Update on Migraine

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  - Eli Lilly

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Migraine diagnosis and treatment: A knowledge and needs assessment of women's healthcare providers

Allison M. S. Verhaak, PhD[1,2], Anne Williamson, PhD[3], Amy Johnson, MD[4,5], Andrea Murphy, APRN[1], Matthew Saidel, MD[6], Abigail L. Chua, DO[1,7], Mia Minen, MD, MPH[8,9], Brian M. Grosberg, MD[1,7]

Conclusion: Women's healthcare providers appear to have several knowledge gaps regarding the management of migraine in their patients. These providers would likely benefit from access to a headache-specific educational curriculum to improve provider performance and patient outcomes.

doi:10.1111/j.1468-2982.2009.01966.x

BRIEF REPORT

A survey of family doctors on the likeability of migraine and other common diseases and their prevalence of migraine

RW Evans[1], RE Evans[2] & HJ Kell[2]

[1]Baylor College of Medicine, and [2]Department of Psychology, Rice University, Houston, TX, USA

CONCLUSIONS:

- Doctors reported liking to treat general medical conditions more
- (mean = 4.40) than migraine (mean = 3.38) and other neurological diseases
- 17% of doctors becoming aware for the first time that they personally had migraine after attending the lecture
- Respondents with a personal history of migraine liked to treat migraine more than those without a history of migraines

Headache Classification

11 types: 3 primary and 8 secondary

Primary types (n=3)

- Migraine
- Trigeminal autonomic cephalalgias
- Tension-type headache

Secondary types (n=8)

- Trauma or injury to the head / neck
- Cranial and/or cervical vascular
- Nonvascular intracranial disorder
- Substance or its withdrawal
- Infection
- Disorder of homoeostasis
- Disorder of the cranium, neck, eyes, ears, nose, sinuses, teeth, mouth, or other facial or cervical structure
- Psychiatric disorder

Hundreds of subtypes

ICHD-3. *Cephalalgia*. 2018;38(1):1–211.

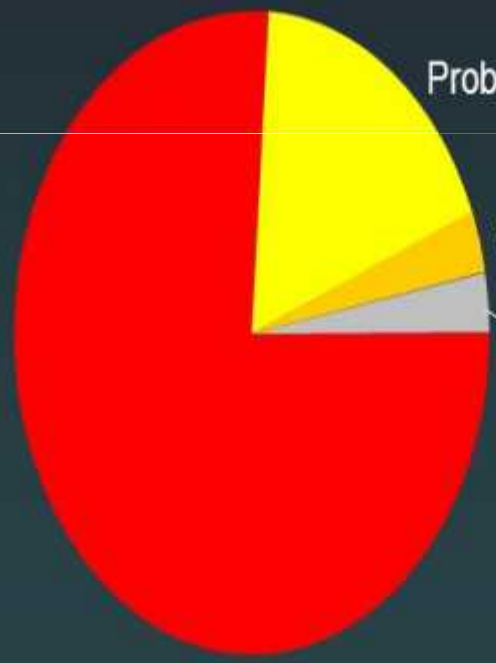
Landmark: How Likely Is it That "Headache" Is Migraine?

a prospective, open-label study of 1203 patients with episodic headache

94% (of 377 evaluable patients) had migraine or probable migraine

25% with migraine were not diagnosed by their physician

Headaches had a severe impact (HIT–6 score 64)



Migraine (n=288)
76%

Probable migraine (n=67)
18%

Episodic tension-type (n=11)
3%

Unclassifiable (n=11)
3%

Adapted from Tepper SJ et al. *Headache*. 2004;44:856–864.

HIT-6™

(VERSION 1.1)

HEADA
IMPA

This questionnaire was designed to help you describe and communicate the way you feel and what you cannot do because of headaches.

To complete, please circle one answer for each question.

1. When you have headaches, how often is the pain severe?

   Never | Rarely | Sometimes | Very Often

2. How often do headaches limit your ability to do usual daily activities including work, work, school, or social activities?

   Never | Rarely | Sometimes | Very Often

3. When you have a headache, how often do you wish you could lie down?

   Never | Rarely | Sometimes | Very Often

4. In the past 4 weeks, how often have you felt too tired to do work or daily activ of your headaches?

   Never | Rarely | Sometimes | Very Often

5. In the past 4 weeks, how often have you felt fed up or irritated because of you

   Never | Rarely | Sometimes | Very Often

6. In the past 4 weeks, how often did headaches limit your ability to concentrate daily activities?

   Never | Rarely | Sometimes | Very Often

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
(6 points each)	(8 points each)	(10 points each)	(11 points each)

igraine: A Common Episodic eadache Disorder

leurologic disorder

- Strong genetic component (up to 50%)

Global prevalence in women: >10%

- Women: 15%–17%
- Men: 6%–9%

major subtypes

- Without aura (~75%)
- With aura (~25%)

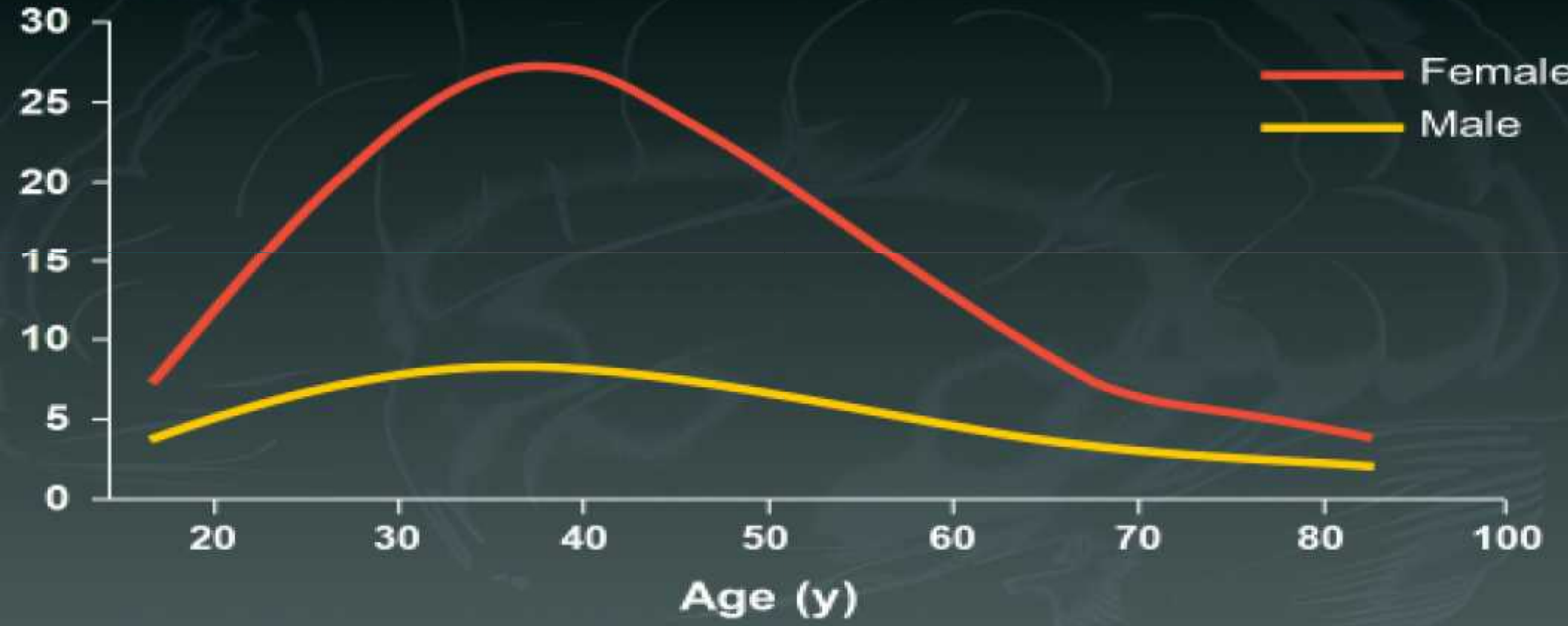
urden

- Among the world's 20 most disabling diseases (WHO)
- Indirectly costs employers up to $13 billion per year
- Direct medical costs exceed $1 billion per year

World Health Organization.

