Managing Challenging Headaches: Classification and Treatment of Chronic Daily Headache

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BOARD CERTIFICATION

American Board of Psychiatry and Neurology (ABPN-Neurology)
Board Certified in Pain Medicine (ABA-ABPN)
American Board of Pain Medicine
UCNS Certified in Headache Medicine

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Disclosures:

- Research Support: Amgen
- Contributor, *UptoDate*, Headache and Pain Sections
- Textbook "Principles and Practice of Pain Medicine" 2nd and 3rd Ed with Mc-Graw Hill
- Consultant: AstraZeneca, DepoMed, TEVA,
- DMSB: Boston Scientific for SCS
- Consultant: GLG, MEDACorp, McKinsey, Guidepoint

- This session will discuss off-label use of drugs

Learning Objectives

- Review HA classification
- Identifying episodic vs chronic migraine
- Treatments for episodic migraine
- Treatments for chronic migraine
  - With Meds, NBs, BTX
- The role of CBT in migraine treatment

Self Assessment Question

1. Which of the following treatments were approved by the FDA for chronic migraine?
   A. Depakote
   B. Topamax
   C. OnabotulinumtoxinA
   D. Nerve Blocks
   E. Beta Blockers

Self Assessment Question

2. Oxygen therapy is more helpful for…?
   A. Chronic daily headaches
   B. Acute Migraine attack
   C. Cluster headaches
   D. Cervicogenic headaches
   E. Temporal arthritis

ICDH Classification of CDH

- Chronic migraine headache
- Chronic tension-type headache
- Medication overuse headache
- Hemicrania continua
- New daily persistent headache

Medically intractable chronic headaches

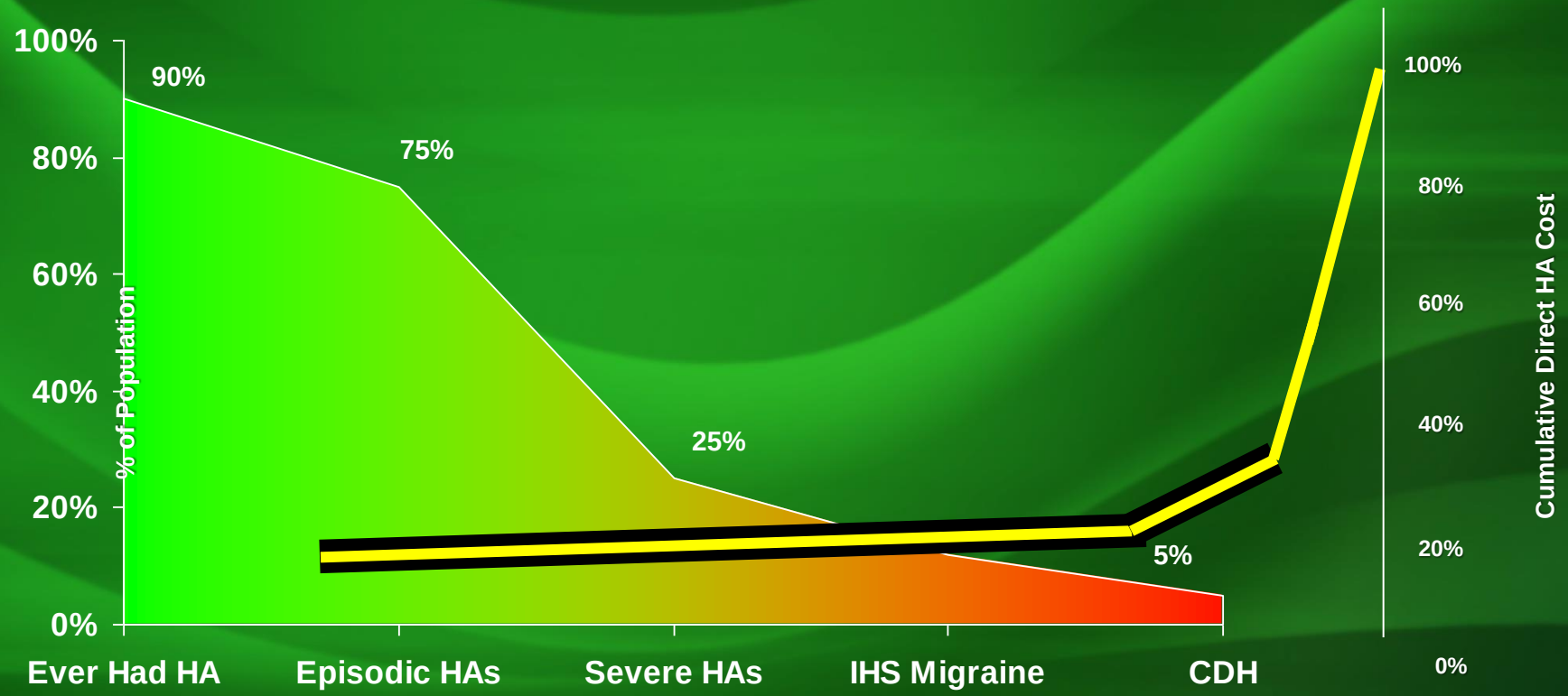
CDH – chronic daily headache

Common Benign Headache Syndromes

- Tension Type Headaches
- Migraine
- TMJ
- Sinus Headaches
- Cervicogenic Headaches
- Myofascial Pain with Headaches
- Cluster Headaches
- “Tic” Syndromes
- Indomethacin Responsive Headaches
- Occipital Neuralgia

