BPPV
Beyond posterior canal

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Orientation of our body in space is the primary function of the vestibular system. This is achieved by integration of signals from vestibular, visual and proprioceptive receptors at the level of brain stem.

Information regarding the movement of the head relative to the body is largely provided by paired vestibular sensory endorgans.
Peripheral Vestibular System

EYES

Proprioceptive Receptors

Central Vestibular Nuclei

Vestibulocerebellar tracts (VCT)

Vestibulospinal (VST)

Vestibulo-Ocular reflex (VOR)
Vestibular Sensory Endorgans

- Superior Vestibular Nerve
- Inferior Vestibular Nerve
- Saccule
- Vestibule
- Utricle
- Superior
- Posterior
- Lateral
- Semicircular Canals
Cristae & Otolithic organ

- Cupulla
- Type I and II Hair Cells
- Supporting Cells
- Ampullar
BPPV

* Commonest vestibular disorder
* Incident 64: 100000
* Lifetime incidence 2.4%
* Coexist with other vestibular disorders
Floating particles originating from the otoliths in the utricle.
Pathophysiology

* original theory of cupulolithiasis (i.e. particles attached to cupula)
Etiology

- Spontaneous
- Viral
- Traumatic
- Meniere’s disease
- Post surgery
- Migraine?
It takes 62 otoconia of 10 micrometers to give typical symptoms of BPPV.

Theoretical models for the mechanisms of benign paroxysmal positional vertigo.

House MG¹, Honrubia V.


So what about 1 to 62 particles?
What about particles less than 10 micrometers?
The Problem

New mechanical model
It takes more than 30 minutes for a free particle of 5 micrometer to go from cupula to the exit of 20mm long canal 0.7mm/minute

• 70 minutes for 3.5 micrometer
• 6 minutes for 10 micrometers
• 30 seconds for 30 micrometers
Tip of the ICEBERG

- 35% of all vertigo is due to BPPV and from that 90% PC-BPPV, 9% LC-BPPV, 1% SC-BPPV (TIP OF THE ICEBERG)

- 50% of all balance disorders represents Unsteadiness and abnormal motion sickness from which more than 90% linked to LC- mild BPPV due to few particles

**Unsteadiness** and **drunkenness** sensations as a new sub-type of BPPV.
Richard-Vitton T, Viirre E.
Rev Laryngol Otol Rhinol (Bord). 2011;132(2):75-80
Canaliths disorders

- Can be divided in two groups
  - Positional group (BPPV group)
  - Abnormal perception of motion and position (APMP group)
- Second group represents most atypical presentations
  - Post BPPV otolithic syndrome
  - Motion sickness
  - Trouble vision
  - Unsteadiness and drunkness sensations
  - PPPD
  - Psychogenic vertigo
  - Some of migrainous vertigo
Case 2

* Video
Case 3

* Video
Management

- Particle Repositioning Manoeuvre (PRM)
- Barrel roll for lateral canal BPPV
- Brandt-Daroff exercises for cupulolithiasis
- TRV chair
Hope to See You in

DUBAI OTOLOGY CONFERENCE
6-8 Nov 2019

www.dubaioto.com

Thank You