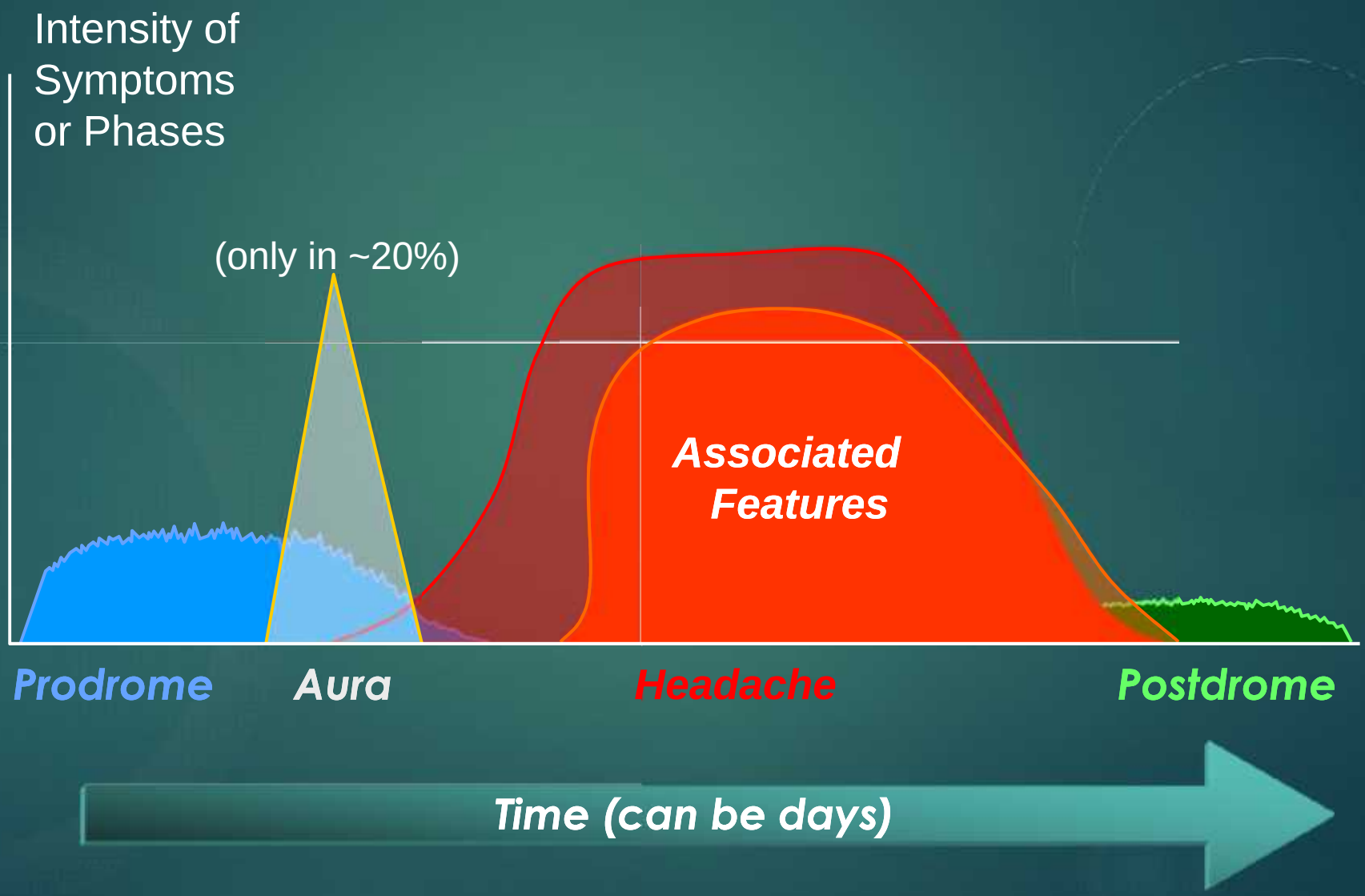
n D. *Neuroscientist*. 2005;11:373–386; Stovner LJ et al. *Cephalalgia*. 2007;27:193–210.
Acta Neurol Scand. 2006;114:71–83; ICHD. *Cephalalgia*. 2004;24 (Suppl 1):9–160.
et al *Arch Intern Med*. 1999;159:813–818.

igraine Prevalence by Age
nd Gender



with permission from Lipton RB et al. *Neurology*. 1993;43(suppl 3):S6–S10.

hases of a Migraine Attack



Anatomy of a Migraine Attack

Premonitory	Aura	Headache	Postdro

Yawning Polyuria

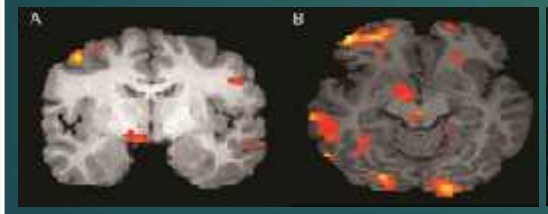
Neck pain Fatigue Mood change Photophobia Phonophobia

Nausea

Visual symptoms
Sensory symptoms
Language symptoms
Cognitive symptoms

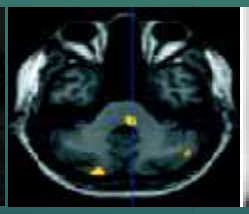
Head pain

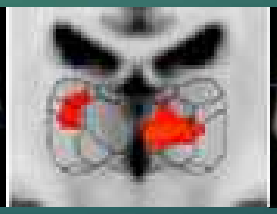
Cutaneous allodynia



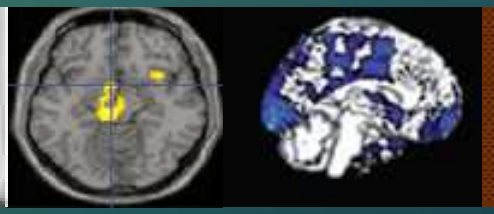
Hypothalamus
Brainstem
Cortex

Cortex





Brainstem
Thalamus
Hypothalamus



Cortex
Thalamus
Hypothalamus

Migraine Without Aura

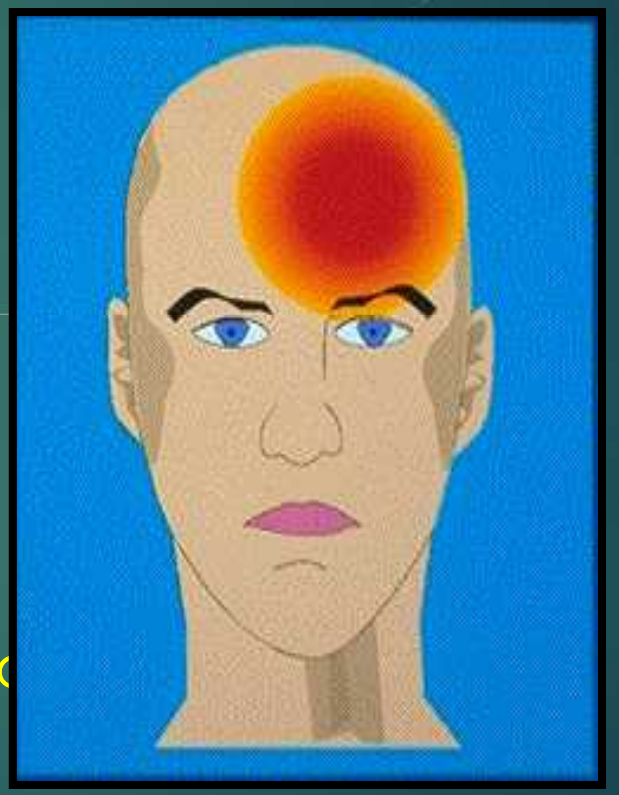
Headache has ≥ 2 of the following

- Unilateral
- Throbbing
- Moderate- Severe
- Aggravated by movement

One of the following

- Nausea
- Photo and phonophobia

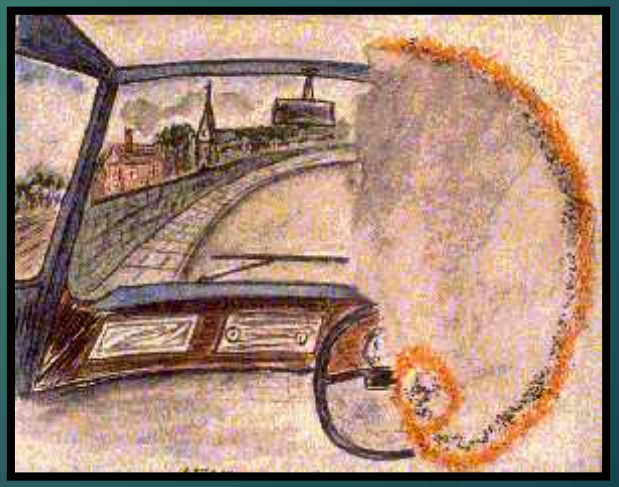
Similar pain in past and no evidence o



Migraine With Aura

Headache preceded by ≥ 1 neurologic symptom

- Visual
  - Scintillating scotoma
  - Fortification spectra
  - Photopsia
- Sensory
  - Numbness
  - Paresthesia
- Other
  - Weakness
  - Aphasia



PIN the diagnosis: ID™ Migraine

- Strongest predictors of migraine diagnosis
  - **Photophobia**
    - ***Does light bother you when you have a headache?***
  - **Incapacity**
    - ***Has a headache limited your activities for a day or more in the last 3 months?***
  - **Nausea**
    - ***Are you nauseated or sick to your stomach when you have a headache?***
- 2 out of 3 symptoms: 93%
- 3 out of 3 symptoms: 98%

Lipton RB et al. *Neurology*. 2003;61:375-382.

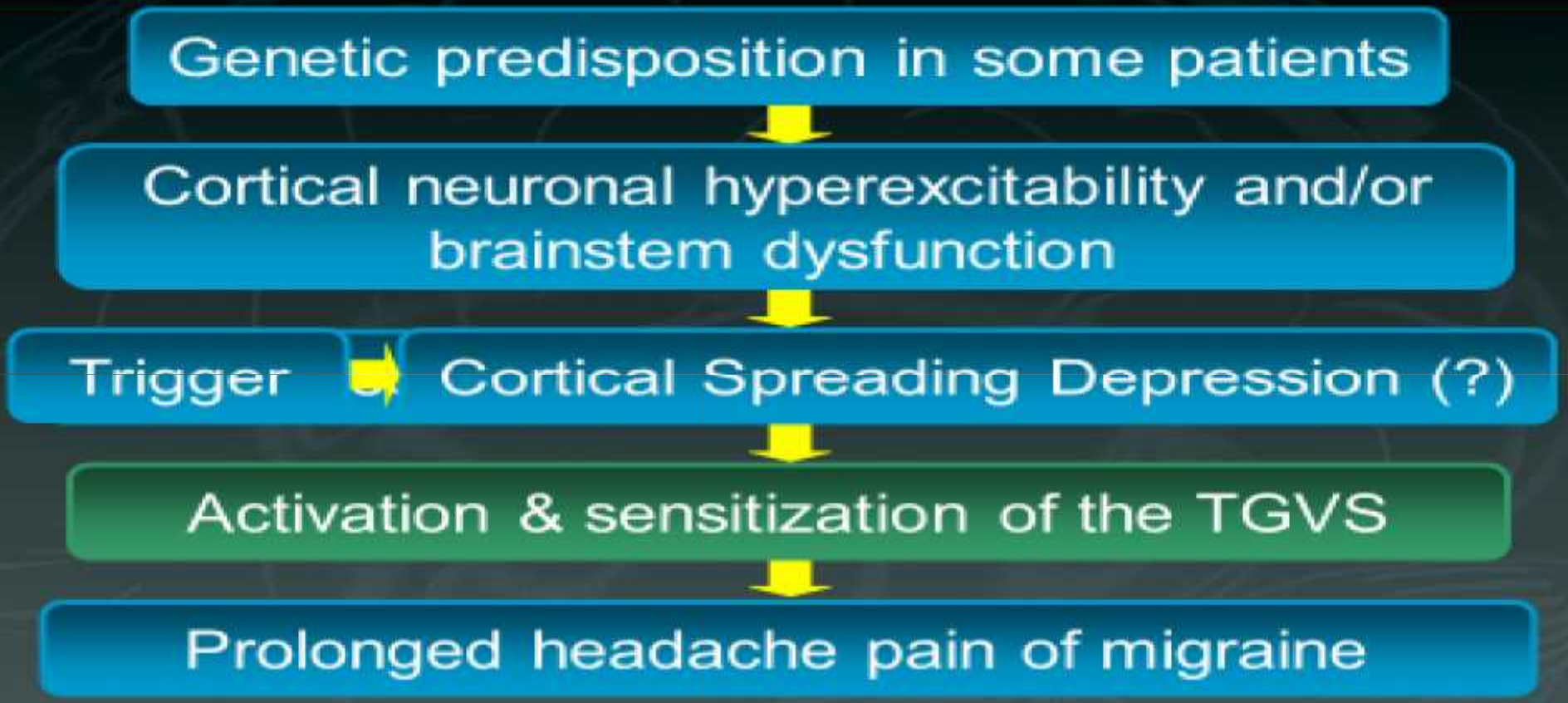
ICHD-3 Diagnostic Criteria:

Parameter	Migraine	Tension-type Headache
Frequency	Variable	Variable
Duration[a]	4–72 hours[b]	30 minutes–7 days
Location	Unilateral (40% bilateral)	Bilateral
Description	Pulsating (50% non-pulsating)	Pressing/tightening (non-pulsating
Intensity	Moderate-severe	Mild-moderate
Effect of routine physical activity	Aggravated by or cause avoidance of	Not aggravated by
Nausea or vomiting	Yes	No
Photophobia or phonophobia	One or both	No more than one
Attributable	Not attributable to another disorder	Not attributable to another disorder

[a]Untreated or unsuccessfully treated
[b]2–72 hours in children

ICHD-3. *Cephalalgia*. 2018;38(1):1–211.

ne Primary Cause of the Migraine eadache Lies in the Brain



The "vascular theory" not supported by experimental evidenc
⟶ migraine does not start in the blood vessels

trigeminovascular system.

n D, Striessnig J. *Nat Rev Neurosci*. 2003;4:386–398; Pietrobon D. *Neuroscientist*. 2005;11:373–386.

The Trigeminovascular System Plays a Key Role in Migraine

rojections from the trigeminal anglion:

nnervate the meninges and intracranial arteries

Converge in the trigeminocervical complex

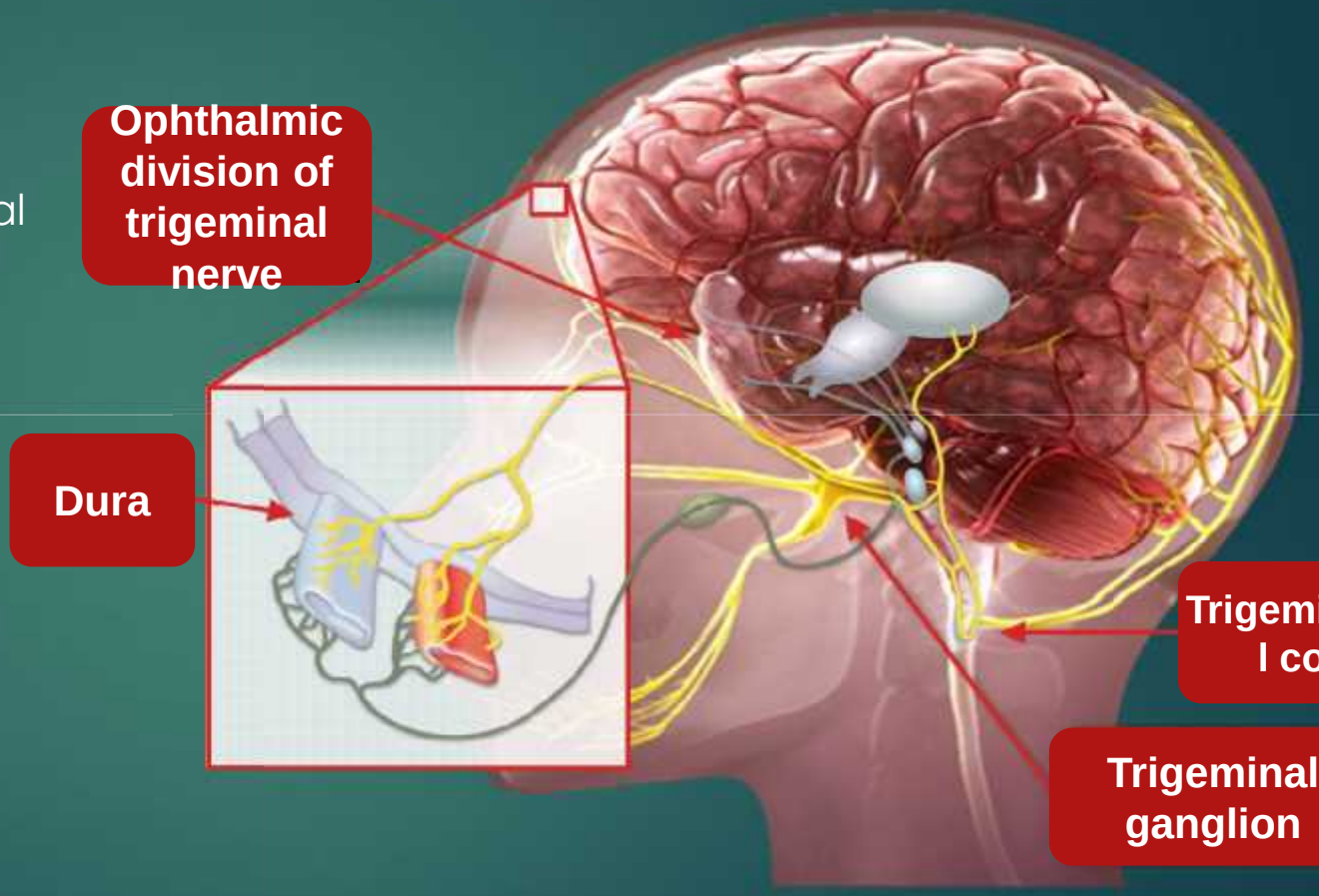
Release classical neurotransmitters and neuropeptides such as calcitonin gene-related peptide (CGRP)

he trigeminocervical complex

Located in brain stem and upper cervical spinal cord

Connected to key brain centers

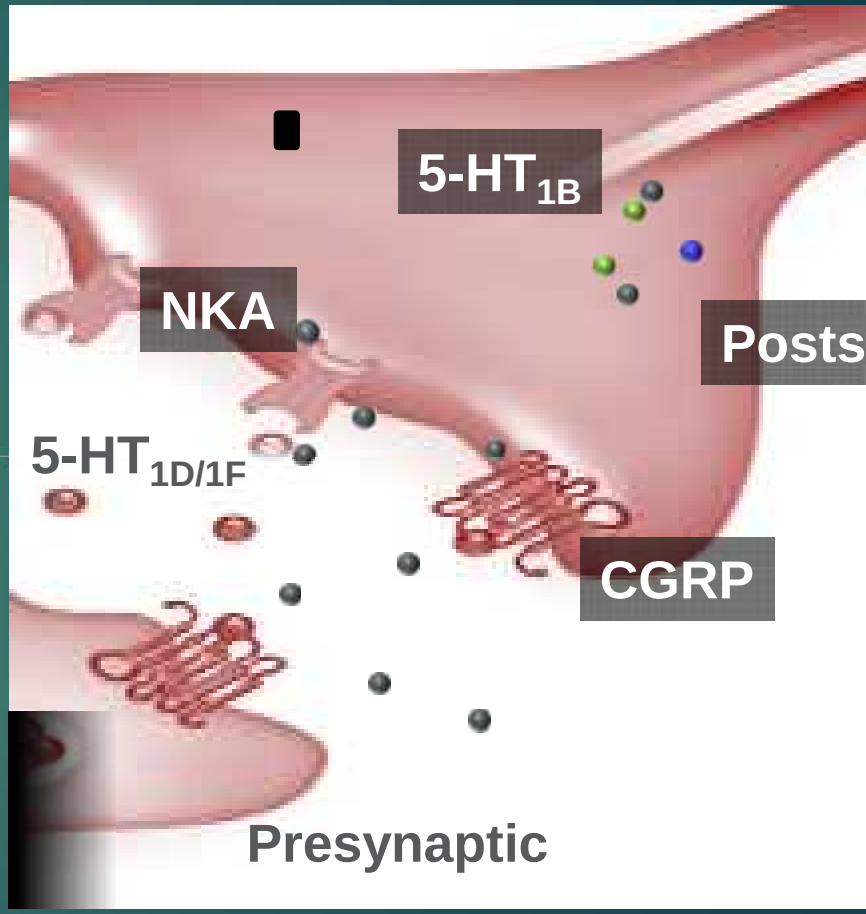
Activation crucial for migraine headache



Goadsby et al. *Physiol Revs* 2017;97:553-622

Serotonin Receptors: Targets for Acute Migraine Treatment

Receptor	Location	Primary Activity
5-HT_{1D}/5-HT_{1F}	Trigeminal terminals	Inhibit CGRP release
5-HT_{1B}	Blood vessels	Vasoconstrictor
5-HT_{1F}/5-HT_{1B}	CNS	Inhibit 5-HT, NE, ACh release



ACh, acetylcholine; CGRP, calcitonin gene-related peptide; CNS, central nervous system; HT, hydroxytryptamine (serotonin); NE, norepinephrine; NKA, neurokinin A