Migraine Is One of Three Common Types of Headache

Headache Prevalence



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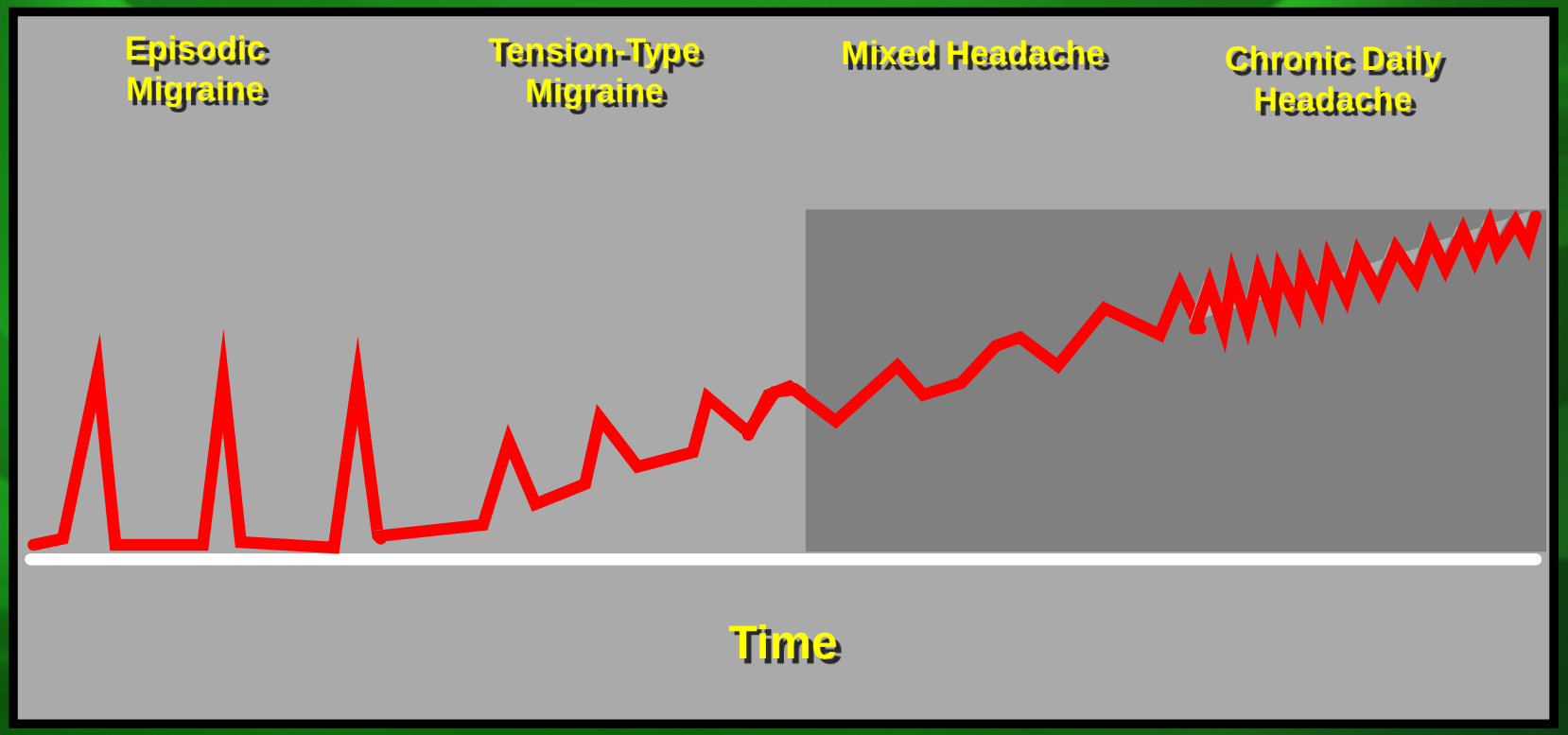
Migraine Transformation or Evolution



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Migraine with Aura

A) Headache pain is preceded by at least one of the following neurologic symptoms:

- Visual
  - -Scintillating Scotoma
  - -Fortification Spectra
  - -Photopsia
- Sensory
  - -Paresthesia
  - -Numbness
  - -Unilateral weakness
  - -Speech disturbance (aphasia)

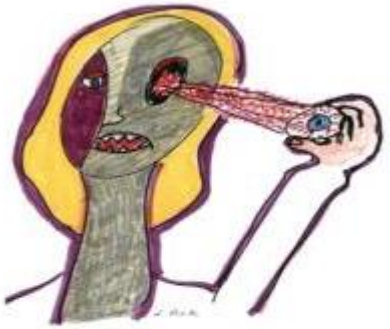
B) No evidence of organic disease

Migraine without Aura

At least five attacks fulfilling the following characteristics:

- Duration of 4 to 72 hours
- Headache with at least two of the following characteristics:
  - Unilateral location
  - Pulsating quality
  - Moderate or severe intensity that inhibits or prohibits daily activities
  - Aggravation by routine physical activity

Ocular headache



"I want to take a spoon and pull my eye out"

"My eye is popping out"

"Someone is pushing a finger into my eye"

Exploding headache

"My head feels like it's going to explode"

