Pharmacological Interventions for dizziness

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First a caution

- 600 treatments reviewed ranging from spinal fluid drainage to numerous medications.
- Nearly all had 60% efficacy (natural history)
- A lot of these medications may be placebo’s

Processes we might try to treat

- Vertigo (nystagmus)
- Motion sickness, emesis
- Compensation

Processes we might NOT try to treat with medications

- Sensory ataxia (such as ototoxicity, blindness, B12 deficiency)
- BPPV (best managed with physical treatments)
- Malingerers (drug treatment facilitates them) – altho there are some tricks – the "tiny dose" approach.

Main drug categories for dizziness

- Anticholinergic
- GABA agonists
- Everything else

Anticholinergics

- Block central and peripheral ACH
- Reduce vertigo and nausea from peripheral vertigo
- Reduce central nystagmus (in very high doses)
- Numerous interesting side-effects
Scopolamine
Muscarinic antagonist

- Scopolamine (Transderm-Scop patch), Scopase (oral version)
- Transderm does not require ingestion (but many other oral GI drugs do same thing – Levsin and Robinul for example). Nothing magic about patch.
- Apply every 3 days to skin surface
- Withdrawal syndrome and CNS side effects limit use

Anticholinergic side effects (Locoweed poisoning)

- Confusion (similar to drug induced Alzheimer’s)
- Dry mouth, loss of sweating
- Urinary hesitancy/stoppage
- Constipation
- Blurry vision
- Cardiac conduction block
- Addiction

H1-antihistamines with strong anticholinergic properties

- meclizine (Antivert)
- dimenhydrinate (Dramamine)
- diphenhydramine (Benadryl)

Antihistamines must cross BB barrier -- i.e. Claratin, Allegra do not work for dizziness

Antihistamine side effects

- Sleepiness
- Weight gain

Anticholinergic side effects

- Dry mouth and eyes
- Constipation
- Confusion

meclizine (Antivert, Bonine)

- 12.5 TID or 25 TID. Lasts about 8 hours. Available OTC.
- Limitation is sedation and anticholinergic side effects
- Pregnancy: category B. May be best drug

GABA agonists (benzodiazepines)

- Modulate inhibitory transmitter GABA
- Reduce vertigo and nausea from peripheral vertigo
- Reduce nystagmus
- Sedation, addiction limit usefulness
- ? May impede compensation (strangely, no evidence in humans for this – may actually do opposite)
Benzodiazepines

- Valium (diazepam, “Mother’s little helper”)
- Ativan (lorazepam)
- Klonapin (clonazepam)

Marginally useful benzodiazepines
- Halcion (very short acting)

Benzodiazepines to discourage
- Alprazolam (xanax) (addiction)
- Tranzene (too long acting)
- Valium in 5mg+ doses (abuse)

Dosing: beer scale
1 glass of beer =
- 2 mg of Valium
- 0.5 mg of Ativan
- 0.5 mg of Klonapin

Bottom line
Extremely useful drugs
- Treat dizziness and anxiety
- Addiction is the big problem

Diuretics

- Dyazide and Maxide (Hctz+triamterine)
  - Menieres
- Diamox (acetazolamide)
  - Menieres
  - Migraine
  - Periodic ataxia
- Lasix
  - Not a good idea – causes hearing loss and hypokalemia

Drugs of unclear utility (perhaps as a last resort)

- Beta-histine (Serc)
- Baclofen (occasionally useful)
- Alternative medications
  - Vertigo-HEEL (homeopathic)
  - Ginkgo-Biloba (very weak evidence)
Betahistine (Serc)

- FDA position is that it is a placebo
- Readily available from compounding pharmacies, including any Walgreens
- Weak H1 agonist and H3 blocker (which results in some Histamine agonism)
- Author’s experience – Useful for motion intolerance and Meniere’s.


Emesis

Vomiting is complex

Drugs used for treatment of emesis

- MOST IMPORTANT
  - 5-HT3 antagonists
  - Dopamine blockers
  - Anticholinergics (OTC)
  - H1 antihistamines
  - Benzodiazepines

odansetron (Zofran)
5HT3 receptor antagonist

- Dose: 8 mg PO. MLT form is fast acting
- Category B in pregnancy (probably safe)

Dr. Hain's drug of choice to use prior to nauseating PT session. Generic is available

Commonly used phenothiazine antiemetics

- dopamine blockers

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
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<tbody>
<tr>
<td>prochlorperazine</td>
<td>5, 10, 25 mg, including rectal suppositories. Pregnancy – unknown</td>
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<tr>
<td>promethazine</td>
<td>12.5, 25, 50 mg forms, including rectal suppositories 12.5 BID prn oral dose typical. Pregnancy Cat. C</td>
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</tbody>
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Zofran®
8 mg
Commonly used phenothiazine antiemetics
dopamine blockers

- Powerful drugs
- Major side effects
- Use if you have a big vomiting problem

Compensation

Compensation -- subtypes

- Static compensation – recovery from tone imbalance (vertigo).
  - Largely automatic and not likely to be modified by drugs.
- Dynamic compensation (oscillopsia) – readjust gain.
  - Takes some time, modifiable by medications.

Compensation -- goals

- Facilitate compensation for static vestibular lesions or central problems. (i.e. vestibular neuritis, bilateral loss)
- Halt compensation for transient vestibular lesions (i.e. Menieres attack).

Drugs that accelerate dynamic compensation (in animals)

- Amphetamines
- Bromocriptine (Dopamine agonist)
- ACTH (adreno-corticotropic hormone)
- Caffeine

Drugs that retard dynamic compensation in animals

- Phenobarbital (sedative, barbituate)
- Dopamine antagonists (e.g. Lisuride, Thorazine)
- ACTH antagonists (e.g. steroids). Steroids seem to help in people!
- Diazepam. (GABA agonist, Valium). No evidence for this in people.

Modified from Brandt, 1991
No pain – no gain?  
or:  
Do rat studies apply to people?

- Drugs that make people more comfortable often impede compensation in animals.
- Animal studies suggesting that medications impede compensation are generally not replicable in people.

Summary

- Large and complex pharmacology
  - Vertigo
  - Emesis
  - Compensation
- Nearly always will there be an opportunity to explore a different avenue with any particular patient

More details


www.dizziness-and-hearing.com