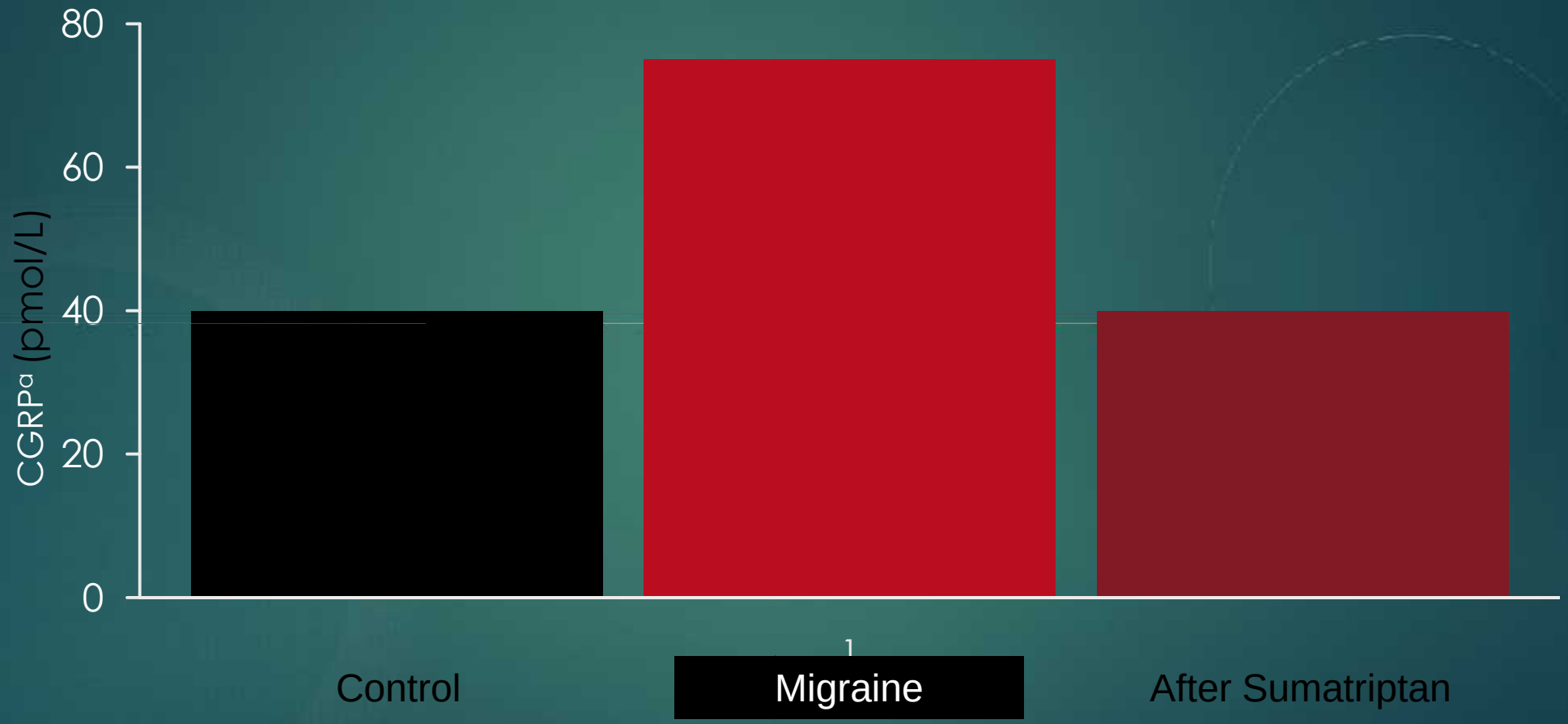
Neuropeptides in Migraine

Neuropeptide Gene Family	Candidate in Migraine
CGRP	CGRP
Glucagon/secretin	PACAP
F- and Y-amides	Neuropeptide Y
Tachykinins	Substance P
Tensins	Angiotensin
Corticotropin-releasing hormone-related	CRH
Adipose neuropeptides	Adiponectin
Orexin	Orexin receptor 1 (OXR1) Orexin receptor 2 (OXR2)

CGRP, calcitonin gene-related peptide; PACAP, pituitary adenylate cyclase-activating polypeptide

Russo AF. *Headache*. 2017;57:37-46.

Plasma CGRP Levels Are Elevated During Migraine and Return After Treatment



[a]Measured from external jugular blood

Goadsby PJ et al. *Ann Neurol*. 1990;28:183–187; Goadsby PJ et al. *Ann Neurol*. 1993;33:48–56; adapted from Lassen LH et al. *Cephalalgia*. 2002;22:54–61.

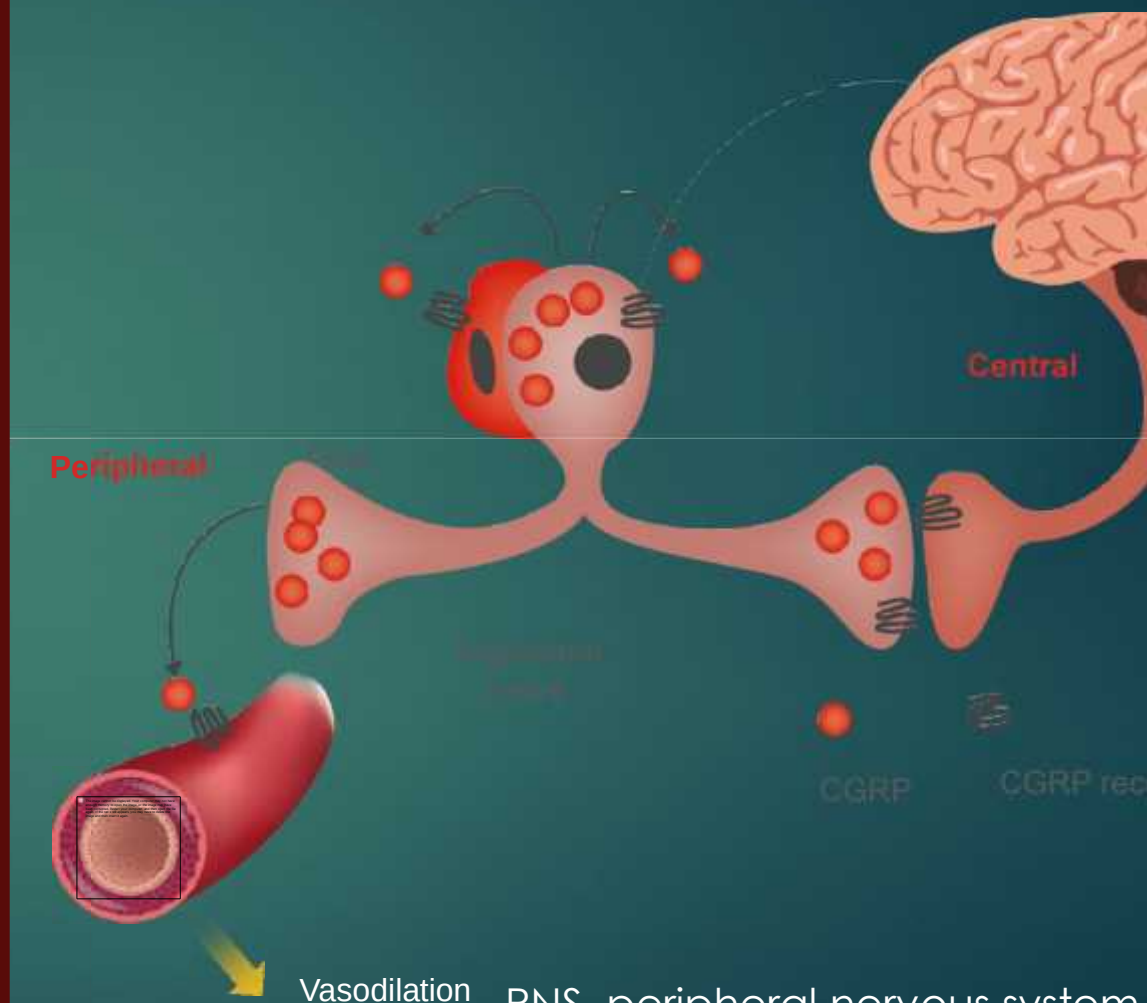
Role of CGRP in Migraine

Widely expressed in CNS and PNS;
expressed in 35–50% of neurons in the
trigeminal ganglia

- CGRP in C fibers
- CGRP receptor in in Aδ fibers and glial cells

Trigeminal system activated and
CGRP
released during migraine headache

CGRP plays roles in vasodilation,
inflammation, pain, and central
activation of the brain

