



# 核心課程編號：B18

## 頭暈

神經內科 徐昌鴻 醫師/ 張景淳 醫師



# 學習目標

PGY	UGY
<p><u>知識</u></p> <ol style="list-style-type: none"><li>1. 頭暈病患的初步處理</li><li>2. 引起頭暈的常見疾病或狀況的處理</li></ol>	<p><u>知識</u></p> <ol style="list-style-type: none"><li>1. fainting、dizziness、vertigo、syncope</li><li>2. 頭暈的病理生理機制</li><li>3. 頭暈常見的原因</li><li>4. 頭暈的診斷流程</li><li>5. 頭暈常作檢查結果的判讀</li></ol> <p><u>技能</u></p> <ol style="list-style-type: none"><li>1. 頭暈相關的病史詢問</li><li>2. 頭暈相關的身體檢查</li></ol>



# ITE考題

## 三軍總醫院一般醫學訓練

### In-Training Exam-頭暈 (B18)

陳先生、55歲。無內外科病史、偶有喝酒。近一週上腹痛、黑便、心悸、頭暈、到急診室。

↓

1. 簡述頭暈 Dizziness、Vertigo、Fainting、Syncope 定義？ [20分]
2. 簡述頭暈病理生理機轉及常見原因(至少五項)？ [20分]
3. 病史詢問、身體檢查、及實驗室檢查(含常作檢查結果的判讀)幫助頭暈鑑別診斷？ [30分]
4. 請問陳先生最可能診斷？ [10分]
5. 簡述陳先生頭暈治療基本原則？ [20分]



# 頭暈症 (Dizziness)

主要是敘述行動障礙不穩定  
(disturbed mobility)



# Dizziness

Three categories:

1. Faintness (prodromal presyncopal syndrome)
2. Vertigo
3. Miscellaneous head sensation



# 暈眩症 (vertigo)

- ❖ 是一種對身體或外在物體產生幻覺式或錯覺的晃動，大部分的感受為旋轉。



# Disorders of Equilibrium

- ❖ Equilibrium maintain dependent on three input and one output system
  1. The vestibular apparatus
  2. The visual system
  3. Proprioceptive mechanisms
  4. The motor system
- ❖ If disturbances of equilibrium and dizziness--- dysfunction or lesions in the four systems.



# Syncope and fainting

- ❖ **Syncope** is the medical term for *fainting*, a sudden, usually temporary, loss of consciousness
- ❖ Caused by insufficient oxygen in the brain either through cerebral hypoxia or through hypotension, but possibly for other reasons