"The left side of my head is splitting from the right"

"I'd like to drill a hole in my head to let the pressure out"

"Someone is tightening a vise around my head"

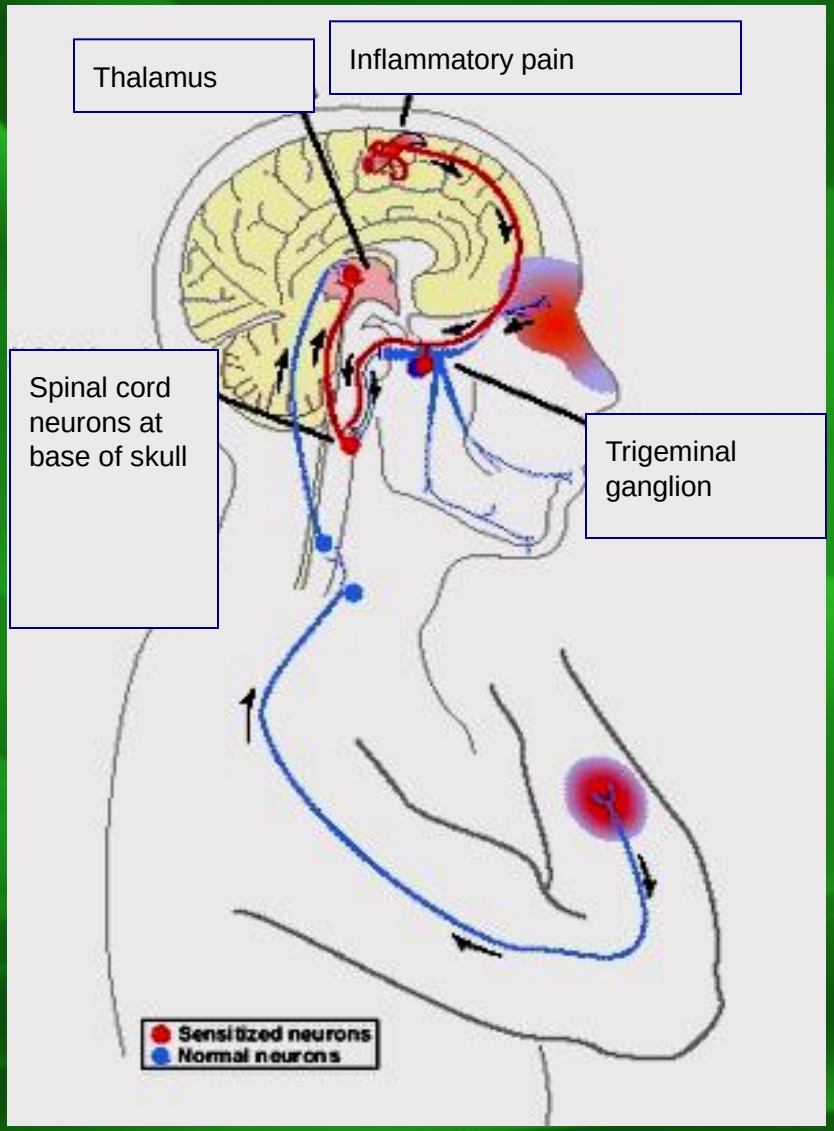
"Somebody is crushing my skull"

"Someone is driving spikes into my head"

"Something heavy is sitting on my forehead"

Art courtesy of Rami Burstein Ph.D.

Cutaneous Allodynia and Migraine



- Allodynia: non-painful stimuli perceived as painful
- During a migraine attack
  - 9/42 (21%): no allodynia
  - 33/42 (79%): allodynia on face ipsilateral to head pain
  - 28/42 (67%): secondary hyperalgesia and allodynia (outside of primary sensory field)
- Allodynic patients were older than those without allodynia (42±10 vs 34±5) and had more years of migraine

Burstein et al. *Ann Neurol.* 2000;47:614-624. Burstein et al. *Headache.* 2002;42:390-391.

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Pharmacologic Treatment

- Preventives
- Abortives
- Symptomatic
- Palliative

Preventive Medications

1. ß-blockers
2. Ca-channel blockers
3. Ace Inhibitors
4. Antidepressants
   - TCAs
   - SNRIs
   - SSRIs
   - MAOIs
5. Anticonvulsants
   - divalproex sodium
   - Gabapentin, Pregabalin
   - Topiramate, Lamotrigine
   - Zonisamide, Keppra

6-HT2 antagonists
   - Methysergide, Cyproheptadine
   - Methylergonovine

7-NSAIDS

Others—VITAMIN D
   - vitamin B2 (400 mg)
   - Mg++ (400 mg)
   - CoQ10
   - Leukotriene antagonists
   - Tizanidine
   - quetiapine
   - “Effexoquel”

Conclusions

- Prophylactic/preventive treatment is often necessary for long term improvement
- Treatment currently based more on clinical judgment than on clinical Trials
- Mechanisms of the drugs are complex and not fully Understood
- Side effects continue to be a problem

Non-Pharmacological Treatments:

- Physical therapy
- Manipulation
- Relaxation, meditation
- Stress management, Yoga
- Biofeedback
- Injection therapy
- Acupuncture
- Actions to promote normal sleep