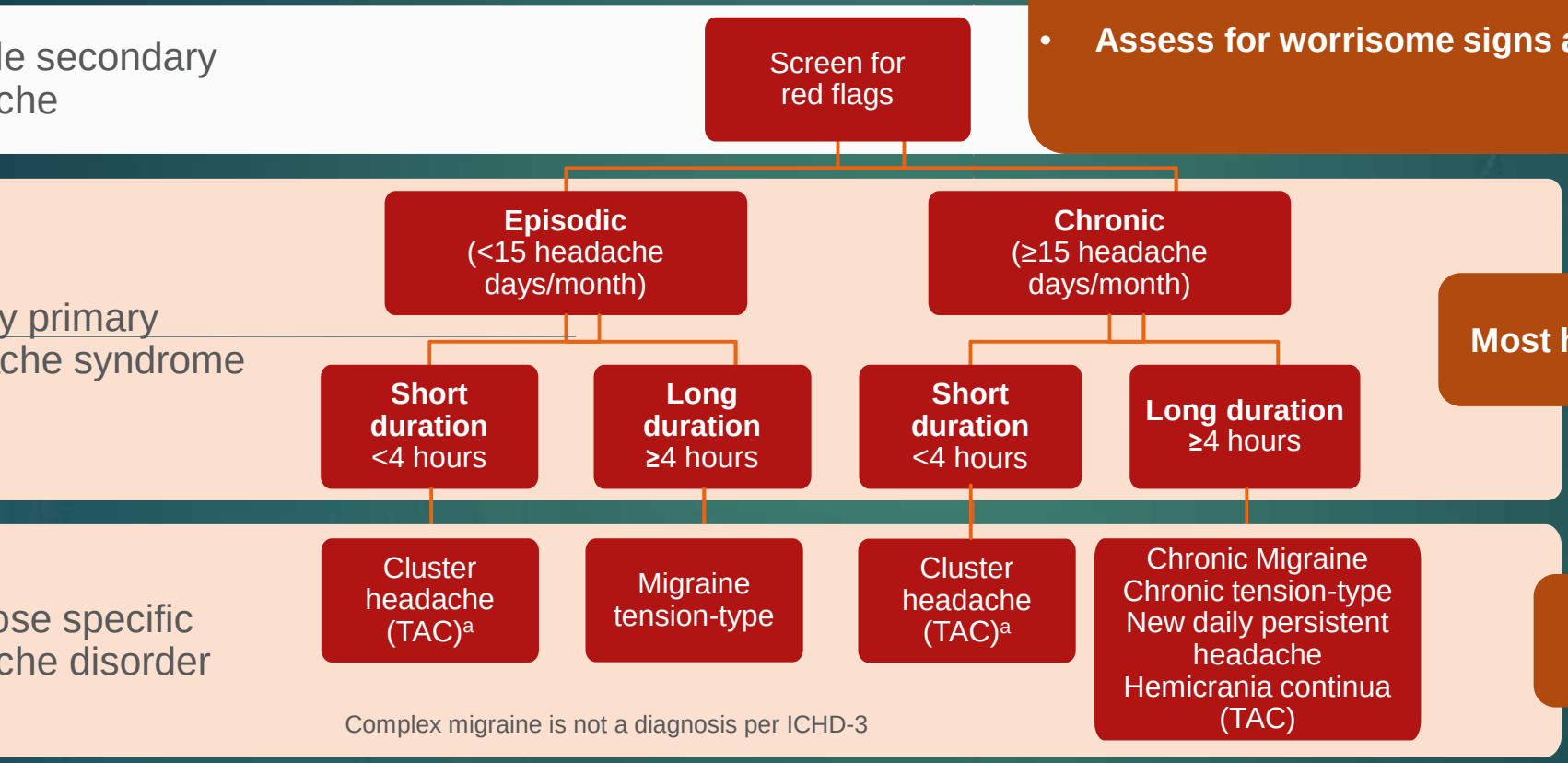


PNS, peripheral nervous system

Eftekhari S et al. *J Pain*. 2013;14:1289-1303; Edvinsson L et al. *Neurotherapeutics*. 2010;7:164–175.

Headache History and Examination

- **Assess for worrisome signs and symptoms**



nternational Classification of Headache Disorders 3rd edition; TAC, trigeminal autonomic cephalalgia.
ual attacks are of short duration; series of cluster headaches may occur on ≥15 days per month.

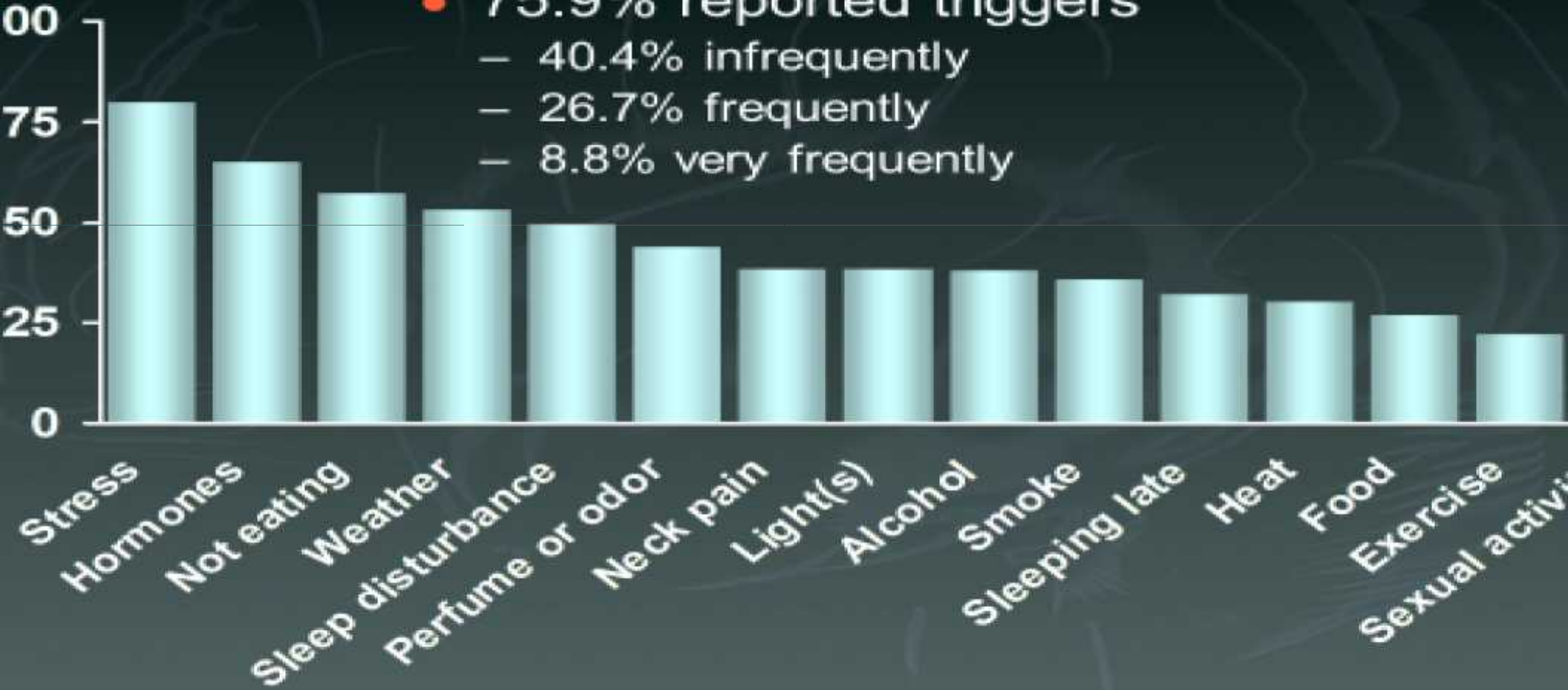
Bigal M et al. *J Headache Pain*. 2007;8:263–272.; adapted from Dodick DW. Adv Stud Med 2003.

Remember 2SNOOP4 Red Flags

- **S**YSTEMIC SYMPTOMS (fever, weight loss) or
  SECONDARY RISK FACTORS (HIV, systemic cancer)
- **N**EUROLOGIC SYMPTOMS or abnormal signs (confusion, impaired alertness or consciousness)
- **O**NSET: sudden, abrupt, or split-second (thunderclap)
- **O**LDER: new onset and progressive headache, especially in middle age >50 yr (giant cell arteritis)
- **P**REVIOUS HEADACHE HISTORY: first headache or different (change in frequency, severity, or clinical features), **P**OSITIONAL, **P**APILLEDEMA, or **P**RECIPITANTS (cough, Valsalva, exercise, sexual activity)

igraine Triggers and Precipitants

- N=1,207 patients with migraine
- 75.9% reported triggers
  - 40.4% infrequently
  - 26.7% frequently
  - 8.8% very frequently



with permission from Kelman L. *Cephalalgia*. 2007; 27:394–402.

Physical and Neurological Examinations: Patients Presenting With Headache

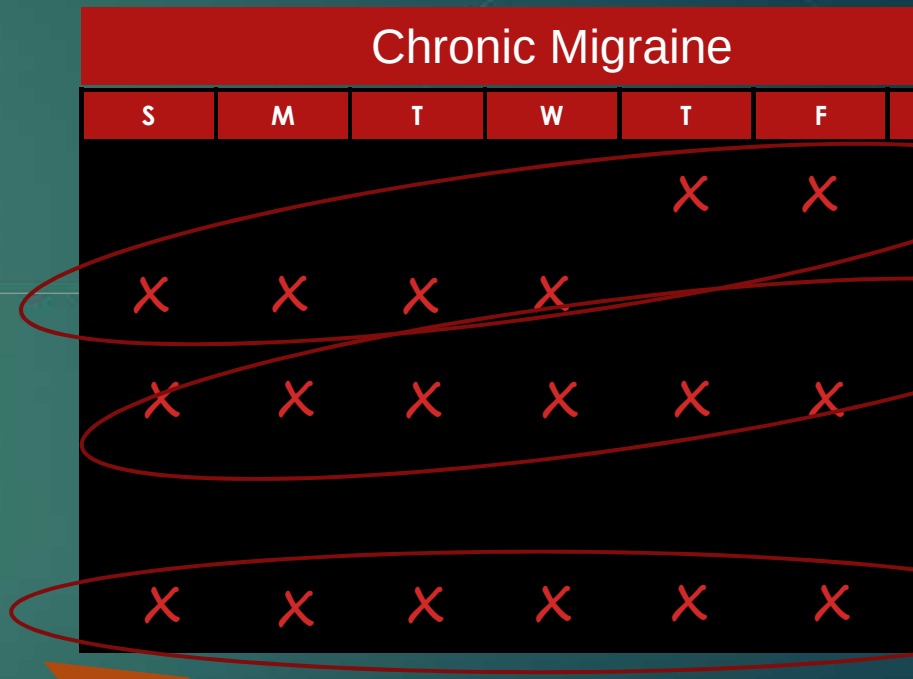
Vitals
Blood pressure/HR
Temperature
BMI

Head and Neck
Palpate:
Extracranial nerves
TMJs
Temporal arteries (age 60+)
Pericranial and paraspinal muscles
Paranasal sinuses

Focused Neurological Examination
Talk to patients—mental status
Cranial nerves
Fundi
Visual fields
Ocular motility
Paranasal sinuses
Facial sensation and symmetry
Palate/tongue
Reflexes
Tendon stretch reflexes
Plantar responses
Watch them walk

Discussion Points FOR Migraine Diagnoses

- Determine headache frequency:
  days with headache in the last month + days without headache of any intensity
  - Discuss unaccounted for days
  - Distinguish between headache days vs attacks



Patient may have 3 attacks per month, each lasting for 7 days = **21 days**, 3 attacks