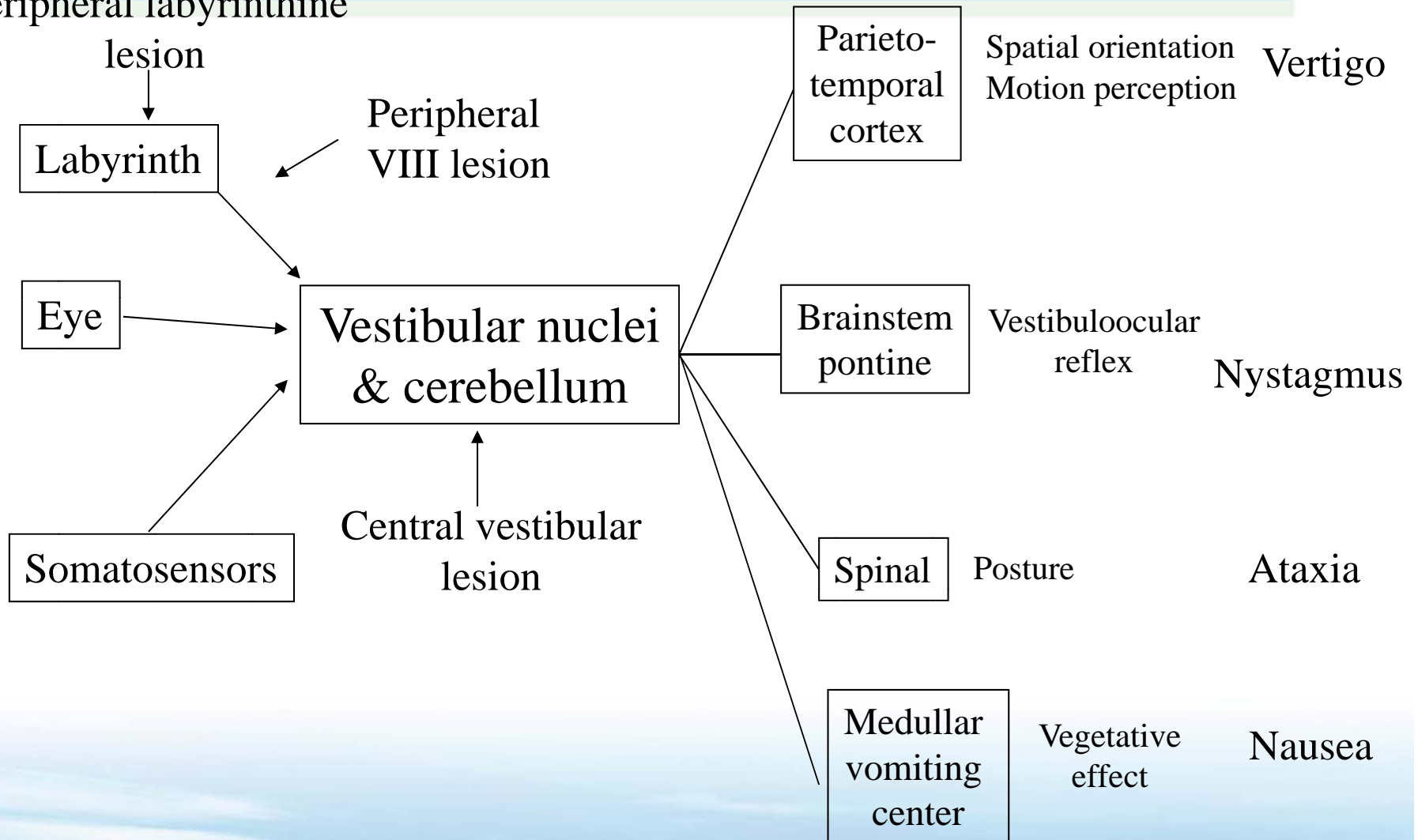
# 生理性暈眩症

1. 腦部(vestibular nucleus and cerebellum) 對三大系統 (visual, vestibular and proprioceptive system) 不當的配合反應，如視覺暈眩發生於視覺感受物體移動時，前庭及本體感覺未相對性的配合。
2. 前庭系統對未曾經驗或習慣的頭部活動產生, 例如暈車或暈船。
3. 過度頭或頸部伸張所致 (cervical dizziness), 諸如油漆天花板產生。
4. 空間眩暈 (space vertigo) ，發生在頭部轉動於失重狀態的環境的暫時性反應。



# Pathophysiology

Peripheral labyrinthine





# Etiology of recurrent vertigo

- ❖ Meniere's disease
- ❖ Syphilis
- ❖ Otosclerosis
- ❖ idiopathic vertigo in child
- ❖ Epilepsy
- ❖ Basilar artery migraine
- ❖ Familial vertigo, ataxia and nystagmus
- ❖ Hypothyroidism
- ❖ Brain stem ischemia
- ❖ Multiple sclerosis
- ❖ Tumors in brain stem, cerebellum or VIII nerve

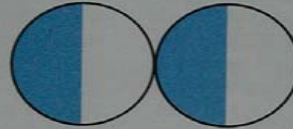
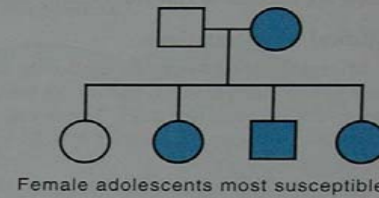
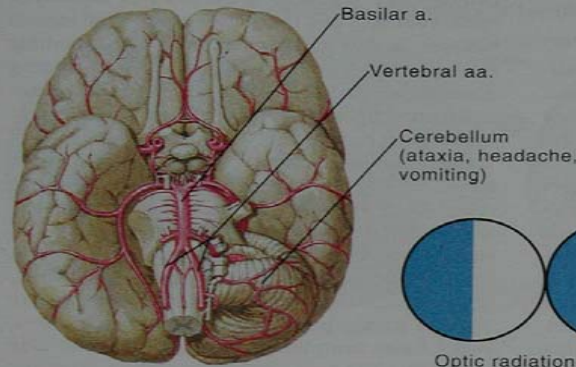


