CEFALEAS

Dr. Perfecto Oscar González Vargas

Neurólogo

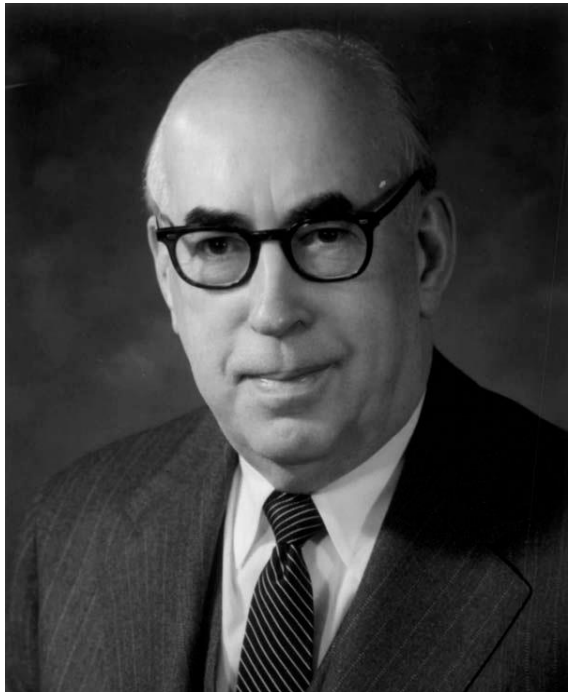
INNN-HMP MP- MDS- SOMENE

Puntos de Reflexión

- La cefalea es uno de los padecimientos más frecuentemente vistos en la consulta médica general.
- El examen clínico neurológico en general es NORMAL:
  - Fondo de Ojo (cefalea secundaria)
  - Revisar ATM (disfunción de la ATM)
  - Campimetría Visual por Confrontación (Arteritis Temporal)
  - Palpación de músculos epicraneanos (cefalea tensional)
  - Búsqueda de datos focales (cefalea secundaria)
- **Lo más significativo es el interrogatorio**

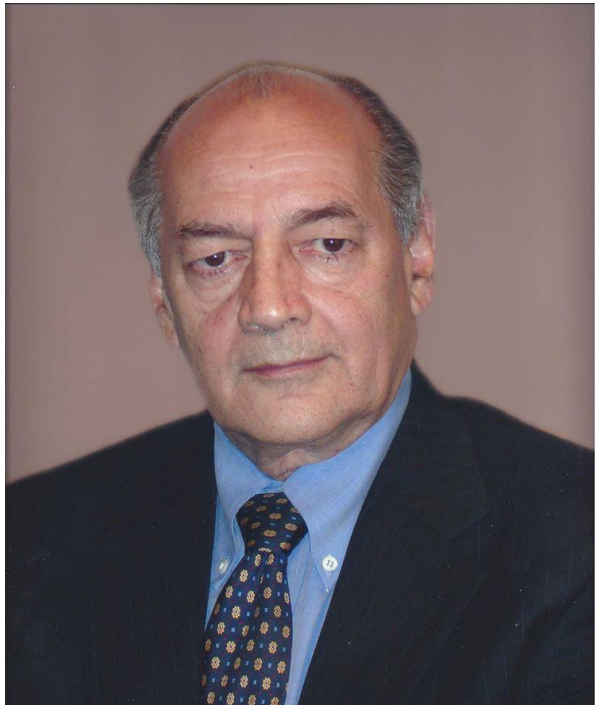
Reglas de Fisher

- Estudiar al paciente de forma seria
- Categorizar los síntomas
- El paciente y su familia tienen la razón
- Conducirse en forma sencilla



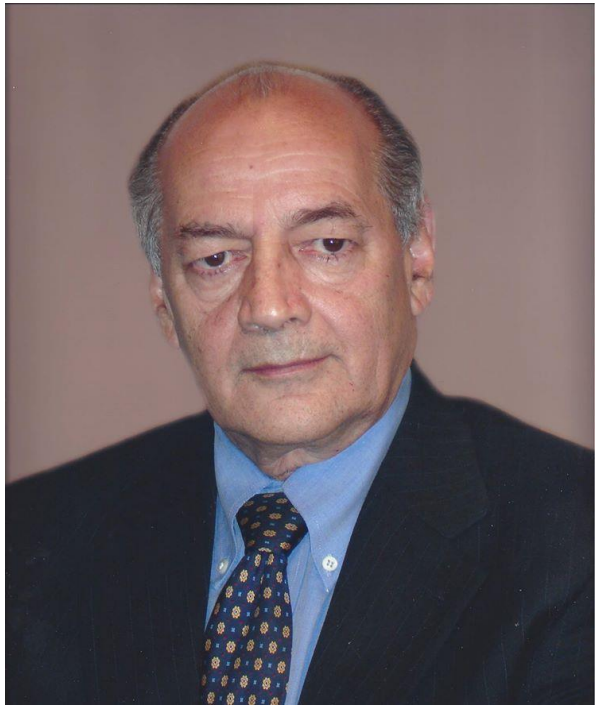
Enseñanzas de un Maestro

- El interrogatorio da un 90% del diagnóstico
- Sé muy pero muy analítico
- Piensa en varios diagnósticos diferenciales



Enseñanzas de un Maestro

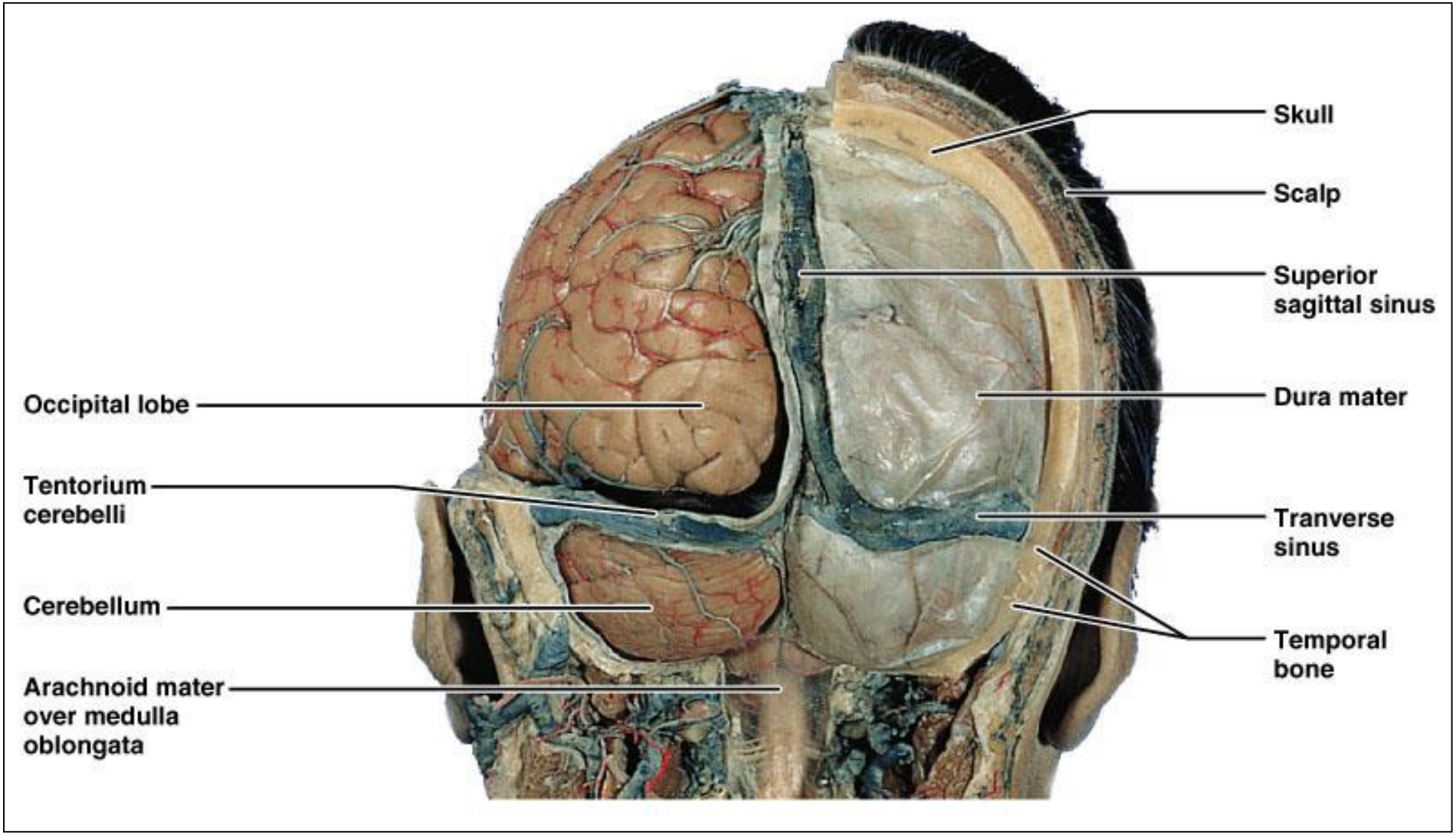
¡Los Mexicanos podemos ser fregones!

