

# Dizziness



Lightheadedness ■

Imbalance / Unsteadiness ■

Faintness / Sensation of Swimming or Floating ■

Episodes of Mental Confusion ■

# Vertigo

## Hallucination of Motion

- Subjective Vertigo  
“I’m spinning”
- Objective Vertigo  
“The room is spinning”



# Warning Signs

- Cardiac Findings
- Neurologic Findings
  - True Loss of Consciousness
  - Localized sign, facial pain or numbness
- Pain
  - Headache
  - Cervical Pain
- Otologic Findings
  - Sudden Hearing Loss
  - Purulent Drainage
  - Otalgia

# Initial Management

- Rule - out Acute Event
  - Neurologic and Cardiac Evaluation
- Control Initial Symptoms
  - Meclizine
  - Cinnarizin
  - Phenergan (Promethazine HC)
- Patient Education and Support
  - Majority of patients with an acute balance disorder recover spontaneously with only symptomatic treatment

# Medical Treatment

## Vestibular Suppressants

- cinnarizin ,Meclizine
  - Adverse Reactions
    - Drowsiness
      - Dry Mouth
      - Blurred Vision
      - Caution due to Anticholinergic Effect  
in Asthma, Glaucoma, Enlarged Prostate

# Medical Treatment

## Vestibular Suppressants

- Valium (Diazepam)
  - Benzodiazepam
  - Adverse Reactions
    - Drowsiness

# Medical Treatment

## Anti-emetics, anti histamin

- Phenergan (Promethazine HC)
  - Adverse Reactions
    - Drowsiness



# The Balance System

## Balance

Complex process involving:



Vestibular  
Visual

Somatosensory

Integration of sensory  
orientation information



Constant and  
coordinated automatic  
postural movements

# Causes of vertigo

- Labyrinth and 8<sup>th</sup> n
  - meniere's dis
  - vestibular neuritis
  - BPV
  - Motion sickness
  - ototoxic drug
  - ramsay hant syn
- Brainstem, cerebellum, CPA
  - Look for nystagmus, Cr n lesion
  - MS
  - stroke, TIA,
  - migraine
  - acoustic neuroma
- Cerebral cortex vertiginous epilepsy
- Alcohol intoxication

# Vestibular Neuritis

## Labyrinthitis

- Acute Vestibular Crises
  - Severe Vertigo 12 - 24 hours
  - Residual Motion provoked Symptoms for days - weeks
- Gradual Improvement
  - Compensation
- Hearing Loss = Labyrinthitis

# Vestibular Neuritis Labyrinthitis

## Acute Management

- always Rule-out Acute Event
  - Neurologic and Cardiac Evaluation
- Vestibular Suppressants
- Education and Reassurance

# Vestibular Neuritis Labyrinthitis

## Long-Term Management

- Increase Activity
- Wean Vestibular Suppressants
- Vestibular Exercises
- Vestibular Rehabilitation Therapy

# Vestibular Rehabilitation Therapy

## Goals

- Reduce symptoms provoked by motion or position
- Improve equilibrium
- Improve quality of life by increasing activity levels

# Endolymphatic Hydrops (Meniere's Disease)

## Symptoms

- Episodic Severe Vertigo
- Fluctuating Low Frequency Hearing Loss
- Tinnitus
- Aural Fullness
- Duration  $>20$  min  $<24$  hours

# Endolymphatic Hydrops

## Medical Management

- Sodium Restriction
  - 1500 - 2000 mg per day
    - Must change eating habits
  
- Diuretic
  
- Betahistine (betaserc)
  
- Avoid Caffeine, Sugar, Tobacco



# Endolymphatic Hydrops

## Intratympanic Gentamicin

- Advantages
  - 70-90% Control of Vertigo
  - Office Procedure
- Disadvantages
  - Risk of Hearing Loss

# Migraine Events

- Most common non-pain form of a migraine is visual, but any aura symptom can occur in the absence of pain, including dizziness

- List of symptoms that constitute an aura
  - Bilateral visual distortions
  - Paresthesia
  - Muscle weakness / coordination loss
  - Fluctuant hearing, unilateral or bilateral
  - Tinnitus, unilateral or bilateral
  - Lightheadedness / imbalance to true vertigo - movement provoked or spontaneous

# Migraine

## Basilar Migraine (Basilar Artery Migraine)

- Meets criteria of Migraine with aura but has two or more of the following auras
  - Visual symptoms affecting all fields
  - Dysarthria
  - Vertigo
  - Tinnitus
  - Hearing loss
  - Diplopia
  - Ataxia
  - Bilateral sensory changes or weakness
  - Decreased consciousness

# Vestibular Migraine

- Symptoms

  - 70% true vertigo

  - 30% dizziness, imbalance, motion sensitivity

- Relationship to headache

  - 5% consistently preceding or during headache

  - 65% variable

  - 30% completely independent

# Duration of Vertigo Spells in Migraine

■ Seconds	7%
■ Minutes to 2 hours	31%
■ 2 - 6 hours	5%
■ 6 – 24 hours	8%
■ > 24 hours	49%

# BPPV

## Benign Paroxysmal Positional Vertigo

- Most Common Cause of Vertigo
  - 50% of those over 65yo will have at least 1 episode
  - Usually self-limiting, but can persist for years
- Etiology
  - Head Trauma, Inflammation, “Aging”, Spontaneous

# BPPV

## Benign Paroxysmal Positional Vertigo

### Symptoms

- Brief (<1min) intense spinning following a movement
  - Rolling over in bed
  - Rising from Supine
  - Head tilt up

Hallpike Test Reproduces Symptoms



# BPPV

## Benign Paroxysmal Positional Vertigo

### Diagnosis

#### ■ Hallpike Maneuver

- No Neck Extension if Elderly-risk of basilar stroke
- No Neck Torsion if Cervical Problems

Positive if the test induce nystagmus and vertigo

# Hallpike

Test for Positional Vertigo



These positions should not be held more than 30 seconds for each position. The patient should be kept in the upright position until the nystagmus has completely subsided. The procedure is then repeated with the head turned to the opposite side.

Positional Vertigo with Nystagmus

# BPPV

## Benign Paroxysmal Positional Vertigo

### Management

- Vestibular suppressant drug
- Particle Repositioning Maneuver (PRM)
  - 95% success rate
- Surgical
  - Posterior Semicircular Canal Occlusion

# Acoustic neuroma

- Vestibular schwannoma
- Account 80% of CPA
- Arising from vestibular n
- Often unilateral with loss of hearing ,vertigo
- Ipsilateral 5<sup>th</sup> ,6,(7rare),9,10
- Cerebellar sign
- Increase ICP in large tumor
- DX MRI , CPA MRI
- Treatment surgical
- Mostly benign tumor