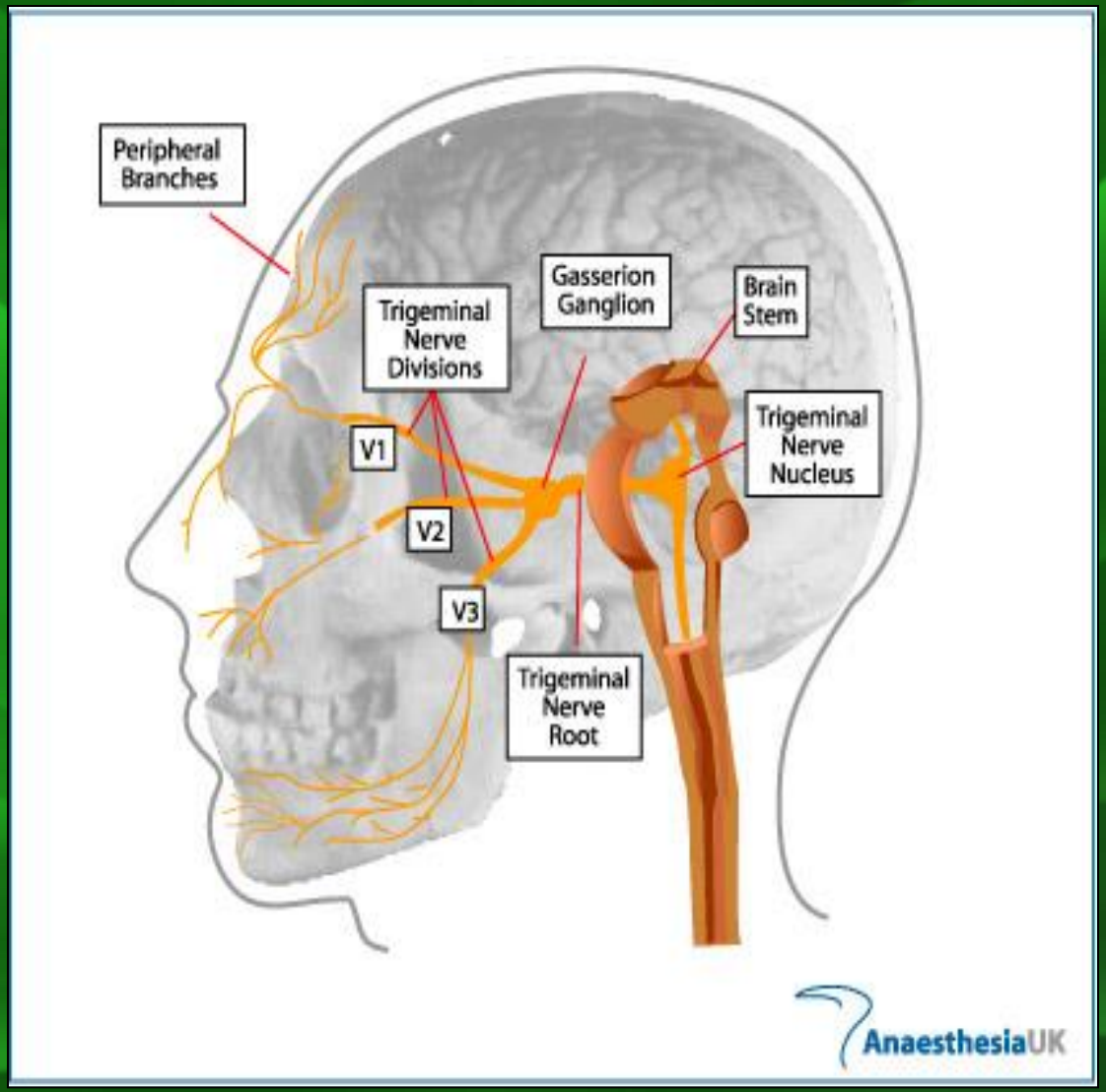
Non-Pharmacological Treatments:

- Evidence is Best for:
  - Relaxation therapy
  - Thermal biofeedback with relaxation training
  - EMG biofeedback
  - Cognitive behavioral therapy
- Evidence is less convincing for:
  - Acupuncture, homeopathy, hypnosis, TENS, cervical manipulation, hyperbaric oxygen