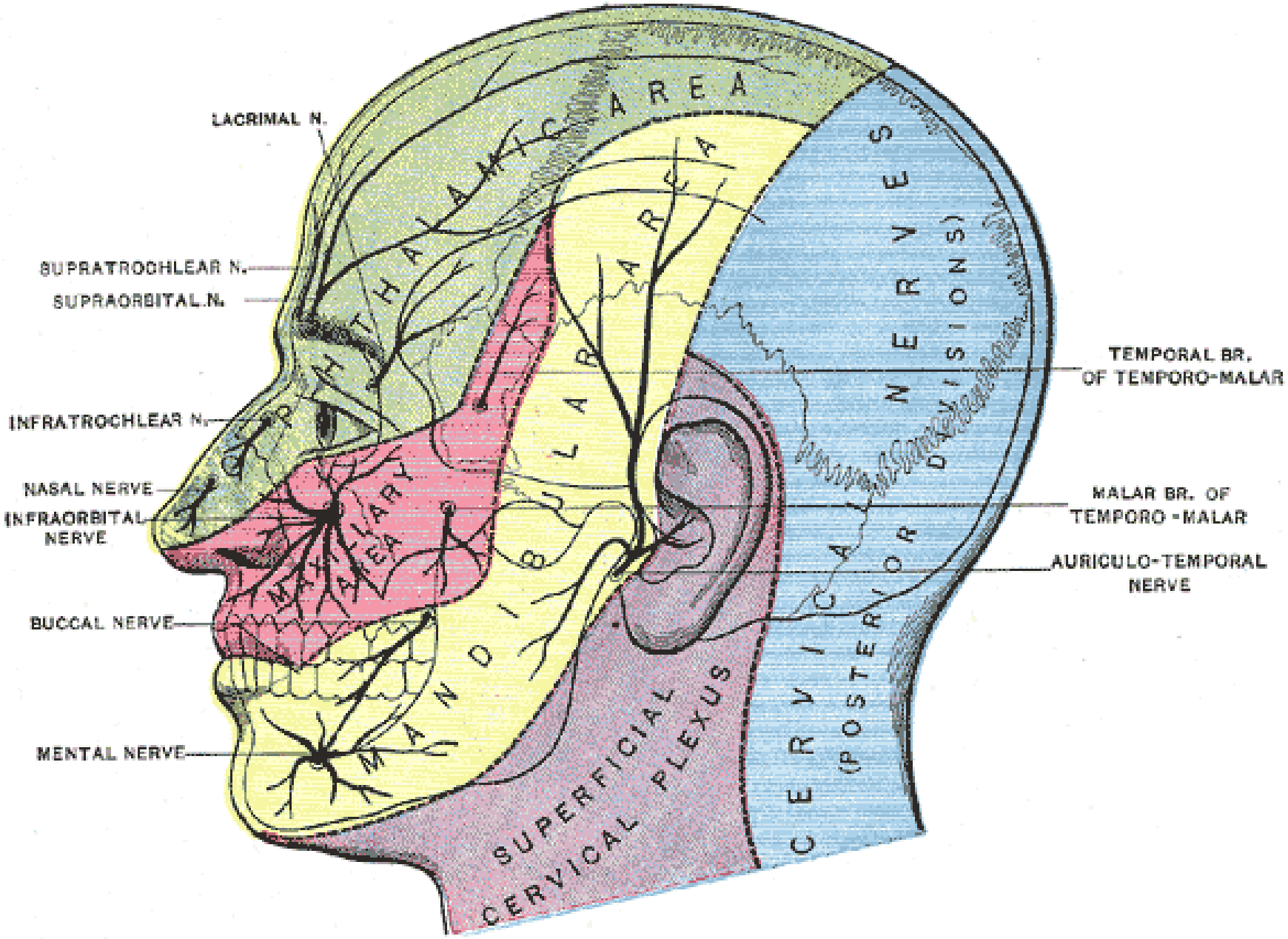


Clinical Highlights and Recommendations

Headache is diagnosed by history and physical examination with limited need for imaging or laboratory test.

