Migraine Associated Vertigo

Case (patient DA)
- 43 y.o. F, episodes of dizziness for 5 years
- Attacks begin with headache, nausea, dizziness, and severe ear pain.
- About 3/month, lasting 2-3 days.
- Severe motion intolerance

Case Study (patient DA)
- Tinnitus in both ears
- Denies hearing loss
- Physical exam normal
- Audiogram, 3 caloric tests, MRI of brain normal

MAV
Migraine Associated Vertigo

Headaches are common
- 90% lifetime prevalence
- 25% annually report recurrent episodes of severe headache
- 3-4% daily or near-daily headache
- Medications used by 9% of US adults each week to treat headaches

Migraine
- Most common headache, about 10% of entire population (Stewart, 1992)
- 20-30% of women of childbearing age have migraine
- 90% of “sinus” headaches meet criteria for migraine diagnosis.
Migraine (IHS) criteria:

- Recurrent headaches separated by symptom-free intervals and accompanied by any three of the following:
  - Abdominal pain
  - Complete relief after sleep
  - Nausea or vomiting
  - Aura (visual, sensory, motor)
  - Hemicrania
  - Throbbing, pulsatile quality

Vestibular Migraine (Neuhauser) strict criteria:

- Migraine meeting IHS criteria (this is hard part)
- Episodic vestibular symptoms
- At least one of following during 2 attacks
  - Migraine headache
  - Photophobia
  - Phonophobia
  - Visual or other aura
- Exclusion of other causes

Migraine Variants

- Common migraine (just headache — 90%)
- Classic migraine (with aura — 10%)
Migraine Variants

- Acephalgic migraine: Aura without headache (a tough call).
- Usual story is transformation of headache with aura into aura alone.
- About 1% of migraine population*


Migraine Art

Ina Rubloff (migraine patient of Dr. Hains)

Migraine Variants

- Complicated migraine is accompanied by a neurological deficit.
  - About 1% of migraine patients
  - About 25% of patients with migraine have "small vessel disease" on MRI.
- Prevention is important here

*Evans and Olesen, 2003; De Benedittis and Lorentznos, 1995*
Prevalence of Migraine

Northwestern University
(Stewart et al, 1994)

Migraine in Women

- 3:1 ratio of women:men.
- Peak age is 30-45.
- 10:1 increase in frequency of migraine around time of menses.
- Attributed to fluctuations in estrogen level. Can treat by eliminating fluctuations (BC pills – “seasonale”).
- 75% stop while pregnant
- Often flares for a few years near menopause

Migraine & Vertigo: Prevalence

- Migraine:
  - 10% of U.S. pop†
  - 20-30% of women childbearing age
- Vertigo: 35% of migraine population.*
- Migraine + vertigo (loose criteria):  
  - 3.5% of U.S. pop.
  - 10% of women of childbearing age
- Strict criteria
  - 0.89% of German population (Neuhauser, 2006)

† Lipton and Stewart 1993; Stewart et al, 1994

There is more migrainous vertigo than there is Meniere’s disease!

Dr. Hain’s opinion is that migraine prophylaxis should be used prior to any invasive treatment for Meniere’s

Hearing in MAV can look like Menieres

- Fluctuating low-tone SN hearing loss is common
- Both ears can fluctuate together
- 50% of Menieres have migraine too.

Headache (HA) and dizziness don’t have to occur at same time in MAV.

- Cutrer/Baloh (1992)
  - 5% (5/91): vertigo time-locked to HA
  - 25%: vertigo always independent of HA
- Johnson (1998): 91% (81/89) vertigo independent of HA

Even intermittent headache is not necessary to diagnose migraine

Migraine variants with vertigo but without headache (acephalgic migraines)

- Benign Positional Vertigo of Childhood (BPV)
- Cyclic vomiting syndrome – periodic vomiting for several days.

MAV symptoms may last for days (or even months)

- Cutrer and Baloh, 1992: Bimodal distribution
  - 31% min-2 hrs
  - 49% longer than 24 hours
- Chronic migraine – about 0.2%

Migraine is often accompanied by strong motion sensitivity

10% normals have “motion sensitivity”

<table>
<thead>
<tr>
<th>Group</th>
<th>Authors</th>
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</thead>
<tbody>
<tr>
<td>49% Children</td>
<td>Bille (1962)</td>
</tr>
<tr>
<td>45% Children (60)</td>
<td>Barabas et al (1983)</td>
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<tr>
<td>50.7% Unselected</td>
<td>Kayan and Hood (1984)</td>
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Diagnosis of MAV is Based on Clinical judgment

- Headaches and dizziness
- Lack of alternative explanation (normal otological exam, neurological exam, CT)
- High index of suspicion in women of childbearing age. Perimenstrual pattern.
- Family history in 50%
- Response to prophylactic medication or a triptan

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Differential Diagnosis

- Independent headache/dizziness
  - HA responds to treatment, dizziness persists — might have BPPV…
- Structural lesion (very rare)
  - No response to treatment
- Sleep apnea (AM headache)
- Psychogenic headache and dizziness
- Anti-phospholipid antibody syndrome
  - Refractory headaches
  - May need anticoagulation because of stroke risk

I usually treat first — but if severe headaches do not respond …

- MRI or CT scan of brain/sinuses, possibly neck also. Makes most sense for non-triptan responders.
- Sed-Rate (for temporal arteritis)
- Sleep study
- Anti-phospholipid antibodies

Migraine Treatments

- Life style change (diet, sleep, BC pills)
- Analgesics and antiemetics
- Abortive agents (triptan family)
- Prophylactic agents
  - Alternative agents (e.g. Butterbur, magnesium supplements)
- Last resorts (MAO inhibitors)

Recent reviews, although flawed, have useful info.