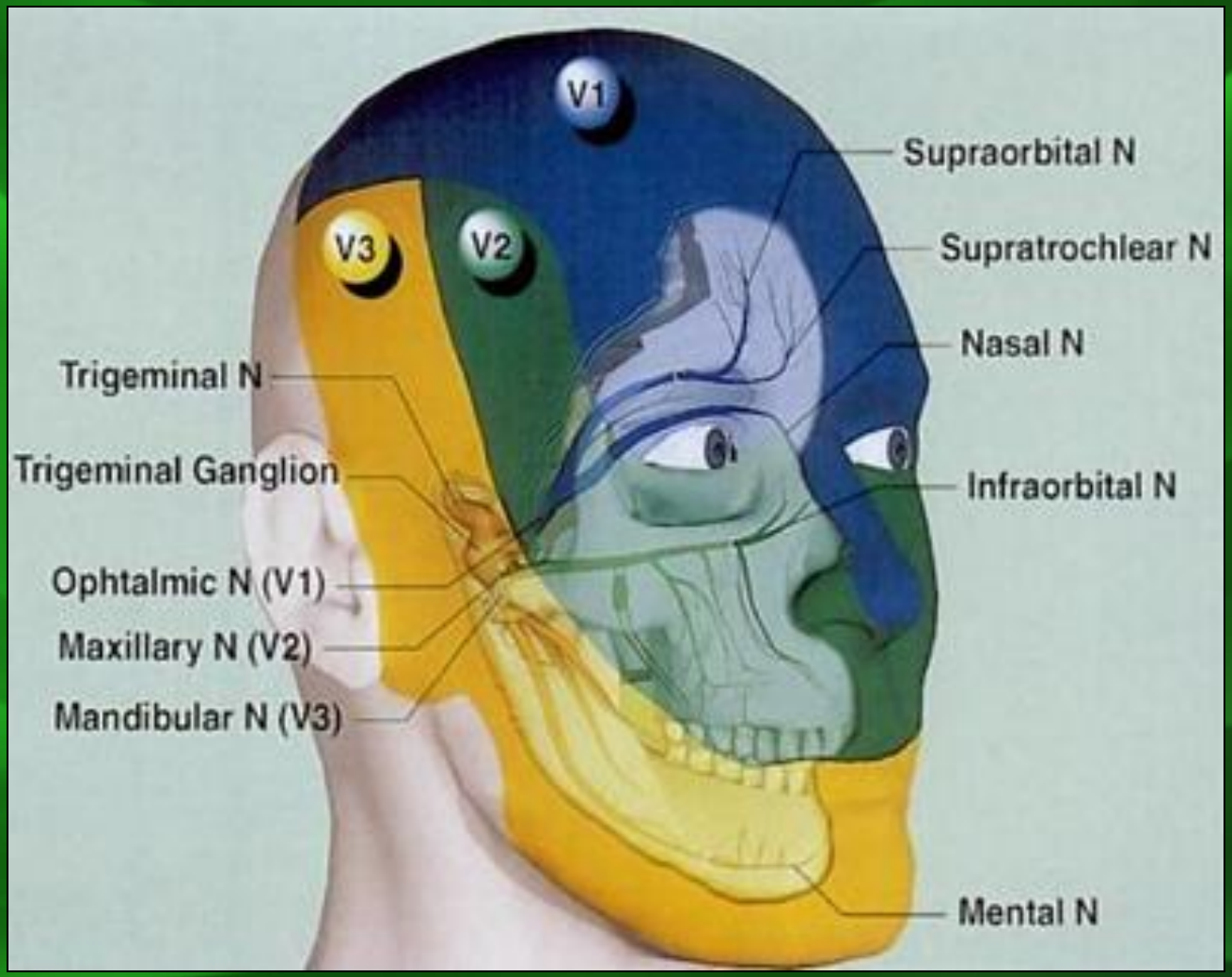
Cervicocranial Junction

- Cervicocranial syndrome
- Intractable daily headache
- Basis for injections (Injections = nerve blocks/trigger points)
  - Occipital Nerve Blocks
  - Cervical MBBs
  - C 2 DRG Blocks, and RFT
  - Stimulation Therapies

Trigeminal Cervical Tract



Trigeminal Nerve



Clinical Studies of BTX-A for Headaches

Migraine

- Binder et al, 1998 and Silberstein et al, 2000

Chronic daily headache with migraine features

- Klapper and Klapper, 1999

Chronic tension-type headache (CTTH)

- Smuts et al, 1999 and Wheeler, 1998

Cervicogenic, Mixed

- Relja, 1997; Relja, Korsic, 1999
- Freund, Schwartz, 2000 and Rollnik et al, 2000

Chronic Migraine

- Dodick et al, 2010 Pooled data from 2 large studies

Dose and Injection Sites

- The recommended dilution is 200 Units/4 mL saline or 100 Units/2 mL saline, with a final concentration of 5 Units per 0.1 mL
- Recommended dose for treating chronic migraine is 155 Units administered intramuscularly (IM) as 0.1 mL (5 Units) injections per each site
  - Injections should be divided across 7 specific head/neck muscle areas
- Retreatment schedule is every 12 weeks.

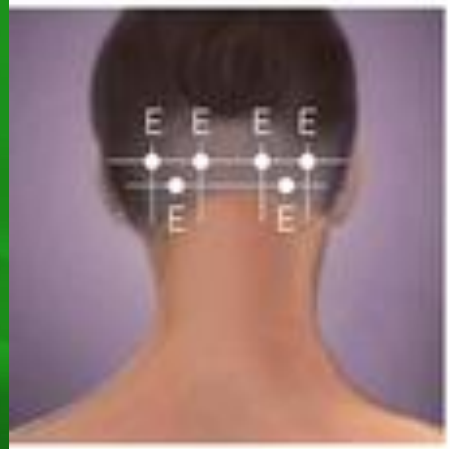
Recommended dose

Head/Neck Area	Total Dosage (number of sites)
Frontalis	20 U (4 sites)
Corrugator	10 U (2 sites)
Procerus	5 U (1 site)
Occipitalis	30 U (6 sites) up to 40 U (up to 8 sites)
Temporalis	40 U (8 sites) up to 50 U (up to 10 sites)
Trapezius	30 U (6 sites) up to 50 U (up to 10 sites)
Cervical Paraspinal Muscle Group	20 U (4 sites)
Total Dose Range:	**155 U to 195 U** **31 to 39 sites**