Estructuras Sensibles al Dolor

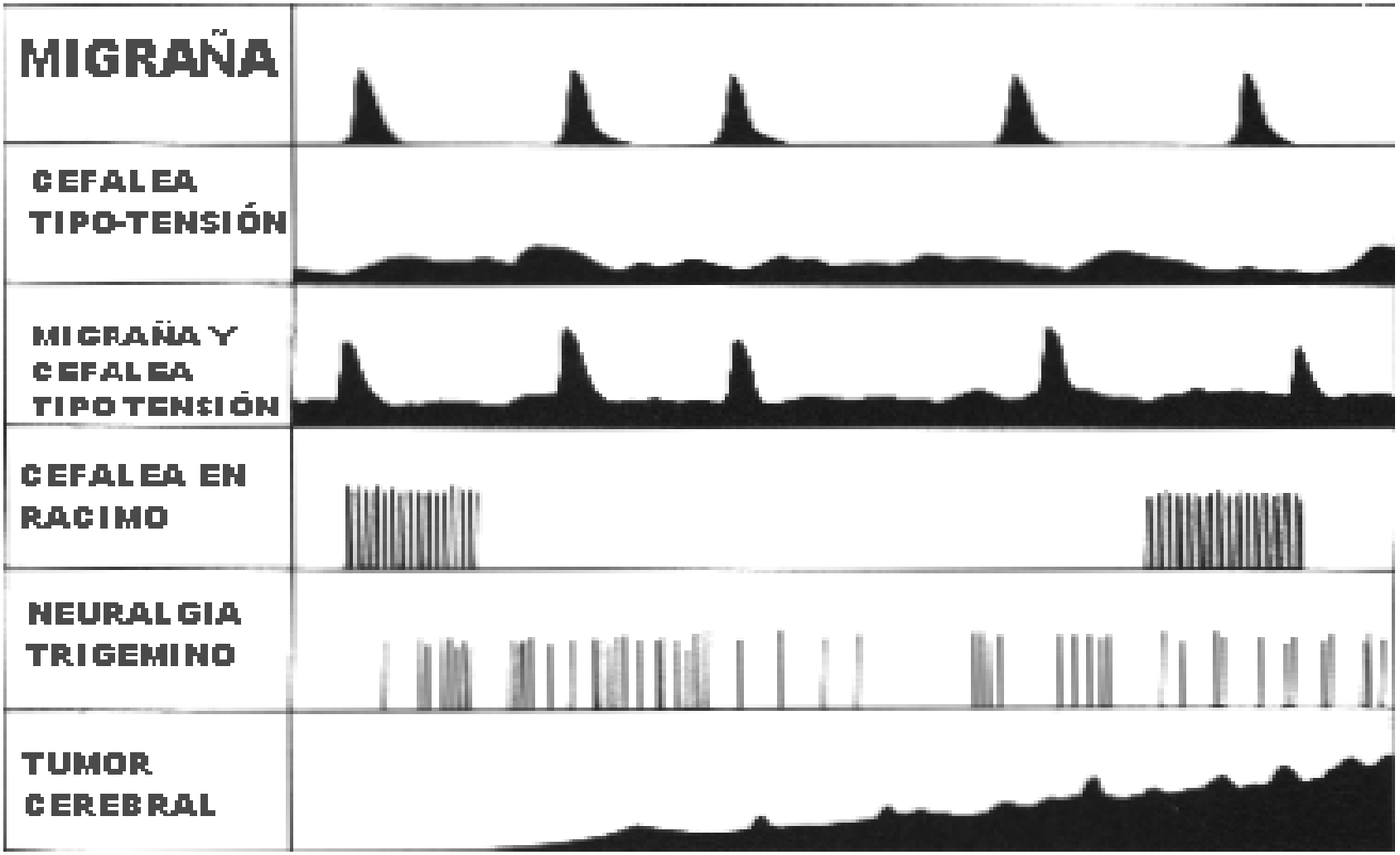



LACRIMAL N.
SUPRATROCHLEAR N.
SUPRAORBITAL N.
INFRATROCHLEAR N.
NASAL NERVE
INFRAORBITAL NERVE
BUCCAL NERVE
MENTAL NERVE
OPHTHALMIC AREA
MAXILLARY AREA
MANDIBULAR AREA
SUPERFICIAL CERVICAL PLEXUS
CERVICAL NERVES (POSTERIOR DIVISIONS)
TEMPORAL BR. OF TEMPORO-MALAR
MALAR BR. OF TEMPORO-MALAR
AURICULO-TEMPORAL NERVE

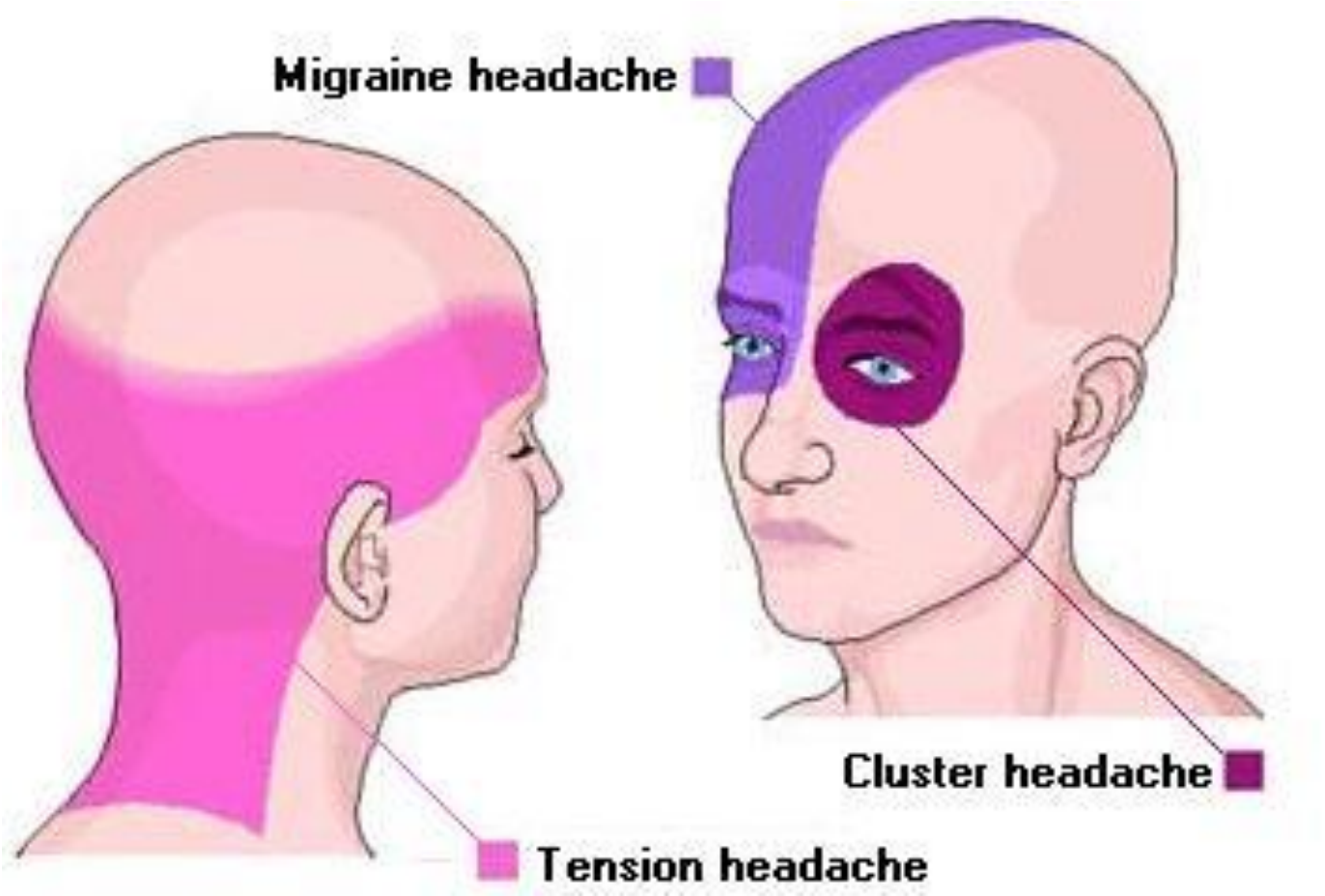
Semiología

Características:	Pulsátil - migraña,
	Opresiva- tensional
Localización:	Mitad anterior- migraña
	Mitad posterior- tensional
Severidad:	EVA L/M/S – migraña
	Moderado- tensional
Duración:	Intermitente – migraña
	“Toda la vida” - tensional o cefalea mixta