Most useful non-drug treatments

- Migraine diet (these patients LOVE diets)
- Withdraw birth control pills if possible
- Regular sleep patterns
- Withdraw vasodilators if possible (e.g. nitrates, some calcium channel blockers)

Dietary Factors in Migraine

- Monosodium glutamate (MSG)
- Cheese, especially blue cheese
- Alcohol
- Chocolate
- Caffeine
Analgesics and anti-emetics

- Acetaminophen, ASA
- NSAIDs
- Metoclopramide (Reglan)
- Phenergan

Prophylaxis most important

- Unpredictable vertigo spells may prevent driving or be dangerous
- Migrainous vertigo rarely responds to suppressant medications

Prophylaxis of Migraine - 2012

80% of those who get headache relief also get vertigo relief (Bikhazi et al, 1997)

- Antidepressants
- Anticonvulsants
- L-channel Calcium channel blockers
- Beta blockers
- Botox

Pregnancy Categories

(Almost all are Pregnancy C or D)

- A: Proven safe
- B. Probably safe
- C: Use caution
- D. Dangerous
- X. Don’t use

L-channel Calcium Channel Blockers

- Verapamil 120-240 SR.
- 1 mg/pound initial dose
- Takes 2 weeks to work
- No sedation – great drug for this reason
- Hypotension rarely a problem
- Constipation main side effect – increase dose if not constipated after 2 weeks.
- Cheap ($19/month). Pregnancy category C.

Other calcium channel blockers

- flunarizine (Sibelium) 5 mg.
- Not FDA approved.
- Has a 30 day half-life and also various other effects (dopamine blocker).
- Most other calcium channel blockers just don’t work or make headache worse due to vasodilation.
Beta Blockers

- Any beta blocker works – so pick an inexpensive one in a good pregnancy category. $20/month
- Propranolol 60 LA (category C)
- Metoprolol 50 XL (category C)
- Bisoprolol (Bystolic) Low side effect
- Side effects
  - Fatigue, Slow pulse, Hypotension, sexual
- 1 month to work

Anticonvulsants

(Don’t affect BP, cognitive issues)

- Gabapentin (Neurontin) – category C
- Sodium Valproate (Depakote) – category D
- Topirimate (Topamax) – category D
  - 10% cleft palate
  - “dopamax” – can’t talk or think
- Levetiracetam (Keppra)

Gabapentin (Neurontin)

- Dose: 100 tid to 800 tid
- Extremely safe
- Not very effective – adjunctive agent
- Also suppresses vertigo and nystagmus
- Also useful for pain in general (arthritis)
- Pregnancy category C

Anticonvulsants: Topiramate (Topamax)

- Dose: 25 mg to 150 mg, Start with 25, increase weekly
- 50% response
- Associated with weight loss!
- Moderate doses – speech disturbance
- Tingling in hands and feet too
- Pregnancy category D

Antidepressants:

Venlafaxine (Effexor XL)

- Very effective – 50 to 80%
- Start with 37.5 XL, 1/3. Increase to 37.5
- Side effects are minor:
  - A little activation – like a cup of coffee
  - Minor sexual side effects
  - No effect on weight
- Pregnancy category C
- Warn patient about “cold turkey”

Tricyclic antidepressants

75% effective

- Very cheap and very effective
- Amitriptyline, Nortriptyline
- Side effects are major:
  - Fatigue, weight gain, hair loss
  - Antihistamine AND anticholinergic (vest. Suppressant)
  - Not a good drug for older people
  - Pregnancy category D
- Start with 10 mg, increase weekly to 25-50
SSRI antidepressants

?? effective ??

- Fluoxetine, citalopram, Paroxetine
- In our experience, SSRI’s don’t work for migraine associated vertigo. Some SSRI’s cause tinnitus. All SSRI’s cause nausea, at least on startup.

ACE inhibitors

not effective

- Lisinopril (29-34% response)
- Candesartin (32-48% response)

Abortive medications

- Triptans (sumatriptan, etc).
- Useful for diagnosis
- Some are expensive
  - Generic – sumatriptan
  - Powerful – Relpax/Maxalt
  - Long acting – frovatriptan

Alternative Medications

- Magnesium 200 mg/day
- Petadolex 50 mg TID (very questionable)

Medications of last resort

- MAO inhibitors (e.g. tranylcypromine – Parnate; phenelzine – Nardil)
- Narcotics – dependence is common
- Botox for chronic migraine (only about 0.2%)

These medications have substantial potential for toxicity and are generally administered by neurologists or pain clinics.

Returning to our case

- Patient tried verapamil for 1 month. No response.
- Patient then tried on propranolol 60 LA. Headaches and dizziness greatly reduced.
- Plan is to continue on propranolol, with attempts to D/C every 2 years till menopause.
Summary

• Migraine associated vertigo is very common, more so than Meniere’s disease
• Meniere’s and Migraine overlap substantially
• Diagnosis is via clinical judgment, combined with judicious tests to exclude dangerous alternatives.