Comorbidity With Migraine

a
e
tension/hypotension
aud's phenomenon

Epilepsy
Essential tumor
Restless leg syndrome
Vestibular disorders
Bell's palsy

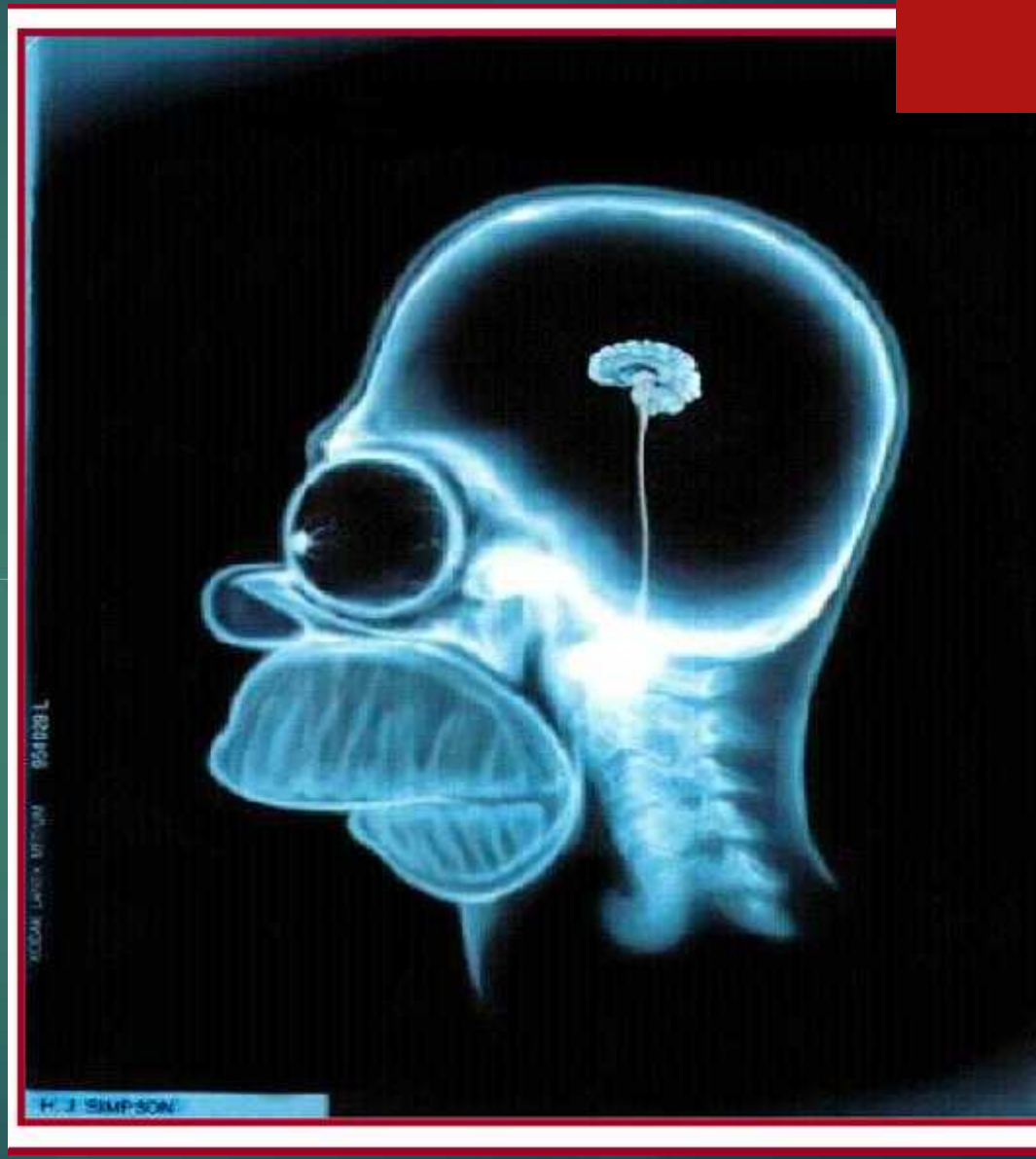
Depression
Anxiety
Panic disorder
Bipolar disorder

Snoring/sleep apn
Asthma/allergy
Nonheadache chroni
IBS

itable bowel syndrome; MI, myocardial infarction; PFO, patent foramen
e

maging

- T vs MRI
- T preferable for evaluation of acute H, trauma, and bony abnormalities
- Many disorders can be missed on CT
- MRA (aneurysm, dissection, vasculitis)
- MRV (thrombosis)
- T angiography (generally more nsitive than MRA for small/medium size)



Migraine Treatment

- Patient Education:
  - Information about Disease
  - Trigger Identification
- Pharmacotherapy:
  - Acute/ Abortive
  - Preventive/ Prophylactic
- Adjunctive Treatment:
  - Physical Therapy with Massage
  - Behavioral Therapy
  - Biofeedback/ Autogenics
  - Acupuncture
- Other Modalities:
  - Occipital Nerve Blocks or Stimulators
  - Botulinum Toxin Denervation

ducation Improves Self-Treatment

- **Baron, E (Cleveland Clinic)** led multi center study at Cleveland Clinic, Mayo Rochester, Mayo Arizona, Brigham and Women's, Montefiore, Jefferson and U South Florida of 207 migraine patients who use triptans.
  - Compared self –perceived vs. actual knowledge about triptans in patients who recalled receiving education and those who didn't.
  - Those who recall receiving education had better understanding about treating headaches early, treating when pain is mild and early use of prescription triptan over OTC.

Goals of Acute Treatment of Migraine

Rapid, consistent freedom from pain and associated symptoms without recurrence

Restored ability to function

Minimal need for repeat dosing or rescue medications

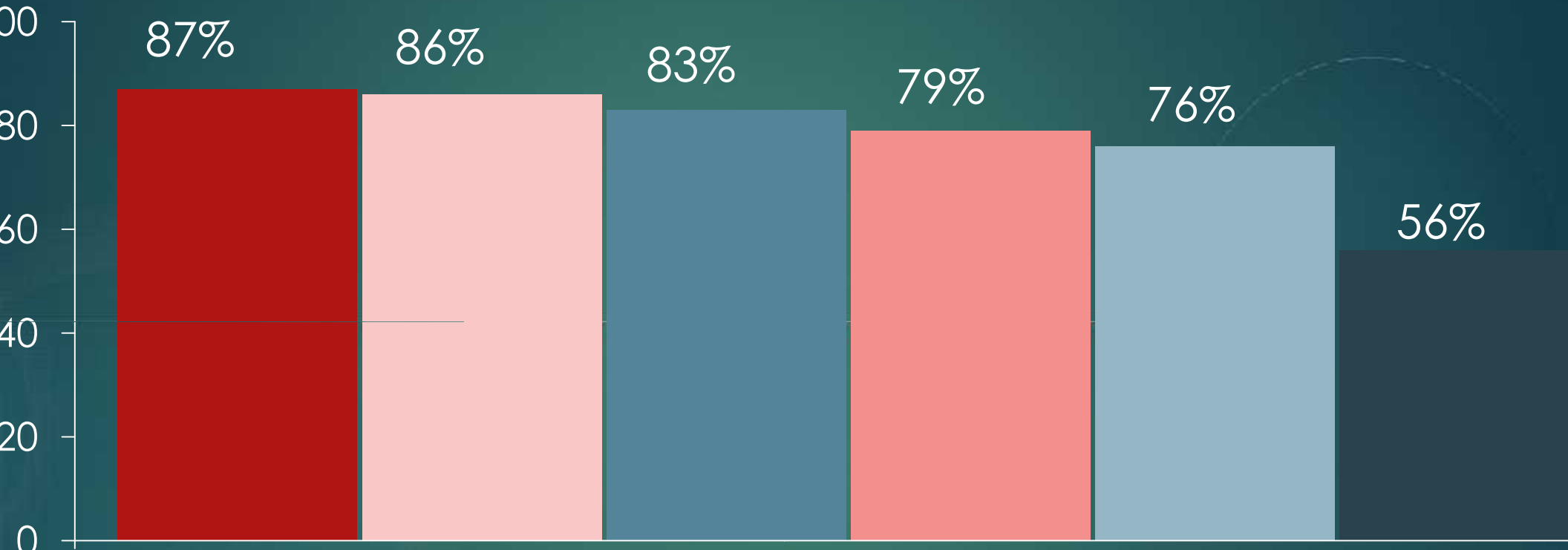
Optimal self-care and reduced subsequent use of resources[a]

Minimal or no AEs

[a]ER visits, diagnostic imaging, office visits

AHS. *Headache*. 2019;59:1-18.

What Do Headache Patients Want From Acute Treatment?



N=688

Lipton RB et al. *Headache*. 1999;39(suppl 2):S20-S26.

blished Efficacy	Probably Effective
ans	Ergotamine and other forms of DHE
tamine derivatives	IV magnesium[a]
Ds: aspirin, diclofenac, ibuprofen, roxen	NSAIDs: ketoprofen, IV and IM ketorolac, flurbiprofen
oids: butorphanol[c]	Isometheptene-containing compounds
nbination medications	Combinations: codeine/acetaminophen, tramadol/acetaminophen[b]
	Antiemetics: prochlorperazine, promethazine, droperidol, chlorpromazine, metoclopramide

DHE, dihydroergotamine; IV, intravenous; IM, intramuscular; NSAID, nonsteroidal anti-inflammatory dru
[a]Consider neuromodulation if patients prefer nondrug treatments or if drug treatment is ineffective, intolerable, or contraindicated.
[b]Migraine with aura
[c]Not recommended

AHS. *Headache*. 2019;59:1-18; Marmura MJ et al. *Headache*. 2015;55:3-20

Treatment Efficacy Within the Class

Drug Class	Primary Acute	Secondary Acute	Rescue	FDA Approved?
Simple Over-the-Counter	Yes	Yes	–	Yes
Prescription NSAIDs	Yes	Yes	Ketorolac[a]	Yes
Combination analgesics	Rarely	Rarely	Rarely	Yes
Triptans	Yes	Yes	Yes	Yes
Dihydroergotamine	Yes	Yes	Yes	Yes
Lidocaine nasal spray	Yes	Yes	Yes	No
Muscle relaxant	–	–	Yes	No
Dopamine antagonists	Yes	Yes	Yes	No
Corticosteroid	–	–	Yes	No
Opioids	–	–	Rarely	No