Características Temporales de los Episodio de Cefalea

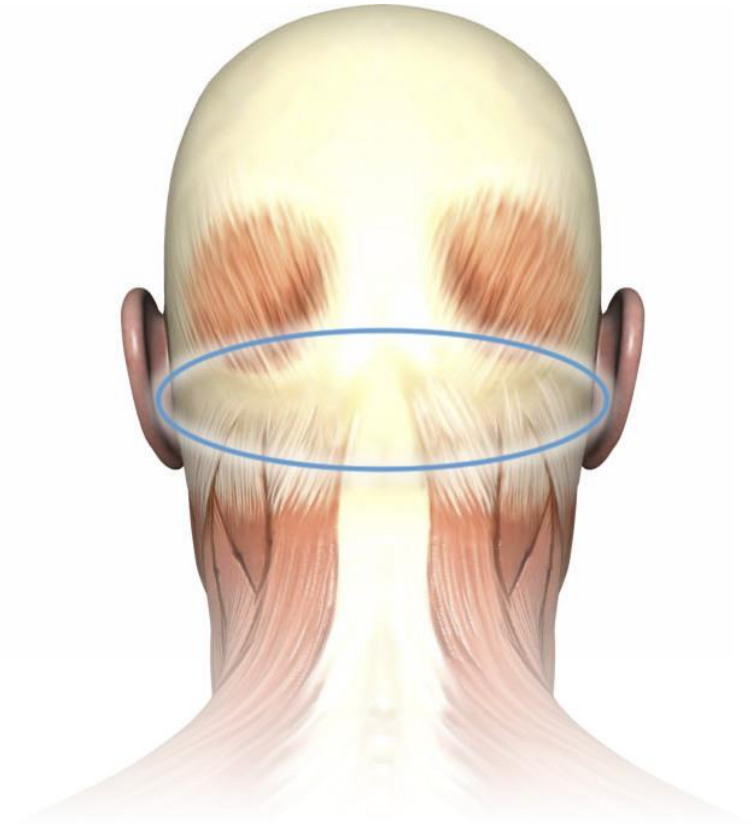


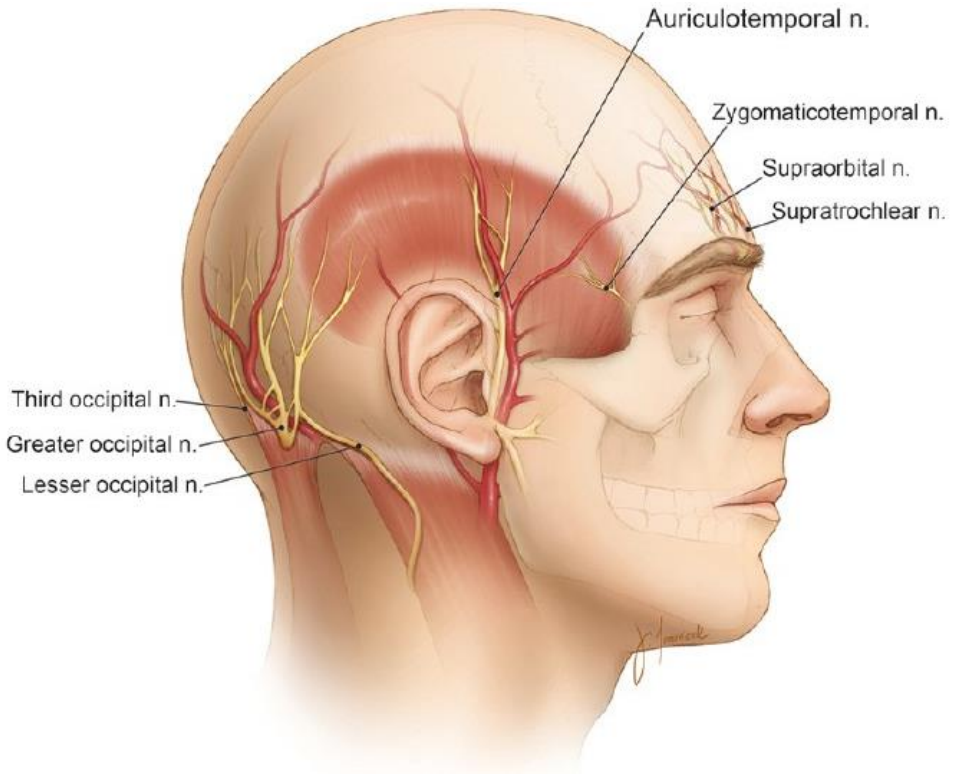
Localización



Types of headaches by pain distribution:

Localización





Secondary Headache Syndromes

Warning Signs

Secondary Headache Syndromes

Warning Signs

Secondary Headache Syndromes

Warning Signs

- Sudden onset of severe headache
- Headache accompanied by impaired mental status, fever, seizures, or focal neurologic signs
- New headaches beginning after age 50
- Headaches worsened by Valsalva maneuver
- Headache that awakens the patient
- Progressively worsening headache

Secondary Headache Syndromes

Warning Signs

- Sudden onset of severe headache → SAH
- Headache accompanied by impaired mental status, fever, seizures, or focal neurologic signs → Infection
- New headaches beginning after age 50 → Aneurism
- Headaches worsened by Valsalva maneuver→ Oedema
- Headache that awakens the patient→ SAH
- Progressively worsening headache→ Brain Tumors

International Headache Society

International Headache Society
Classification.

- 14 categories
- 128 distinct headache syndromes

- Primary HA – diagnosis made on history alone and not associated with underlying abnormalities
- Secondary HA – due to a pathologic cause

Volume 24 Supplement 1 2004

Cephalalgia
An International Journal of Headache

The International Classification Of Headache Disorders

2nd Edition

Headache Classification Subcommittee of the International Headache Society

Blackwell Publishing

INTERNATIONAL HEADACHE SOCIETY

2013

Cephalalgia
An International Journal of Headache

International Headache Society

Cephalalgia
33(9) 629–808

DOI: 10.1177/0333102413485658
cep.sagepub.com

SAGE

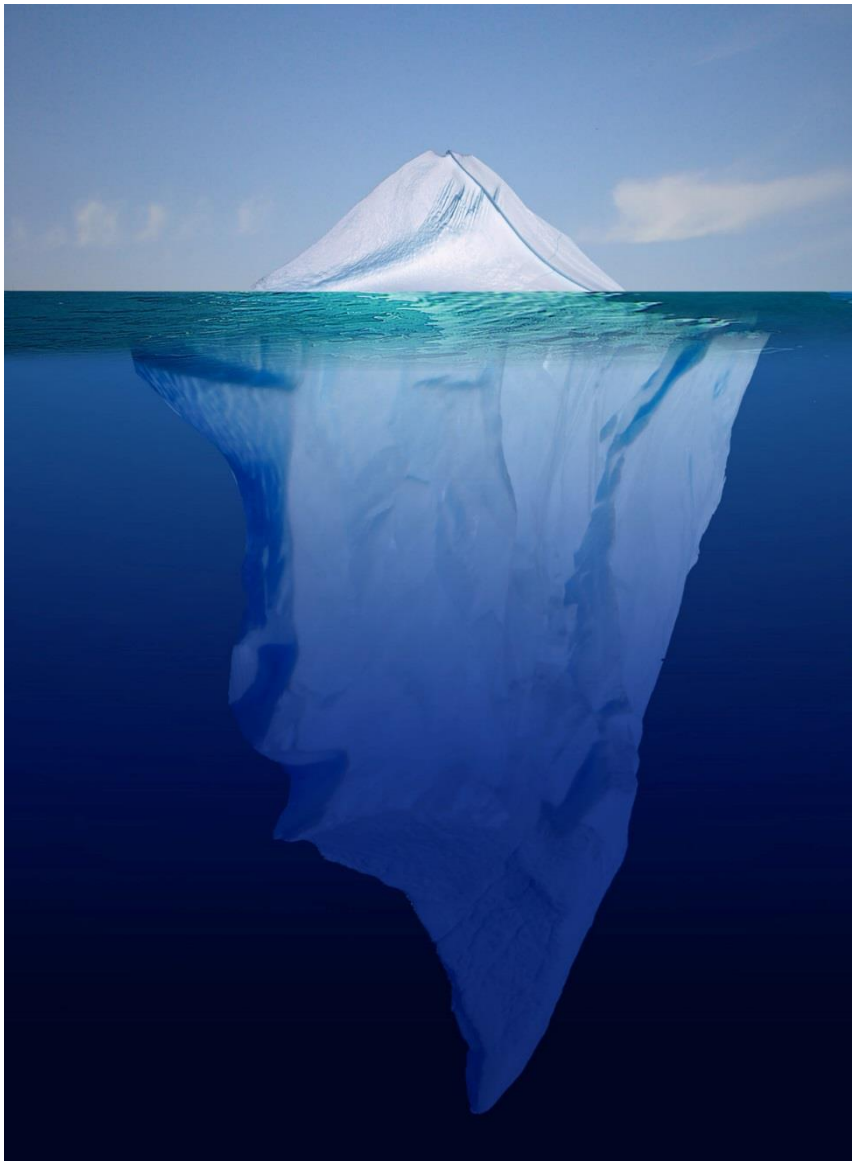
Headache Classification Committee of the International Headache Society (IHS)

