

Done By:

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Group B - 430

CNS-block

الملف لا يغنى عن المحاضرة

Balance disorder (drowsiness, vertigo) is caused by:

- Incorrect stimulation of hair cells in the inner ear (Meniere's disease).
- Low tolerance for vehicular motion (Motion sickness)
- Fluid, Electrolytes disturbances.
- Disturbance of air pressure in middle ear.

Meniere's disease: Inner ear fluid homeostasis disturbance → ↑endolymphatic pressure (**hydrolymphatic hydrops**) → microscopic membrane pores, vestibular hair loss → depolarization disturbance → wrong information to the brain

Drugs inducing Vertigo are of two categories:

1. Vestibulotoxins:-

- ✓ **Drugs altering fluid & electrolytes:** Diuretics, Anti-hypertensive
- ✓ **Drugs altering vestibular firing:** Anti-convulsants, Anti-depressants, Sedative hypnotics, Alcohol, Cocaine

2. Mixed Ototoxins:-

- ✓ **Aminoglycosides** (mycin family): gentamycin , neomycin
- ✓ **NSAIDs:** Aspirin
- ✓ **Quinine, chloroquine, quinidine**
- ✓ **Loop diuretics**

Treatment:

1. Vestibular Suppressants: dull brain response to vestibular signals (↓spinning, emesis)

- ✓ **H₁ antagonist:** Dimenhydrinate
- ✓ **Phenothiazines:** Prochlorperazine
- ✓ **DA Antagonists:** Metoclopramide
- ✓ **H₁ agonists, H₃ antagonists:** Betahistine
- ✓ **Benzodiazepines (pam family):** Diazepam

2. Prevent Recurrence: the aims from giving this type of drugs, are:

- ✓ **↓fluid retention:** Diuretics
- ✓ **↓inflammation:** Corticosteroids
- ✓ **↑vasodilatation:** Ca²⁺ Blockers

	Dimenhydrinate	Prochlorperazine	Metoclopramide	Betahistine
MOA	<ul style="list-style-type: none"> • ↓excitability in the labyrinth • blocking vestibular-cerebellar pathways <p>(Useful for <u>MOTION SICKNESS</u>)</p>	vestibular suppressant		<ul style="list-style-type: none"> • H₁ agonism: vasodilation of middle ear → ↓fluid in inner ear • H₃ Antagonism: ↑Histamine → ↑H₁ effect → ↑5HT → ↓vestibular activity
PK				<ul style="list-style-type: none"> • Orally • t_{1/2}=2-3h
ADRs	<ul style="list-style-type: none"> • Sedation • Dizziness • Anticholinergic 		<ul style="list-style-type: none"> • Restlessness or drowsiness • Extrapyramidal manifestations (on prolonged use) 	<ul style="list-style-type: none"> • Headache • Nausea • Gastric effects • ↓appetite and weight loss
Contra	<ul style="list-style-type: none"> • <u>Glaucoma</u> • <u>Prostatic enlargement</u> 			<ul style="list-style-type: none"> • Peptic ulcer • Pheochromocytoma • <u>Bronchial asthma</u>

Important notes:

1. Cholinergic (ACh) effect are: DUMBLES (Ahmad Al-Agel says ^^)

- ✓ D: Diarrhea
- ✓ U: Urination
- ✓ M: Miosis
- ✓ B: Bradycardia
- ✓ L: Lacrimation
- ✓ E: ???
- ✓ S: Salivation

2. Anti- Cholinergic (Atropine) effect are: Anti-DUMBLES

- ✓ Anti-D: Constipation
- ✓ Anti-U: Urinary retention
- ✓ Anti-M: Mydriasis
- ✓ Anti-B: tachycardia
- ✓ Anti-L: dry, sandy eyes
- ✓ Anti-E: ???
- ✓ Anti-S: dry mouth

So, once you hear "anti-cholinergic" think about the following:

- **Contraindicated** for **Prostatic enlargement** because these patients **already have urinary retention**, so giving an anti-cholinergic drug will make it worse.
- **Contraindicated** for **Glaucoma** because these patients **already have high intraocular pressure**, so giving an anti-cholinergic drug will make it worse.