# Etiology of first episode acute vertigo

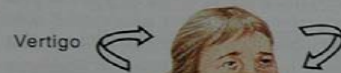
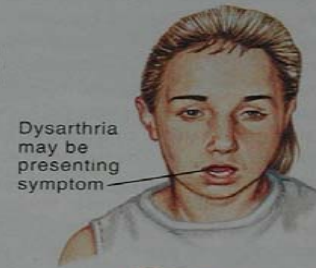
- ❖ Vestibular or labyrinthine infection
- ❖ Meniere's disease
- ❖ Head injury or ear operation
- ❖ Perilymph fistula
- ❖ Otosclerosis
- ❖ Inner ear vasculopathy
- ❖ Brain stem ischemia or infarction
- ❖ Cerebellar hemorrhage or infarction
- ❖ Arnold-Chiari malformation
- ❖ Multiple sclerosis
- ❖ Tumor in brain stem, cerebellum or VIII nerve
- ❖ Epilepsy
- ❖ Intoxication (drugs or alcohol)



### Basilar Artery Migraine



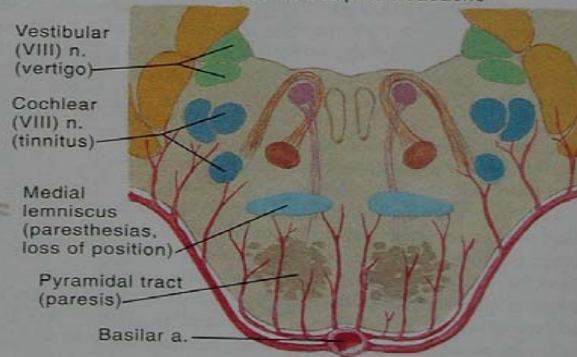
Optic radiation causes hemianopsia



Bilateral occipital cortical involvement causes temporary blindness



Severe occipital headache



Ataxia, vertigo, and other motor and sensory deficits result from cerebellar or brainstem involvement

Section of pons



# Etiology of postural induce vertigo

- ❖ Peripheral type
  1. Benign postural positional vertigo
  2. Perilymph fistula
  3. Alcoholic postural vertigo
- ❖ Central type
  1. Cerebellar infarction or tumor
  2. Multiple sclerosis
  3. Transient ischemia of brain stem (VBI)



# Acute unilateral labyrinthine dysfunction

- ❖ Terminology: acute peripheral vestibulopathy or vestibular neuritis
- ❖ Etiology: infection, trauma and ischemia.
- ❖ Duration of symptom: short; hours to days
- ❖ Herpes simplex I virus infection: vertigo would be recurrent attack.



# Acute bilateral labyrinthine dysfunction

❖ Toxin: alcohol

❖ Antibiotic:

Aminoglycoside would damage the fine hair cells of the vestibular end organs and may cause a permanent disorder of equilibrium.





# Recurrent unilateral labyrinthine dysfunction

- ❖ Association with signs and symptoms of cochlear disease; progressive hearing loss and tinnitus (Meniere's disease).
- ❖ No hearing loss or tinnitus: *vestibular neuronitis*.
- ❖ TIAs of the posterior cerebral circulation (vertebrobasilar insufficiency): very infrequently cause recurrent vertigo without concomitant motor, sensory, visual, cranial nerve, or cerebellar signs.



# Benign paroxysmal positional (or positioning) vertigo (BPPV)

- ❖ is precipitated by a recumbent head position, either to the right or to the left.
- ❖ Posterior semicircular canal is particularly common.
- ❖ Abates spontaneously after weeks or months.
- ❖ The latency, fatigability, and habituation in vertigo associated with nystagmus differ from central positional vertigo.