Each IM injection site = 0.1 mL = 5 Units; Dose distributed bilaterally

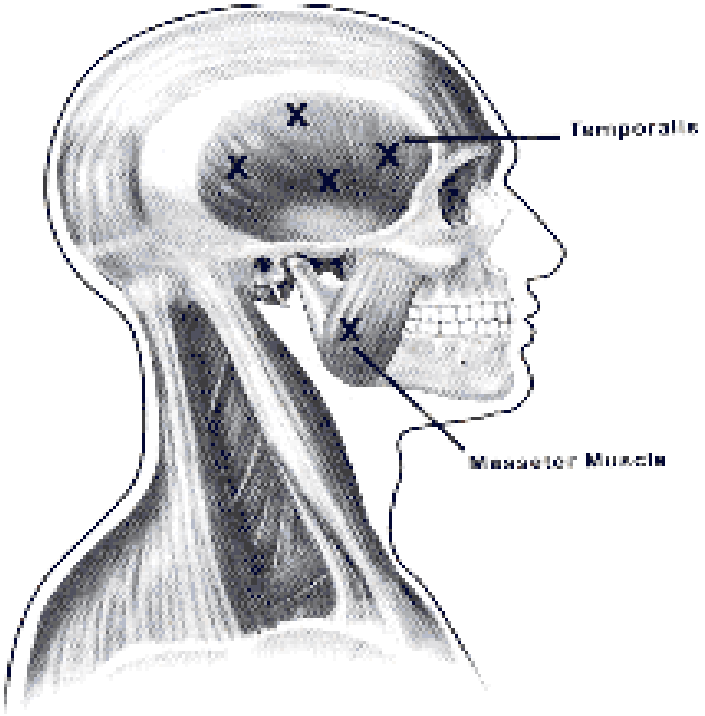
A. Corrugator: 5 Units each side
B. Procerus: 5 Units (1 site)
C. Frontalis: 10 Units each side