The International Classification of Headache Disorders, 3rd edition (beta version)

Diagnóstico de las Cefaleas

- 0.18% Secundarias

- 99.82% **Primarias**



Primary Headache Syndromes

1. Migraine – with and without aura
2. Tension Type
3. Cluster

Secondary Headache Syndromes

Part two: the secondary headaches

Introduction

5. Headache attributed to trauma or injury to the head and/or neck
6. Headache attributed to cranial or cervical vascular disorder
7. Headache attributed to non-vascular intracranial disorder
8. Headache attributed to a substance or its withdrawal
9. Headache attributed to infection
10. Headache attributed to disorder of homoeostasis
11. Headache or facial pain attributed to disorder of the cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cervical structure
12. Headache attributed to psychiatric disorder

Part three: painful cranial neuropathies, other facial pains and other headaches

13. Painful cranial neuropathies and other facial pains
14. Other headache disorders

Lifetime **Prevalence** of Headache In General Population

Primary Headache	Prevalence (%)
Tension-type headache	78%
Migraine	16%

Secondary Headache	
Fasting	19%
Nose/sinus	15%
Head trauma	4%
Non-vascular intracraneal disease (including tumor)	0.5%

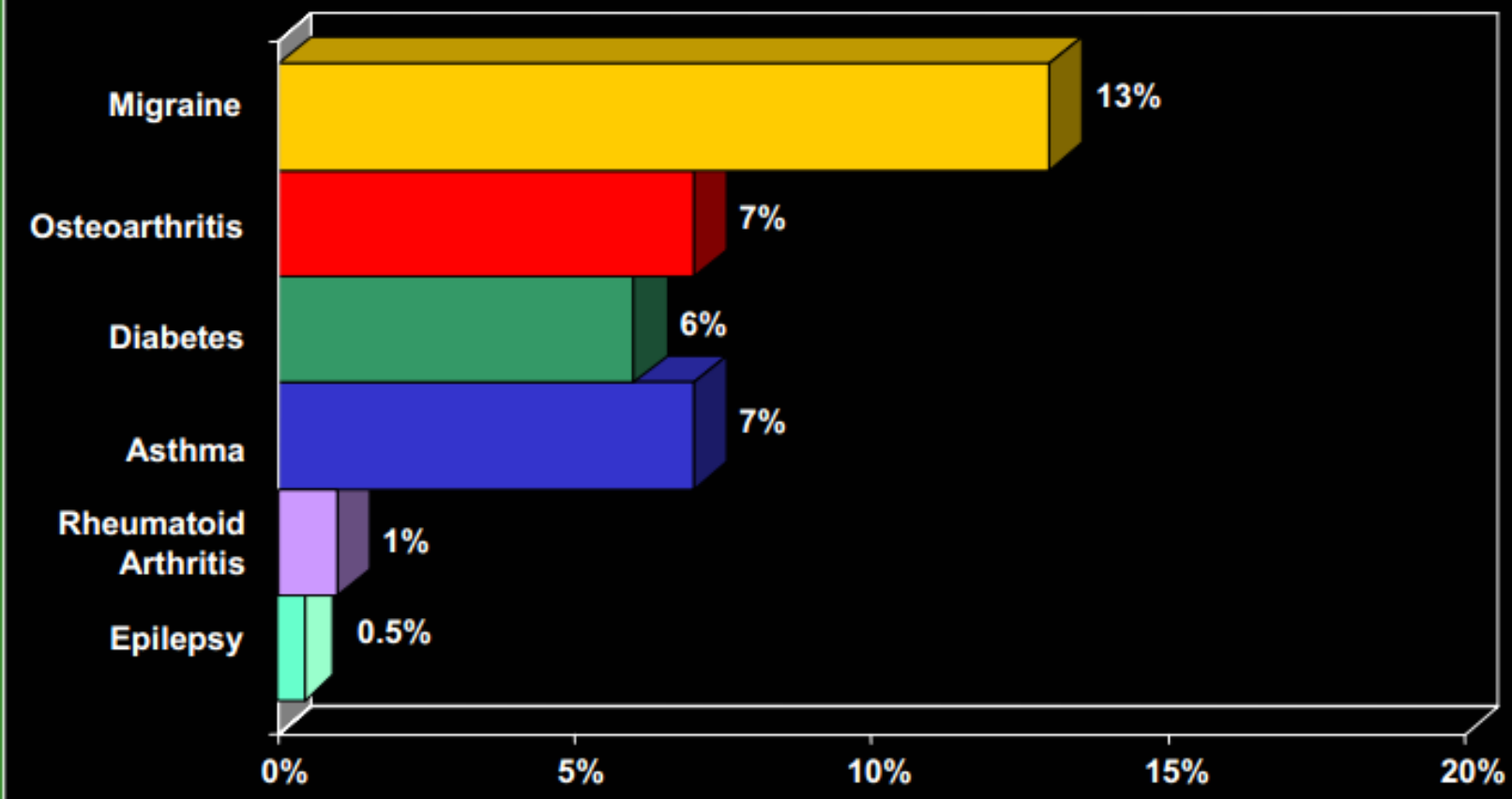
Rasmussen BK. et. al. J Clin Epidemiology. 1991.