**Table 21-3. Differentiation of Peripheral and Central Vertigo**

<b>Sign or Symptom</b>	<b>Peripheral (Labyrinth)</b>	<b>Central (Brainstem or Cerebellum)</b>
Direction of associated nystagmus	Unidirectional; fast phase opposite lesion <sup>a</sup>	Bidirectional or unidirectional
Purely horizontal nystagmus without torsional component	Uncommon	Common
Vertical or purely torsional nystagmus	Never present	May be present
Visual fixation	Inhibits nystagmus and vertigo	No inhibition
Severity of vertigo	Marked	Often mild
Direction of spin	Toward fast phase	Variable
Direction of fall	Toward slow phase	Variable
Duration of symptoms	Finite (minutes, days, weeks) but recurrent	May be chronic
Tinnitus and/or deafness	Often present	Usually absent
Associated central abnormalities	None	Extremely common
Common causes	Infection (labyrinthitis), Meniere's, neuronitis, ischemia, trauma, toxin	Vascular, demyelinating, neoplasm

<sup>a</sup> In Meniere's disease, the direction of the fast phase is variable.



## Dizziness and Unsteadiness - peripheral type

- ❖ Symptoms do not appear suddenly.
- ❖ Neither rotatory vertigo nor nystagmus.
- ❖ Unsteadiness is never present during complete rest, as while sitting.
- ❖ Symptoms increase during twilight or with eye closure, and with rapid head movement
- ❖ Common causes: polyneuropathies, polyradiculitis, and posterior column lesions (tabes dorsalis, subacute combined degeneration and degenerative diseases; such as spinocerebellar atrophy, Friedreich's ataxia, and other familial degeneration)



## Dizziness and Unsteadiness with lesions of the cerebellum and extrapyramidal control and regulatory system

- ❖ No acute disturbance, no rotatory vertigo.
- ❖ Abnormalities are apparent only during movement.
- ❖ Movements limited in range
- ❖ Coordination is impaired---- disharmony and unsteadiness.
- ❖ Cerebellar disturbances--- hypotonia, ataxia, dysmetria, wide-based gait, and instability of the trunk when sitting
- ❖ Extrapyramidal disorders--- marked unsteadiness resulting from disturbances of automatic movements, increase in tone (PD), or involuntary movements ( chorea, athetosis, or torsion dystonia)



# Mechanisms and Common Causes of Dizziness

Type	Mechanism	Common cause
Vertigo	Imbalance	
Drug intoxication	Neuron depression	Alcohol
Disequilibrium	Loss of function	Ototoxic, Stroke
Presyncopal	Cerebral ischemia	Vasovagal
Hypoglycemic	Brain glucose	D.M.
Ocular dizziness	V-V mismatch	New glasses
Multisensory	Partial loss	D.M., Aging
Physiological	Sensory conflict	Motion sickness



# Distinguishing Between Vestibular and Nonvestibular Causes of Dizziness

<b>Factor</b>	<b>Vestibular</b>	<b>Nonvestibular</b>
Common terms	Spinning, tilting	Lightheaded, floating, giddy
Course	Episodic	Constant
Precipitating	Head movements	Stress, hyper-ventilation
Associated symptoms	Nausea, vomiting	Syncope



# Differentiation Between Spontaneous Nystagmus of Peripheral and Central Origin

	<b>Peripheral</b>	<b>Central</b>
<b>Appearance</b>	<b>Combined</b>	<b>Often pure</b>
<b>Eye movement</b>	<b>Conjugate</b>	<b>Conjugate/ disconjugate</b>
<b>Gaze</b>	<b>Unidirectional Alexander law</b>	<b>May change direction</b>
<b>Visual fixation</b>	<b>Inhibited</b>	<b>Little effect</b>
<b>Localization</b>	<b>Ves.N., labyri.</b>	<b>CNS</b>