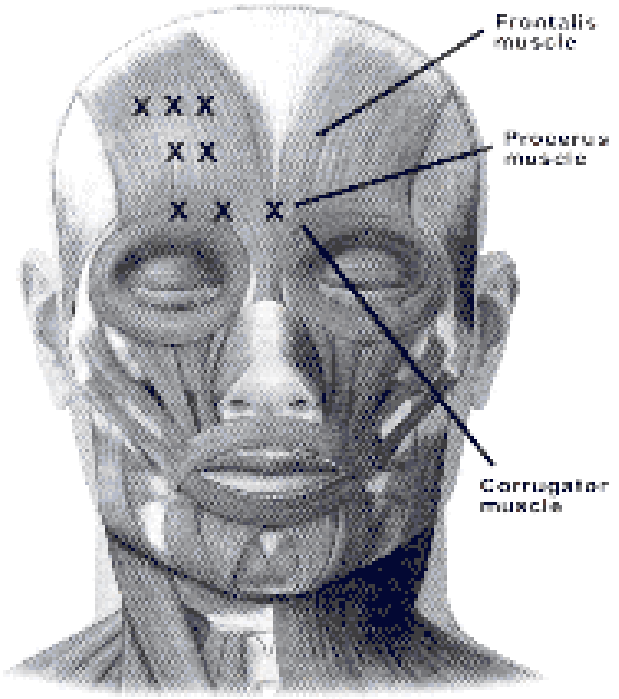
D. Temporalis: 20 Units each side



E. Occipitalis: 15 Units each side

F. Cervical paraspinal: 10 Units each side
G. Trapezius: 15 Units each side


Temporalis
Masseter Muscle


Frontalis muscle
Procerus muscle
Corrugator muscle

Botulinum Toxin Injection Therapy

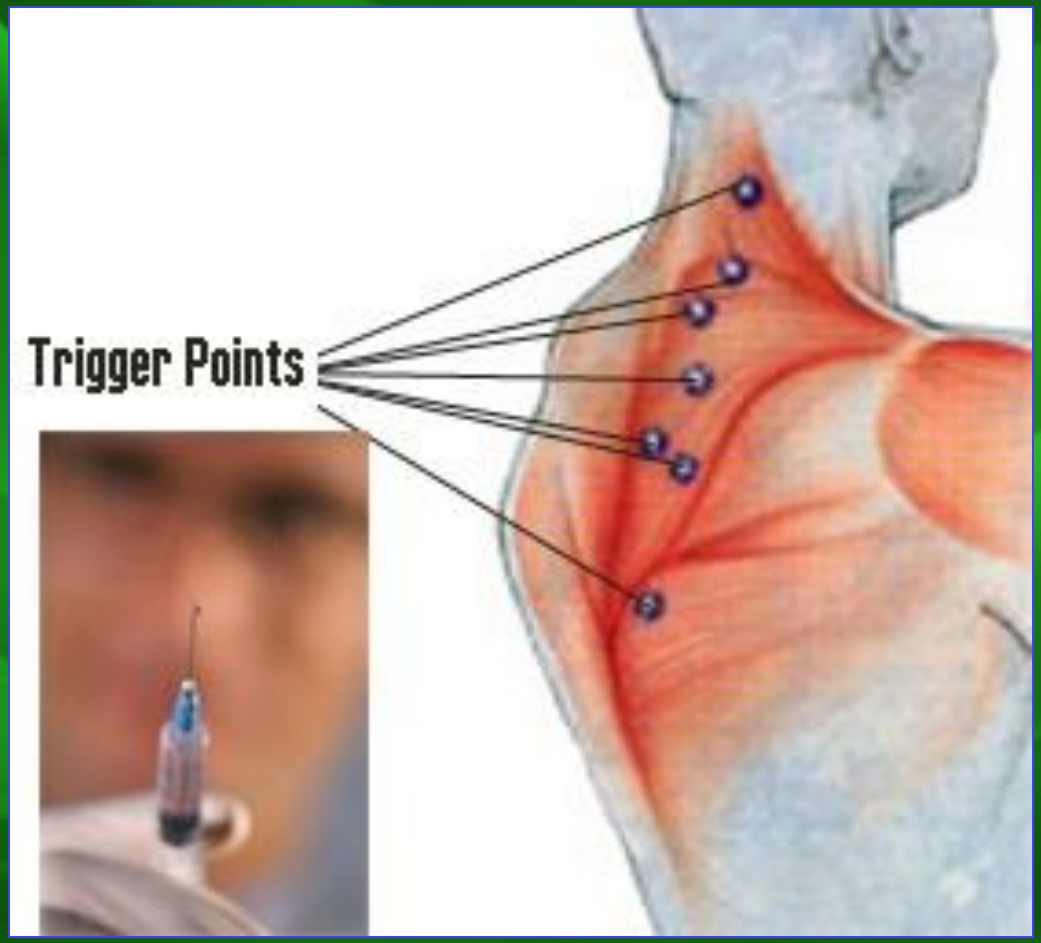
Botulinum Toxin Injection Therapy

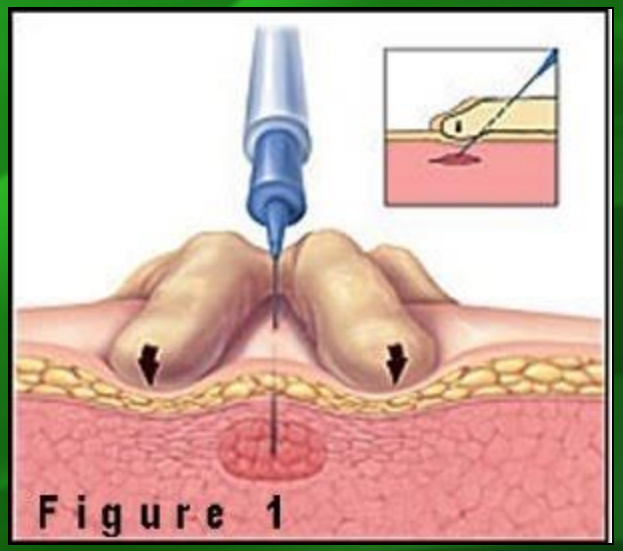
Because the medication is injected directly into the muscle, there are few side effects.

There may be some pain at the site of the injection for 1-2
days. Some may feel worse for a couple of days, flu like illness etc

Treating with Acetaminophen, NSAIDs may reduce these

Trigger Point Injections





Nonsteroidal Anti-inflammatory Drugs

- Aspirin 900 - 1000 mg
- Cambia 50mg **(FDA Approved)**
  - (diclofenac potassium) for Oral Solution
- Naprosyn 500 mg
- Ketoprofen 50 - 150 mg
- Ibuprofen 1000-1200 mg
- Adverse effects: GI irritation, CV Label, prolonged bleeding times, tinnitus, nephropathy

Isometheptene mucate

- Combined with dichloralphenazone and acetaminophen
- Side effects: Sedation, dizziness, skin rash, rarely tachycardia
- Sympathomimetic amine, possesses both alpha and beta-adrenergic properties
- Possible mechanism: mildly vasoconstrictive

Butalbital

- 50 - 100 mg dose q 4-6 hrs
- Combined with caffeine and aspirin or acetaminophen
- Side effects: sedation, dizziness, nausea, habituation
- Used more than one day a week, dose escalation may become a problem
- Agonist at $GABA_A$ modulatory site

Migraine: Acute Treatment Mod. To Severe Attacks

- Ergotamines
- Sumatriptan
- Naratriptan
- Almotriptan
- Rizatriptan
- Eletriptan
- Frovatriptan
- Zolmitriptan

- Difficulty with insurance allowing for appropriate quantity per month
  - Should be allowed 2x/day, 2days/wk = 16 tabs/month
  - If pts only receive a few tabs, they ask for another triptan leading to possible medication overuse with too many abortives available

Migraine: Acute Treatment Severe Attacks

- Subcut. Sumatriptan
- IV or Subcut. DHE
- IV Chlorpromazine
- IV Droperidol
- IV Valproate