NSAID, nonsteroidal anti-inflammatory drug
Parenteral

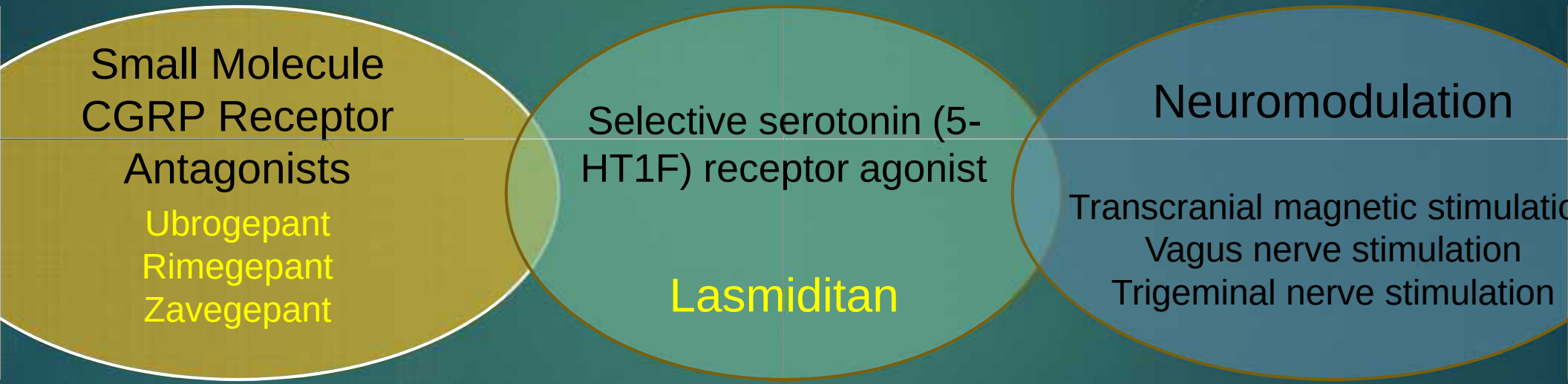
Pharmacology of Oral Triptans

Agent	T_{max} (hours)	$t_{1/2}$ (hours)
Sumatriptan	2-2.5	2.5
Rizatriptan	1-1.5	2-3
Naratriptan	2-3	6
Zolmitriptan	1.5	3
Eletriptan	1.5	4
Almotriptan	1-3	3-4
Frovatriptan	2-4	26

Marcus D. *Arch Neurol*. 2001;58:1056–1058.

Acute Treatments in Practice

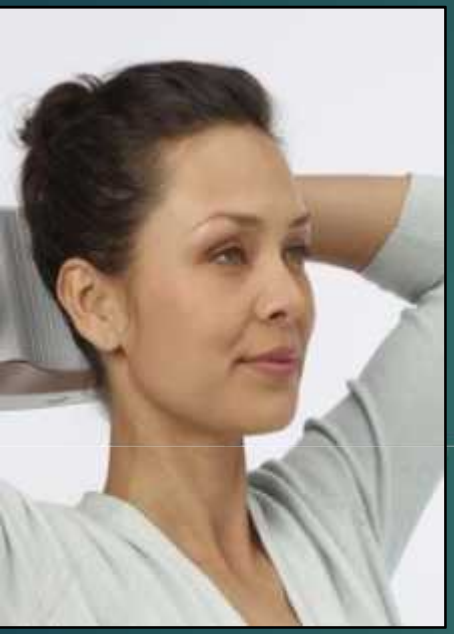
For patients who have contraindications, poor tolerance, or inadequate response to at least 2 oral triptans



No constriction of blood vessels —
role in patients with cardiovascular contraindications to triptans

AHS. *Headache.* 2019;59:1-18.

Neuromodulation in Migraine



Transcranial magnetic stimulation

ute/Preventive

Vagus nerve stimulation

Acute

Trigeminal nerve stimulation

Acute/Preventive

Remote electrical neuromodulation

Acute

Goals of Migraine Prevention

DECREASE

- Migraine days
- Headache days
- Intensity of symptoms
- Duration of attacks
- Disability

IMPROVE

- Response to acute treatment
- Functional ability

PREVENT

- Disease Progression

Benefits Occur Over Time

AHS. *Headache*. 2019;59:1-18.

General Principles of Prevention

Start with low dose and increase slowly

Allow enough time on an adequate dose (2–3 months)

Monitor medication usage

- Avoid acute medication overuse
- Limit/Eliminate interfering drugs

AHS. *Headache.* 2019;59:1-18.

MORE General Principles

Evaluate preventive therapy

- Use calendar/diary
- Consider taper/discontinue if controlled at 6 months

Manage communications

- Ask about patient preference
- Discuss contraception

Optimize medication use

- Best efficacy
- Fewest AEs

AHS. *Headache.* 2019;59:1-18.

Preventive Treatments for Migraine

Level A — Established As Effective; Should Be Offered

Divalproex sodium* | Topiramate | Metoprolol | Propranolol | Timolol

Level B — Probably effective; Should be considered

Amitriptyline
Venlafaxine

Nadolol
Atenolol

Memantine
NSAIDs
- Fenoprofen
- Ibuprofen
- Ketoprofen
- Naproxen

Riboflavin
Magnesium
Mig 99 (feverfew)
Histamine (SQ)

Level C — Possibly effective; May be offered

Lisinopril
Carbamazepine

Candesartan
CoQ10

Clonidine
Cyprohepatadine

Level U — Weak/No evidence

Gabapentin | Fluoxetine | Fluvoxamine | Verapamil

Silberstein SD et al. *Neurology*. 2012;78:1337-1345.

he NEW KIDS on the Block

Oral Gepants Comparison Chart

Drug	Indication(s)	Dosing	Renal Dosing Adjustments	Hepatic Dose Adjustments	Adverse Re
egepant urtec®)	acute treatment of migraines w/ or w/o aura	75 mg PRN for migraine (MDD: 75 mg)	CrCl ≥ 15 mL/min: No adjustment necessary CrCl < 15 mL/min or dialysis: Avoid (has not been studied)	Mild to moderate impairment (Child-Pugh class A, B): No adjustment necessary Severe impairment: Use not recommended	2 – 3% incidence (abdominal pain, nausea) <1% incidence: d skin rash, hypers reaction
	prevention of **episodic** migraines (4 – 14 migraines per month)	75 mg QOD			
ogepant relvy®)	acute treatment of migraines w/ or w/o aura	50 – 100 mg PRN for migraine, may repeat after 2 hours (MDD: 200 mg)	CrCl ≥ 30 mL/min: No adjustment necessary CrCl 15 – 29 mL/min: 50 mg PRN for migraine (MDD: 100 mg) CrCl < 15 mL/min: Avoid (has not been studied)	Mild to moderate impairment (Child-Pugh class A, B): No adjustment necessary. Severe impairment (Child-Pugh class C): 50 mg as single dose, may repeat after 2 hours (MDD: 100 mg)	2 – 4% incidence (nausea, xerosto (drowsiness) <1%: hypersensit reactions
nt (Quilpta®)	prevention of **episodic** migraines (4 – 14 migraines per month)	10 – 60 mg once daily	CrCl ≥ 30 mL/min: No adjustment necessary CrCl < 30 mL/min: 10 mg once daily (can titrate up based on tolerance) Hemodialysis, intermittent: 10 mg once after each dialysis day	Mild to moderate impairment (Child-Pugh class A, B): No adjustment necessary Severe impairment: Use not recommended	1 – 9% incidence (nausea, constip decreased appet endocrine (weigh (fatigue, dizzines <1% incidence: t increased serum transaminases (> hypersensitivity r
	prevention of **chronic** migraines (≥ 15 migraines per month)	60 mg once daily	CrCl ≥ 30 mL/min: No adjustment necessary CrCl < 30 mL/min: Avoid (has not been studied		

ns: w/ = with, w/o = without, PRN = as needed, QOD = every other day, MDD = max daily dose, CrCl = creatinine clearance; mL = milliliter, min = minute, GI = gastrointestinal, CNS = central nervous system, ULN = upper

he **NEW KIDS** … continued

CGRP Antagonists Chart

Aimovig® (erenumab)

- **Dosing: 70 mg - 140 mg SQ once monthly**
- **Caution use with:** uncontrolled hypertension, recent cardiovascular/verebrovascular ischemic event, underying gastrointestinal motility disorders (i.e. chronic constipation), irritable bowel syndrome, or inflammatory bowel disease
- **Side effects:** constipation, local injection site reactions, muscle cramps/spasms, hypertension, hypersensitivity reactions (i.e. anaphylaxis, angioedema, rash), alopecia

Ajovy® (fremanzeumab)

- **Dosing: 225 mg SQ once monthly OR 675 mg SQ every 3 months**
- **Caution use with:** recent cardiovascular/cerebrovascular ischemic event
- **Side effects:** local injection site reactions, hypersensitivity reactions (i.e. anaphylaxis, angioedema, rash)

Emgality® (galcanezumab)

- **Dosing: 240 mg SQ as a single loading dose then 120 mg SQ once monthly**
- **Caution use with:** recent cardiovascular/cerebrovascular ischemic event
- **Side effects:** local injection site reactions, hypersensitivity reactions (i.e. anaphylaxis, angioedema, rash)

Qulipta® (atogepant)

- **Dosing: 10 mg, or 30 mg, or 60 mg PO once daily**
- **Renal dose adjustment:**
  - CrCl < 30 mL/min: start with 10 mg PO daily
  - End stage renal disease on dialysis: 10 mg once after dialysis administration
- **Hepatic dose adjustment:** Severe impairment (Child-Pugh Class C): Avoid use
- **Caution use with:** recent cardiovascular/cerebrovascular ischemic event, severe hepatic impairment
- **Side effects:** nausea, constipation, decrease appetite, weight loss, drowsiness, dizziness, fatigue, hypersensitivity reactions (i.e. anaphylaxis, rash), and elevated serum transaminases

Nurtec® (rimegepant)