# NE

## NE normal Consider:

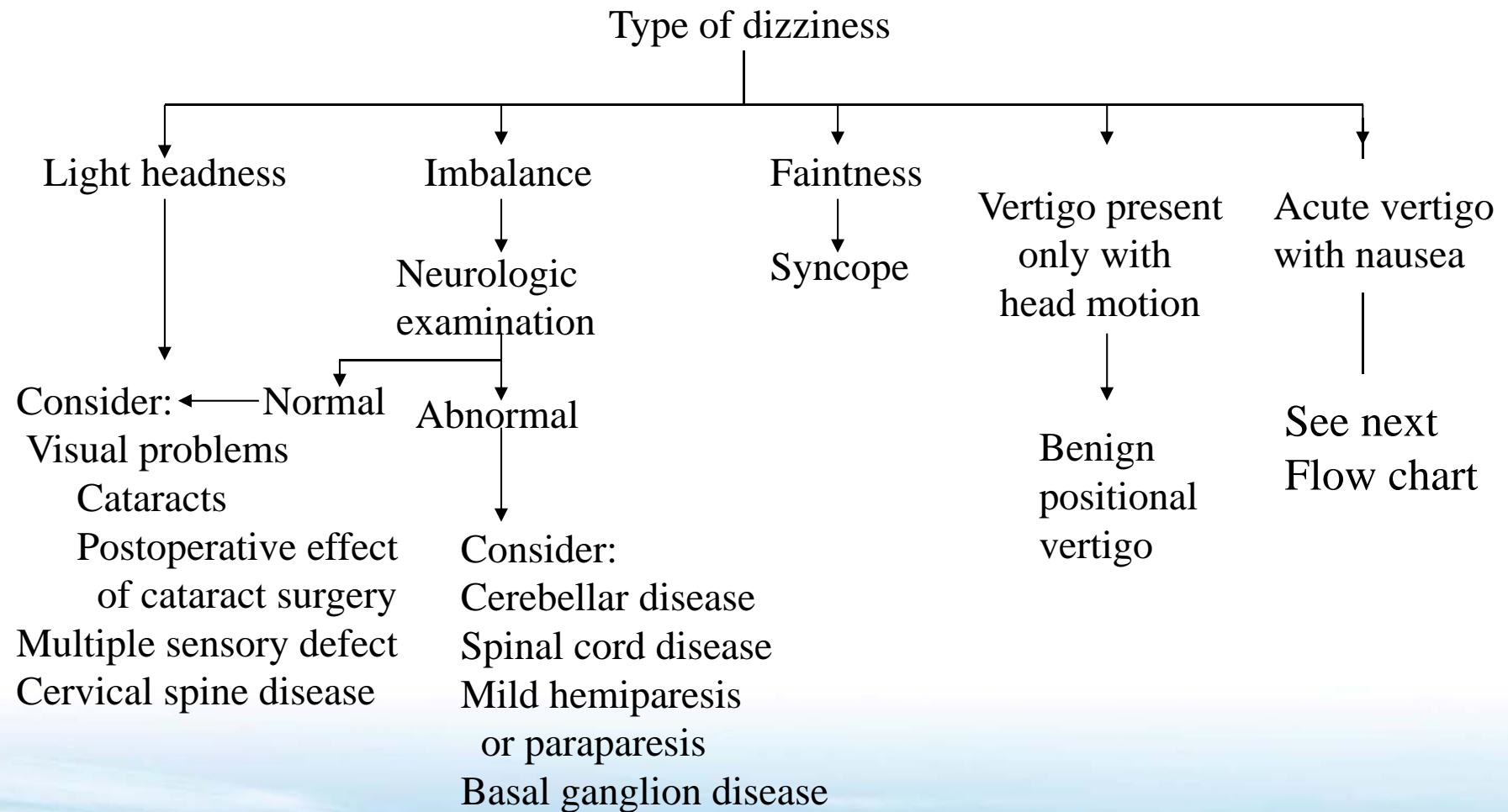
- ❖ Visual problems
  - Cataracts
  - Postoperative
- ❖ effect of cataract surgery
- ❖ Multiple sensory defect
- ❖ Cervical spine disease

## NE abnormal Consider:

- ❖ Cerebellar disease
- ❖ Spinal cord disease
- ❖ Mild hemiparesis or paraparesis
- ❖ Basal ganglion disease

