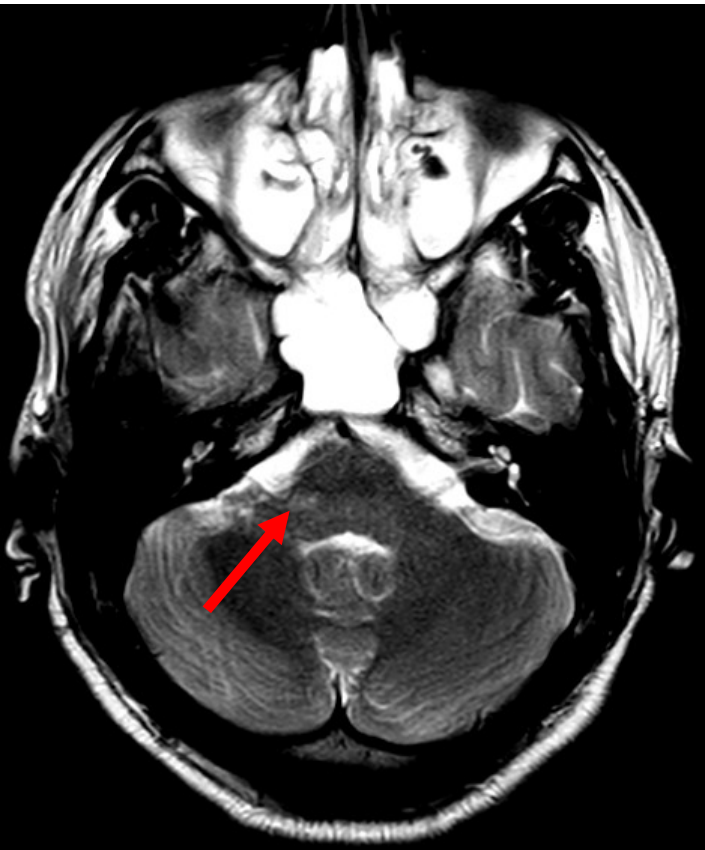
Psychiatric co-morbidity in 50%

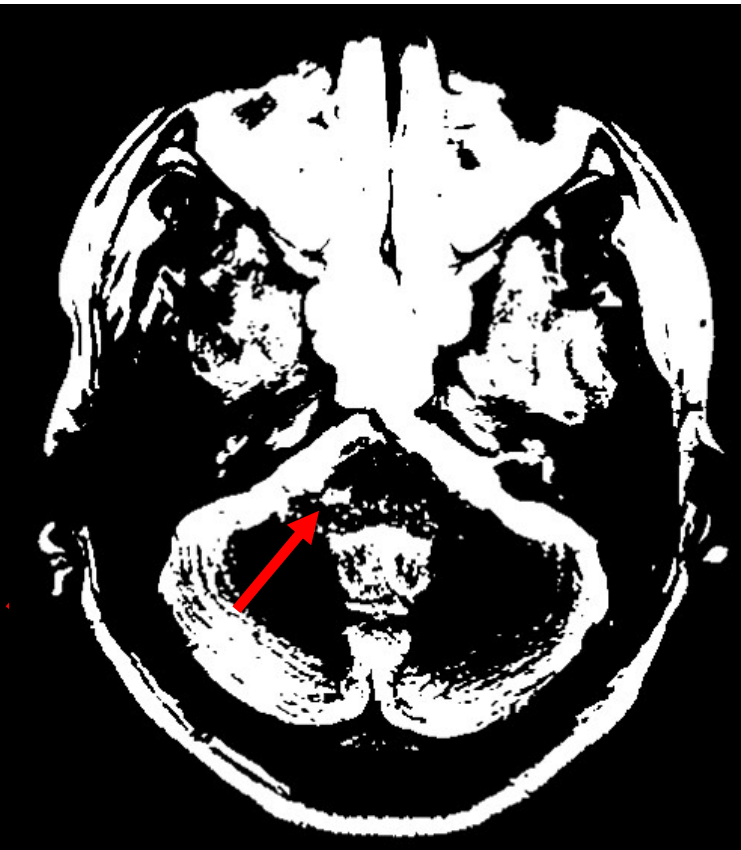
Vestibular paroxysmia

- 13 cases
- Stereo-typical symptoms lasting less than one minute
- 2 cases with co-existent trigeminal neuralgia and one with Gloss-pharyngeal neuralgia
- 2 cases with positionally triggered attacks
- Hyperventilation nystagmus in 3/6
- Venous loop in 1
- 3 cases of secondary paroxysmia (Multiple sclerosis, Vertebral dolichoectasia in 1, arachnoid cyst in CP angle in 1)
- Complete response to CMZ and or Gabapentin

Neuro-vascular conflict







- Old plaque at the root entry zone
- Paroxysmal central vertigo due to **Vestibular paroxysmia of brainstem** ***(Thomas Brandt et al)***
- Completely responded to Carbamazepine

Vascular vertigo (9)

- 3 Transient ischemic attacks
- 4 Infarct
- 1 Bleed
- Vertebral artery compression syndrome

Tumors

- Cerebellopontine angle tumor in 3
- Arachnoid cyst- 1
- Colloid cyst of third ventricle in 1
- Retro-cerebellar meningioma- 1

Drugs

- Pregabelin
- Lamotrigine
- Budesonide inhaler
- Phenytoin
- Alfusocin/ Candesartan/ Dutasteride

Syncopal dizziness- 20

- Pre-syncope- 6
- Neuro-cardiogenic syncope -4
- Postural orthostatic tachycardia syndrome- 3
- Migraine- 2
- Micturition syncope- 2
- Orthostatic hypotension- 2
- Carotid sinus hypersensitivity- 1
- Defecation syncope-1