Prevalencia de la cefalea

Sintomáticas:	**%**
Hangover	72
Fiebre	63
TEC	4
Trastornos vasculares	1
No vascular	0,5
Ingesta o supresión de sustancias	3
Metabólica	22
Sinusitis	15
Alteraciones oculares	3
Otológicas	0,5
Neuralgias craneales	0,5

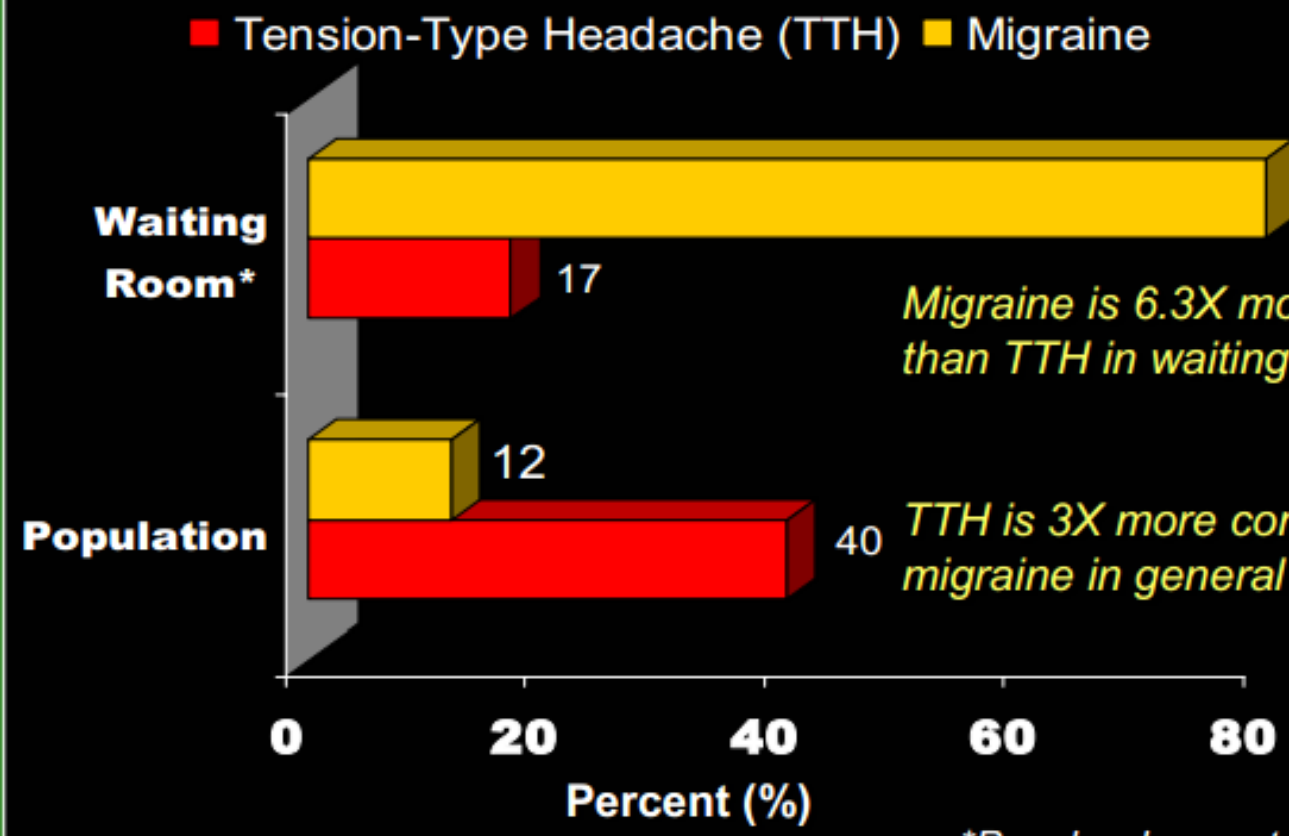
Rasmussen y Olesen 1992

MIGRAINE IS MORE COMMON THAN ASTHMA AND DIABETES COMBINED



Data from the Centers for Disease Control & Prevention, US Census Bureau, and the Arthritis Foundation. Hauser WA, et al. *Epilepsia.* 1993.

Prevalence of Primary Headache Types in Waiting Rooms



*People who want to talk to the doctor about headaches or who have headaches that interfere with daily activities.

Lipton RB et al. *Neurology*. 2003;61:375-385.

Conceptos Arcaicos

- Classical/ **migraine with aura**
- Common/ **migraine without aura**

Migraña

Most patients with migraine:

- Have **not** seen a physician for headache during the previous year,
- Have **never** received a medical diagnosis of migraine, and
- Use **over-the-counter** medications to the exclusion of prescription drugs.

Cephalalgia. 2014 Nov;34(13):1088-92. doi: 10.1177/0333102414529196. Epub 2014 Apr 7.

Lifetime prevalence and underdiagnosis of migraine in a population sample of Mexican women.

Arroyo-Quiroz C[1], Kurth T[2], Cantu-Brito C[3], Lopez-Ridaura R[1], Romieu I[4], Lajous M[5].

Author information

Abstract

OBJECTIVE: The objective of this report is to evaluate migraine, migraine characteristics, and underdiagnosis of migraine in a large population sample of Mexican women.

METHODS: Participants are part of a prospective cohort of Mexican teachers. Between 2011 and 2013, 77,855 participants completed a detailed questionnaire on headache characteristics. Migraine was defined according to criteria of the International Classification of Headache Disorders (ICDH-II).

RESULTS: We found lifetime migraine prevalence was 19%, prevalence peaked at 40-44 years (20.4%) and only 45.1% participants with migraine had a previous diagnosis of the disease.

CONCLUSION: Estimated lifetime prevalence of migraine was higher than previous reports in Latin America. Migraine may be underdiagnosed and undertreated in Mexico despite its considerable burden.

- Cephalalgia. 2014
- Nutripollos.
- 77,855 participantes
- Prevalencia de un 19%
- 45 SIN DIAGNÓSTICO PREVIO

Criterios Diagnósticos

- Más de 5 eventos, moderada a intensa
- Duración entre 4 y 72 hrs
- Localización unilateral
- Cualidad pulsátil
- Uno de los siguientes síntomas: nausea, vómito, fono o fotofobia
- Incrementar con actividades físicas consitudinarias
- No ser debido a una patología neurológica estructural

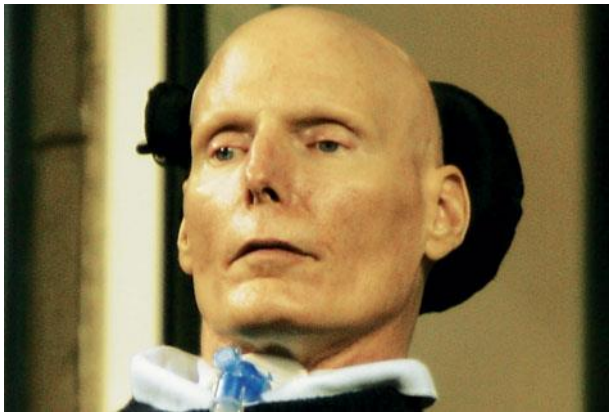
Criterios Diagnósticos de Aura Migrañosa

- Uno o más síntomas aurales totalmente reversible
- Al menos un síntoma aural se desarrolla en más de 4 min o dos o más síntomas ocurren en sucesión
- Duran menos de 60 min
- La cefalea sigue dentro de los siguientes 60 min
- Ataques similares en forma previa
- Sin Lesión Neurológica estructural

¿La Migraña es Psicológica?

- This ranking suggests that in the judgement of the WHO, a day with severe migraine is as disabling as a day with quadriplegia.

World Health Organization



Screening Tool for Migraine
(5 Questions)

1. Is it a pulsating headache?
2. Does it last between 4 and 72 hours?
3. Is it unilateral?
4. Is there nausea?
5. Is the headache disabling?