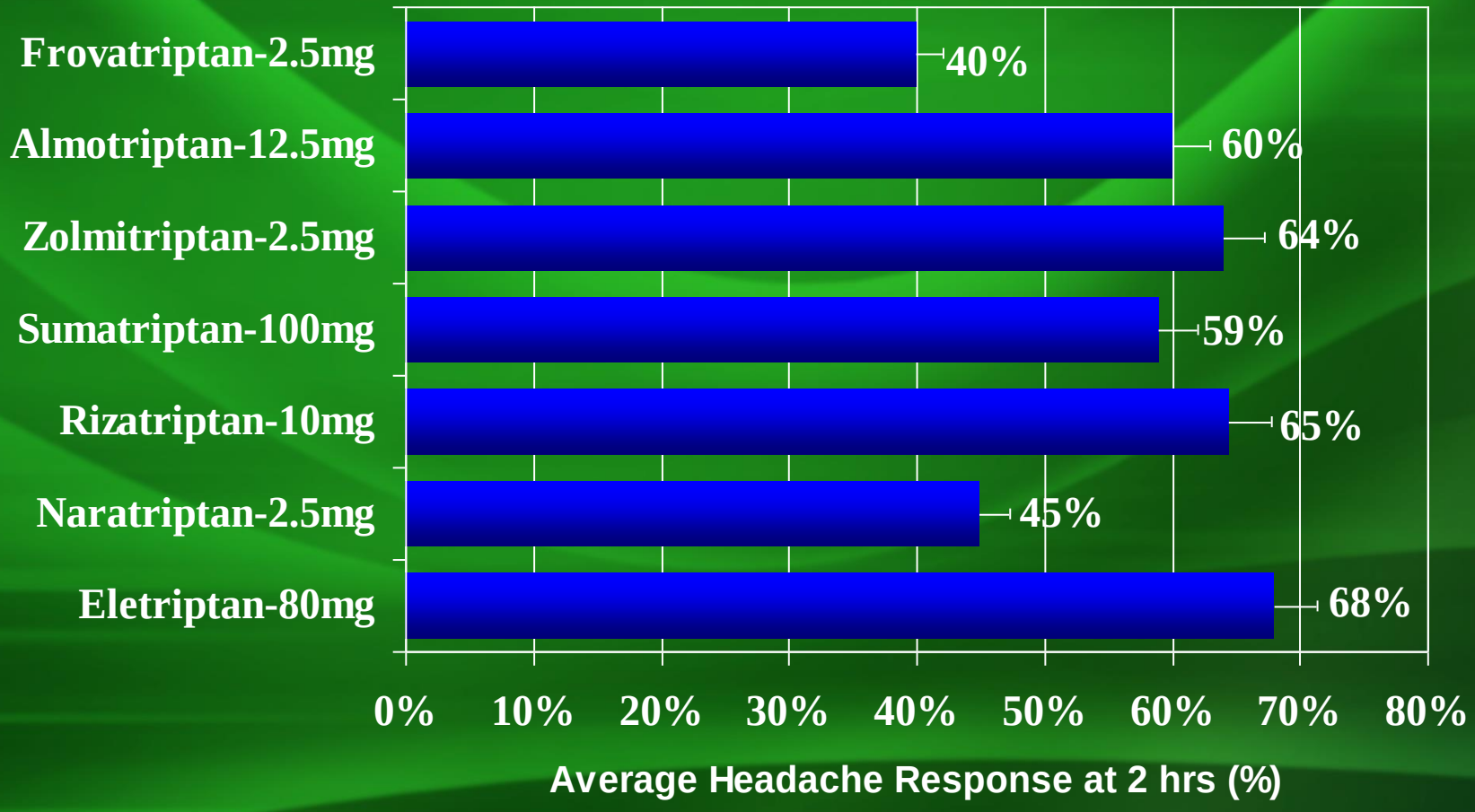
Ergotamines/Dihydroergotamine

- Ergotamine
  - oral 0.6 -1.0 mg
  - sublingual 2.0 mg
  - suppository 1.0 - 2.0 mg
- DHE (Migrainal)
  - intranasal 0.5 - 1.0 mg
- Side effects: nausea, vomiting, tachycardia, chest pain, diarrhea
- Possible Mechanism: 5-$HT_{1B/D}$ agonist

Headache

Response Rate at 2 Hours

(average from placebo-controlled acute studies)



Triaging the patient complaint

"My abortive regimen takes too long…"

- Consider combination of meds with differing mechanisms of action
- Consider changing route of medication
  - → Triptan (PO [tab vs melt] vs. NS vs. IM)
  - → NSAID (PO [tab vs melt] vs. NS vs. IM)
  - → Neuroleptic (PO [tab vs melt])
- With patient's who are very difficult to control, they're wasting their time with PO and possible NS medications, IM is going to keep them out of ER

After 2-3 days of abortives

- NSAID/neuroleptic bridge
  - Good for headache pts that are more naive to medications
  - BID x 3-5 days
  - With or without benadryl (if traveling, pts can always find benadryl)
- Prednisone taper
  - 60-60-40-40-20-20mg then stop

Bridges

Zyprexa bridge a.k.a “the Migraine bomb”

- Good for pts with increased anxiety or intolerance to steroids
- 2.5mg tabs
  - Night 1 – 1 tab
    - If headache free next day continue 1 tab x 3 days total
    - If not headache free, increase to 2 tabs
  - Night 2 – 2 tabs
    - If headache free next day continue 2 tabs for next 3 days
    - If not headache free, increase to 4 tabs
  - Night 3-5 – 4 tabs
    - Max 5 days

Conclusions

- Acute therapies have greatly improved over the past decade
- Acute treatments seem to be most effective when applied “Hard, fast and infrequently”

Intractable Headaches "Status Migrainosus"

- Combination Parenteral Drugs
- Suppositories
- IM Injections
- IV Infusions
  - Magnesium
  - Lidocaine
  - Droperidol
  - Ketamine
  - Propofol

Self Assessment Answer

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Self Assessment Answer

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