- **Dosing: 75 mg PO every other day (preventative dosing)**
- **Renal dose adjustment:**
  - CrCl < 15 mL/min: avoid use (has not been studied)
  - End stage renal disease on dialysis: avoid use (has not been studied)
- **Hepatic dose adjustment:** Severe impairment (Child-Pugh Class C): Avoid use
- **Caution use with:** recent
  - cardiovascular/cerebrovascular ischemic event, severe hepatic impairment, severe renal impairment
- **Side effects:** abdominal pain, dyspepsia, nausea, dyspnea, hypersensitivity reaction (i.e. anaphylaxis, rash)

Vyepti® (eptinezumab)

- **Dosing: 100 mg IV once every 3 months; m increase to 300 mg IV once every 3 months**
- **Caution use with:** recent cardiovascular/cerebrovascular ischemic event
- **Side effects:** nasopharyngitis, nausea, hypersensitivit reactions (i.e. anaphylaxis, angioedema)

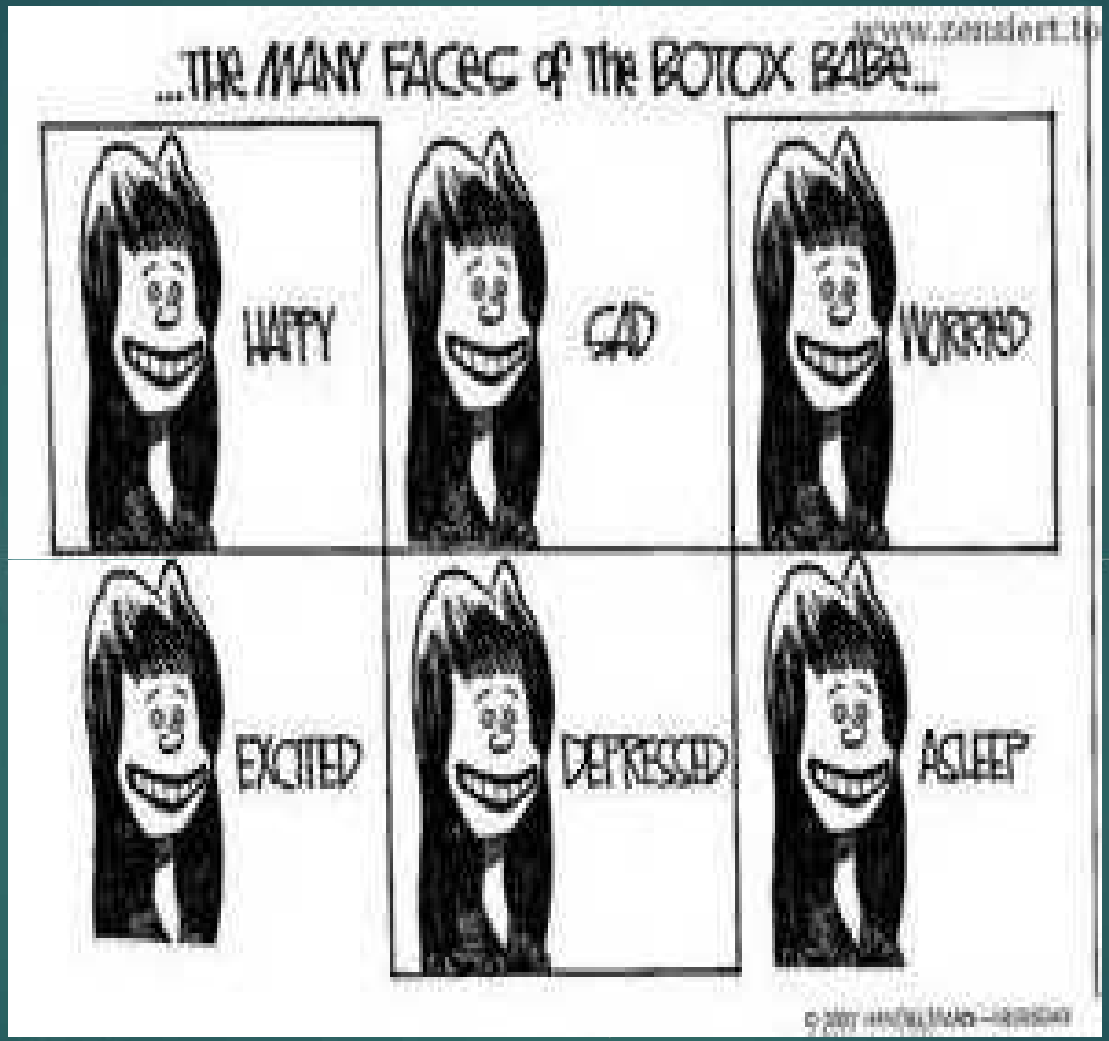
HEADACHE
The Journal of Head and Face Pain

RESEARCH SUBMISSION

Arterial hypertension: A safety risk of calcitonin gene-related peptide ligand and receptor blocker class

David Croteau MD, Anne Tobenkin PharmD, Suprat Saely PharmD, Vicky Chan PharmD, BCPS, Patricia Scripko MD, Laura Jawidzik MD ... See all authors

First published: 01 April 2026 | https://doi.org/10.1111/head.70089 |


...THE MANY FACES of the BOTOX BABE...
HAPPY
SAD
WORRIED
EXCITED
DEPRESSED
ASLEEP

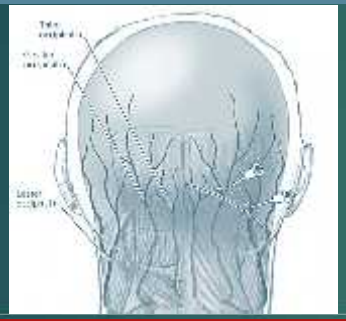
Headache Procedures

erve blocks: 25-30 gauge needle

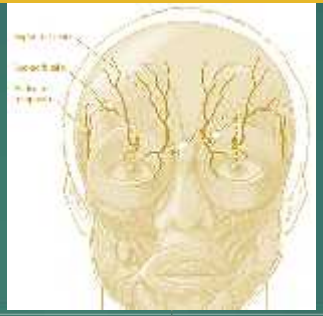
Local anesthetic: 1-2% lidocaine and/or bupivacaine 0.25-0.5%; 1:1 volume ratio

For cluster, add 40 mg triamcinolone, 20-40 mg methylprednisolone, or dexamethasone 4 mg

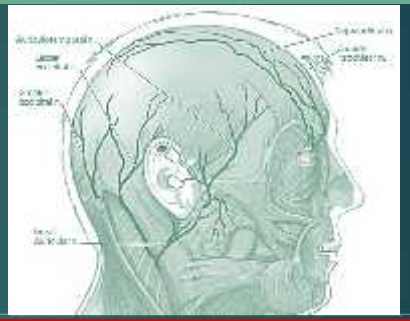
Greater/Lesser Occipital



Supratrochelar/Supraorbital



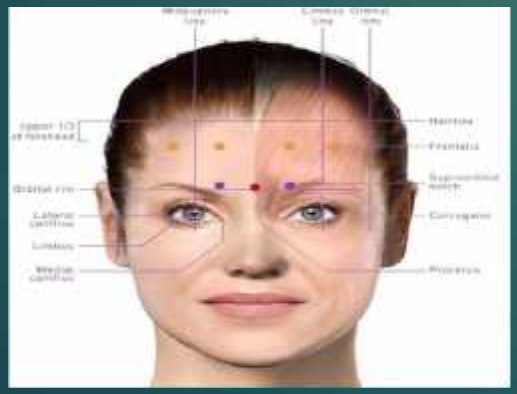
Auriculotemporal

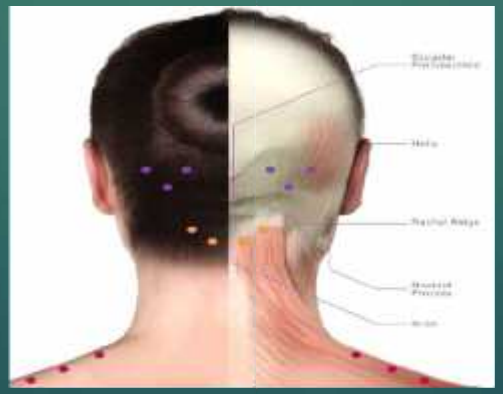


nabotulinumtoxinA: 30-gauge needle with 1 cc tuberculin syringe

Dilution: 50 unit (1 ml normal saline); 100 unit (2 ml NS); 200 unit (4 ml NS)

Fixed-Site Fixed-Dose





Blumenfeld A et al. *Headache* 2013;53:437-46; Blumenfeld A et al. *Headache.* 2017;57:766-77.

Complementary/ Alternative Treatments

Acupuncture

Physical therapy with massage

Exercise

Biofeedback

Cognitive behavioral therapy

Mindfulness

Biobehavioral Treatments

Prevent Headache Attacks	Reduce Perceived Pain Level	Shift the Pain-Disability Curve

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AHS Consensus Statement

The American Headache Society Position Statement On Integrating New Migraine Treatments Into Clinical Practice

Indications for Initiating Treatment With Monoclonal Antibodies to CGRP or its Receptor

Use is approved when ALL of the following are met:

A. Prescribed by a licensed medical provider
B. Patient is ≥18 years of age
C. ICHD-3 migraine (4-14 monthly headache days) AND:
   a. Poor tolerability or inadequate response to a 6-week trial of ≥2 preventive treatments
   b. At least moderate disability
   c. ≥2 quarterly injections of onabotulinumtoxinA[a]

Recommended Preventive Treatments[b]

1. Topiramate
2. Divalproex sodium/valproate sodium[c]
3. Beta-blocker
4. Tricyclic antidepressant
5. Serotonin-norepinephrine reuptake inhibitor
6. Other treatments with established efficacy

CGRP, calcitonin gene-related peptide;AAN-AHS, American Academy of Neurology-American Headache Society
[a]Chronic migraine only
[b]According to AAN-AHS guideline
[c]Not for use in women of childbearing potential

AHS. *Headache.* 2019;59:1-18; Marmura MJ et al. *Headache.* 2015;55:3-20.

EADACHE …
ost Gratifying Condition to Treat !!!