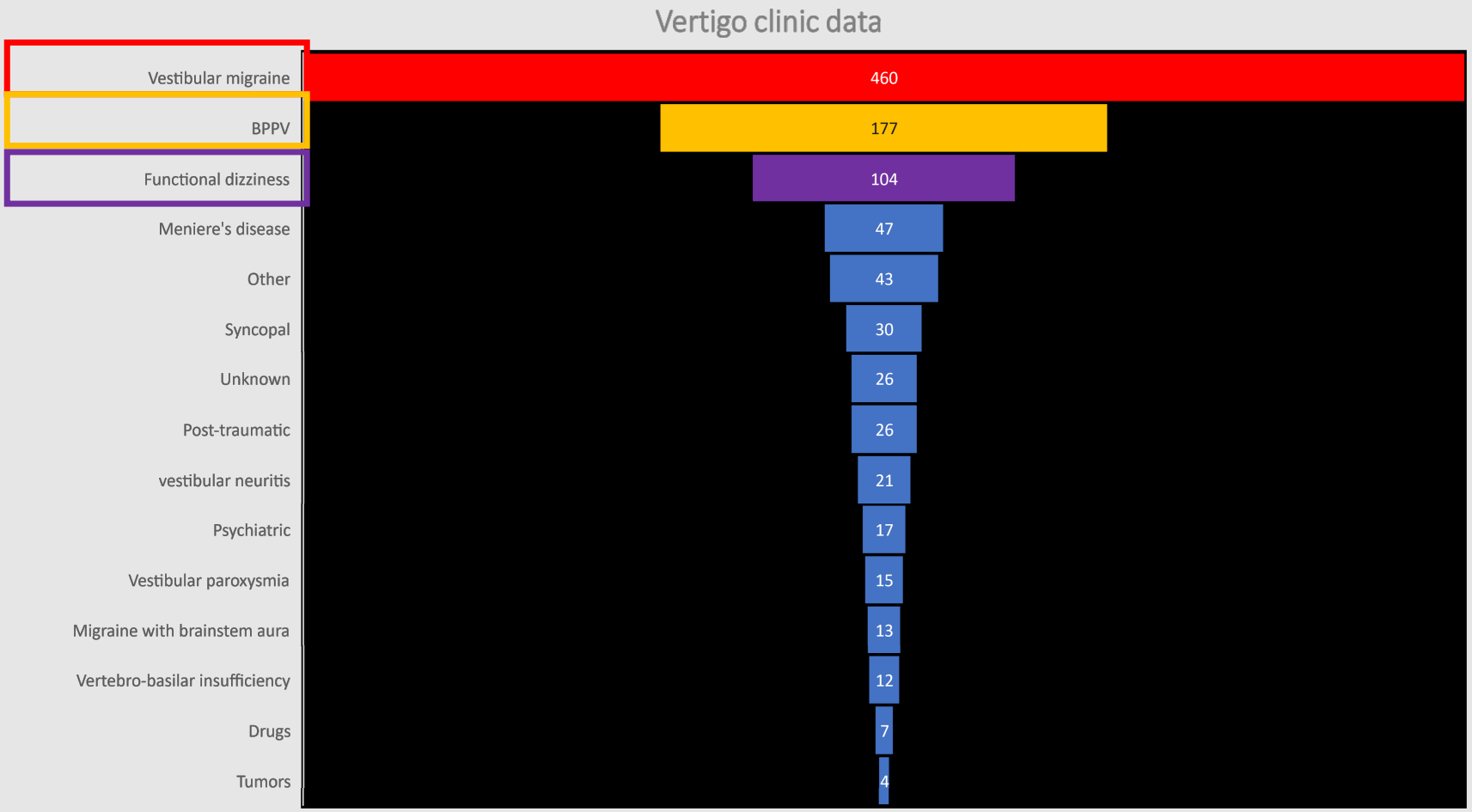
Other diseases

- Migraine with brainstem aura- 6
- Rotational vertebral artery syndrome - 2
- Vitamin B12 deficiency- 1
- Cervical myelopathy- 1
- Otolith dysfunction 1
- Alcohol hangover- 1
- Diabetic neuropathy -1
- Chronic fatigue syndrome- 1
- Essential head tremor -1
- Parkinson's disease - 1

Unknown

- 21 cases

Most common cause spontaneous episodic vertigo



Most common cause of positional vertigo

Most common cause chronic vestibular syndrome

Thank you

neurovishal@gmail.com

References

- *KroenkeK, Mangelsdorff D. Common symptoms in ambulatory care incidence, evaluation, therapy, and outcome. Am J Med. 1989;86:262–6*
- *Longo, Dan. Harrison's principles of Internal medicine, MacGraw Hill. 2012.*
- *Daroff, Robert B. Bradley's Neurology in Clinical Practice. Philadeplhia. Elsevier Saunders,2012.*
- *Cambell, William W. DeJong's The neurologic Examination, Lipincott Williams & Wilkins. 2005.*
- *Brazis, Paul W. Localization in Clinical Neurology, Lippincott Williams & Wilkins. 2011.*
- *Brandt, Thomas. The dizzy patient: don't forget disorders of the central vestibular system. Nature Reviews Neurology volume 13, pages 352–362 (2017).*
- *Bhattacharyya, Neil. Clinical Practice Guideline: Benign Paroxysmal Positional Vertigo. Otol Head Neck Surg. 2017, Vol. 156 (3S) S1-S47.*
- *Personal dizziness registry, Vertigo clinic, Aster specialty clinic, International city, Dubai, UAE*