Screening Tool for Migraine
(5 Questions)

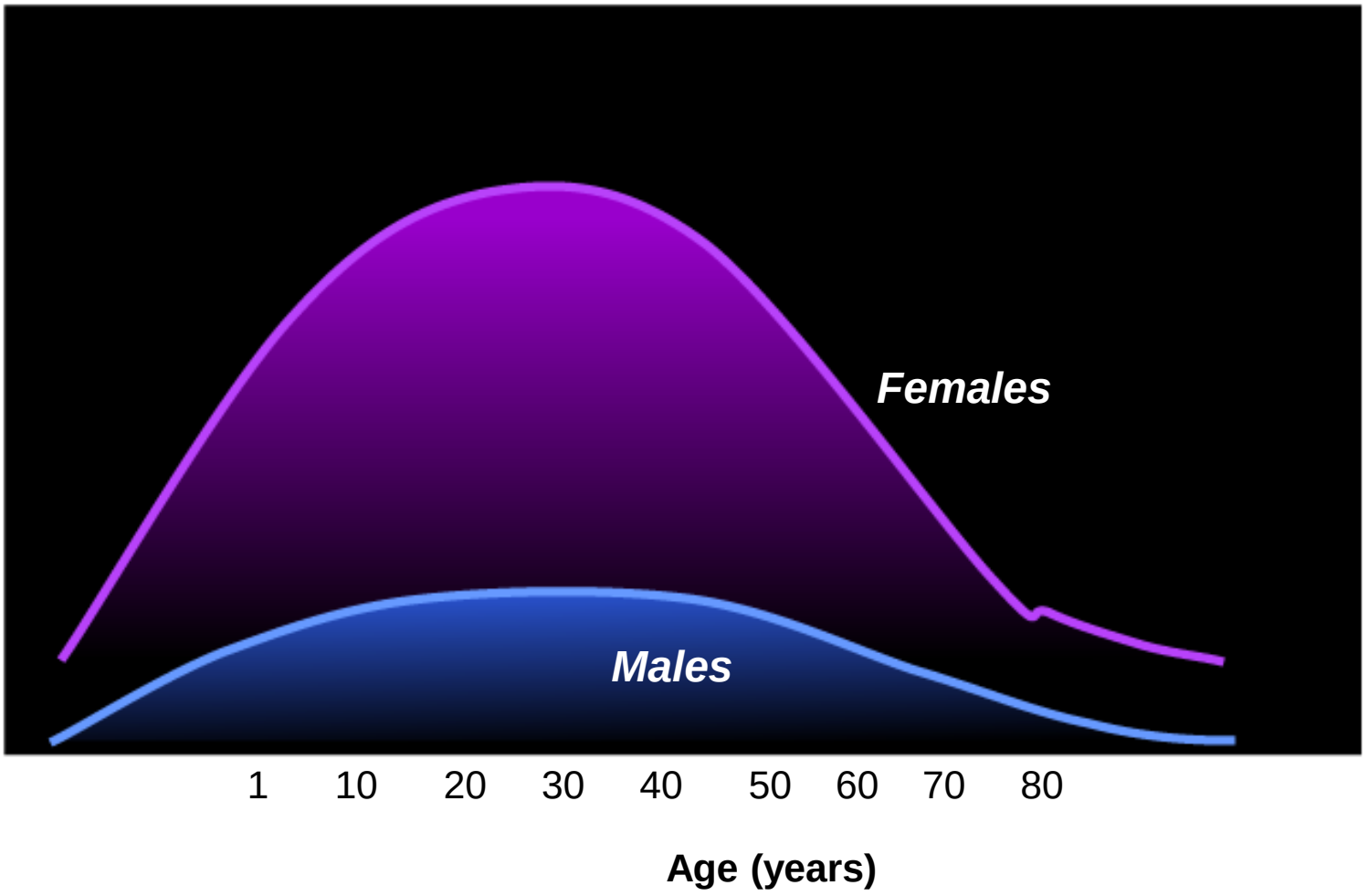
1. Is it a pulsating headache?
2. Does it last between 4 and 72 hours?
3. Is it unilateral?
4. Is there nausea?
5. Is the headache disabling?

* Likelyhood ratio:

- If yes to 4 questions; LR = 24 (definite or possible migraine vs not migraine)
- If yes to 3 questions; LR = 3.5
- If yes to < 2 questions; LR = 0.41