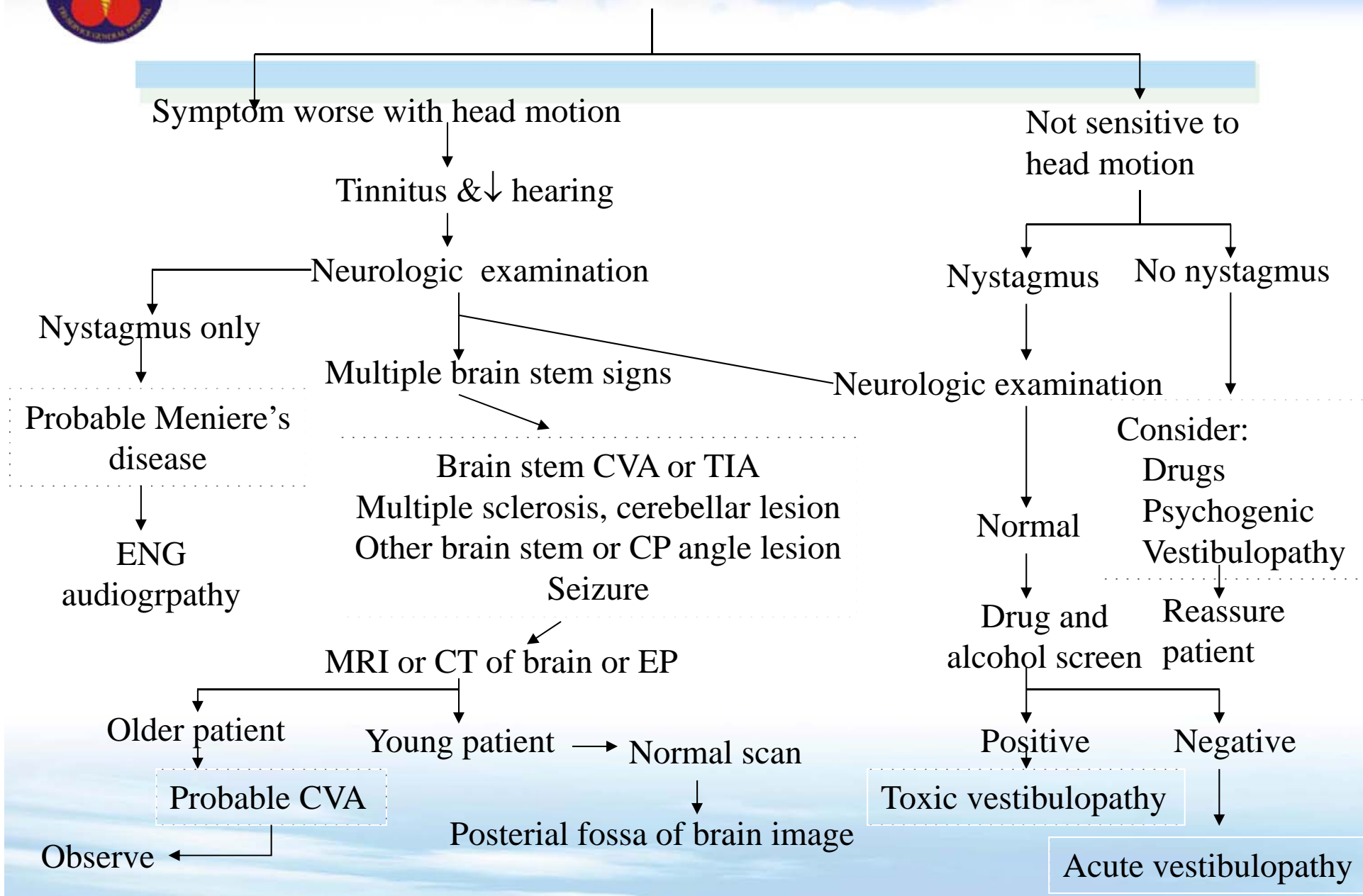


# How to approach the patient with dizziness





# Acute vertigo with nausea





# Management in vertigo

## General principals

### ❖ In acute phase:

Lying down in silent and dark room  
prevent head motion

### ❖ In recovery phase:

Encourage early head and body motion  
and soft exercise.



# Medicine treatment in vertigo

- ❖ Anticholinergic drugs: scopolamine, atropine
- ❖ Monoaminergic drugs: ephedrine
- ❖ Antihistamine agents: diphenhydramine, meclizine, cyclizine, dimenhydrinate, promethazine
- ❖ Tranquilizers: phenothiazine, butyrophenone, benzodiazepine.



# Surgery in vertigo

- ❖ Indicate for recurrent unilateral labyrinthine dysfunction associated with hearing loss, such as late stage of Meniere's disease.
- ❖ Methods
  - labyrinthectomy
  - vestibular neurectomy



Thank you