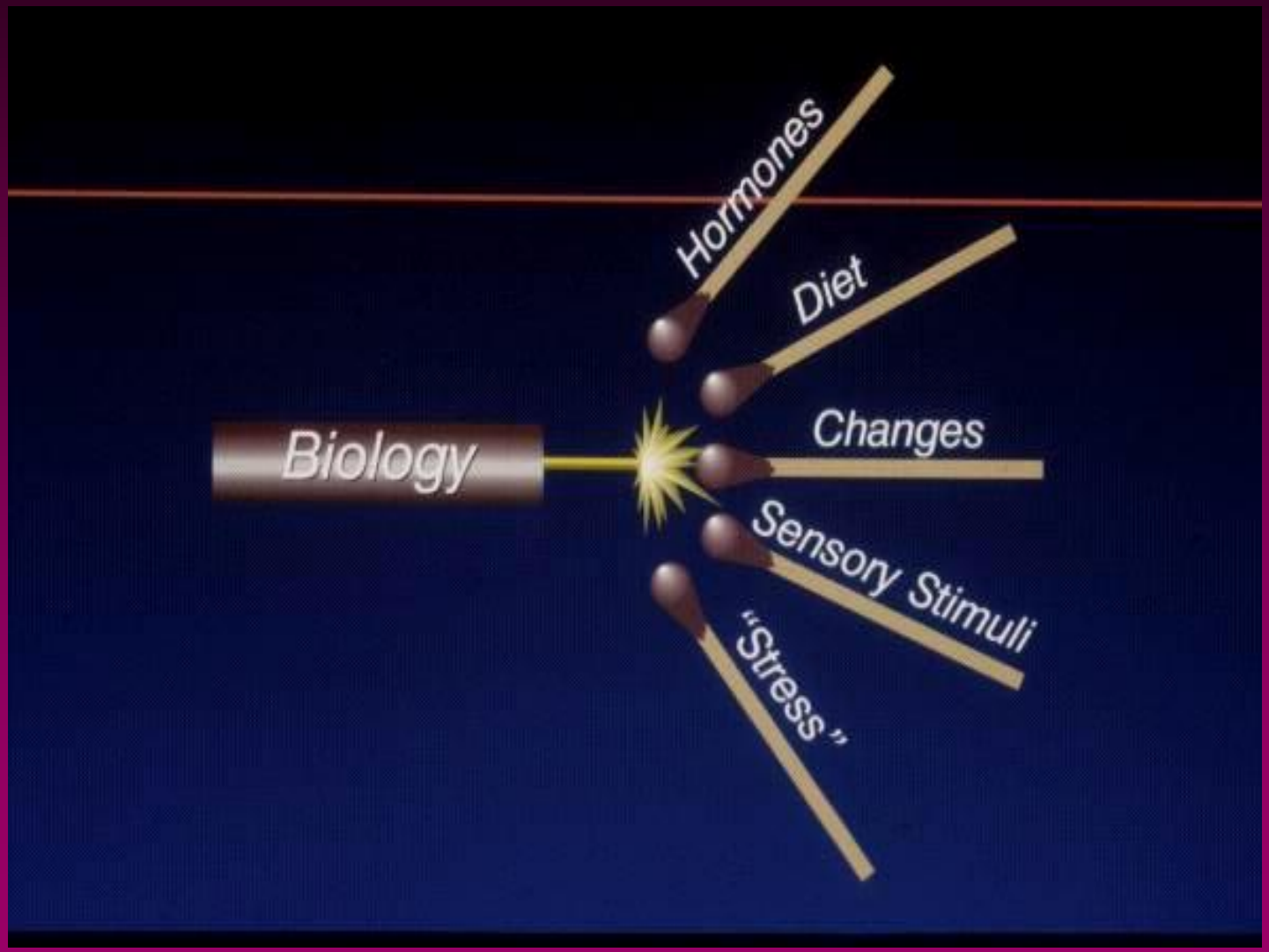
Migraine Prevalence %

About 20% of women get migraine at one time or another in their life



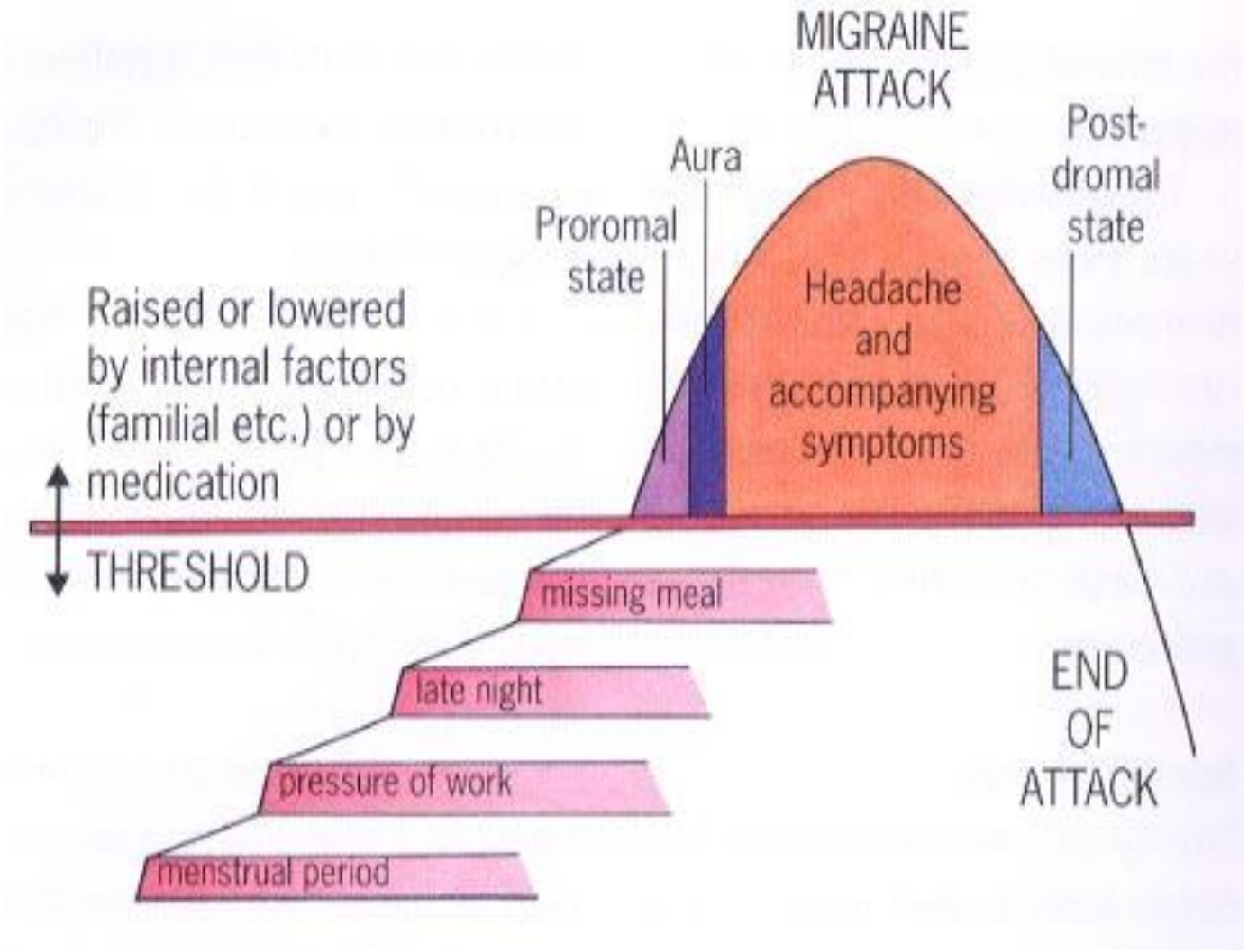
Migraine peaks during the most productive time…
30-60 years of age

AHS
American Headache Society



The 4 phases of a migraine

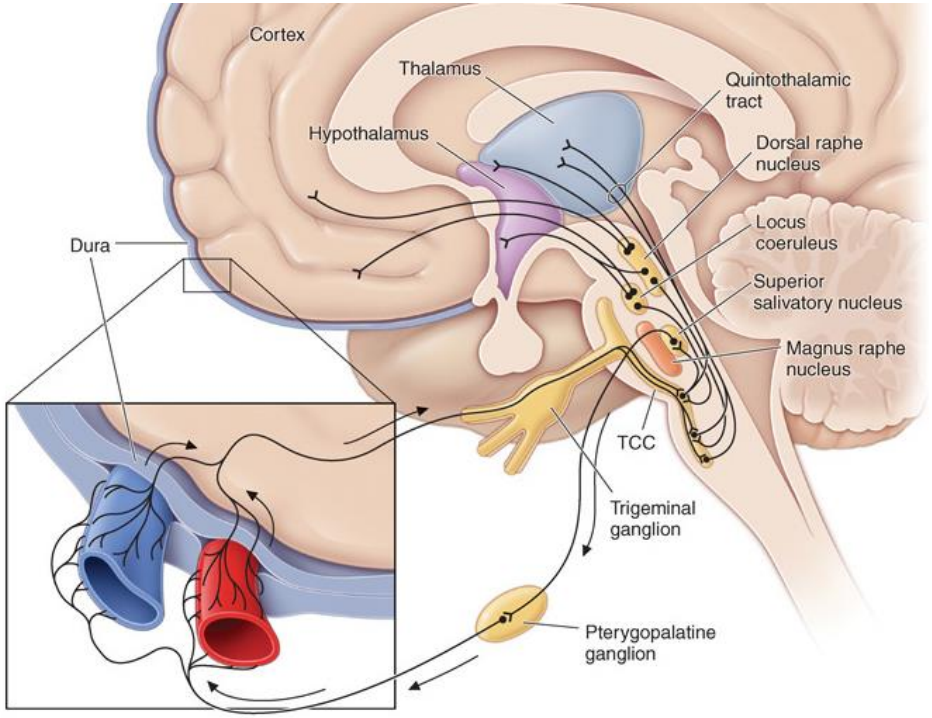
- **Prodrome**
  - Occurs hours to days before migraine without headache
- **Aura**
  - Neurological phenomena such as disturbance of vision just before headache
- **Pain phase**
  - Headache on one side of head with nausea, photophobia and other classic migraine symptoms
- **Postdrome**
  - Exhaustion, irritability, depression


MIGRAINE ATTACK
Aura
Prodromal state
Post-dromal state
Headache and accompanying symptoms
Raised or lowered by internal factors (familial etc.) or by medication
THRESHOLD
missing meal
late night
pressure of work
menstrual period
END OF ATTACK

Fisipatología

- Exact mechanism still not known
- Blood vessel problems
  - This is secondary
- Cortical spreading depression

  Inflammatory mediators irritate cranial nerves, especially the trigeminal nerve
- **Trigeminal-vascular theory**



Source: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine, 18th Edition*: www.accessmedicine.com

Migraine aura-Visual

- Unilateral scotoma
- Hemianopia
- Teichopsia-flashes of light
- Fortification spectra

Alodinia

Dolor debido a un estímulo que normalmente no provoca dolor

Neuro-Imagen en Migraña

Medscape NEUROLOGY

News & Perspective | Drugs & Diseases | CME

Headache

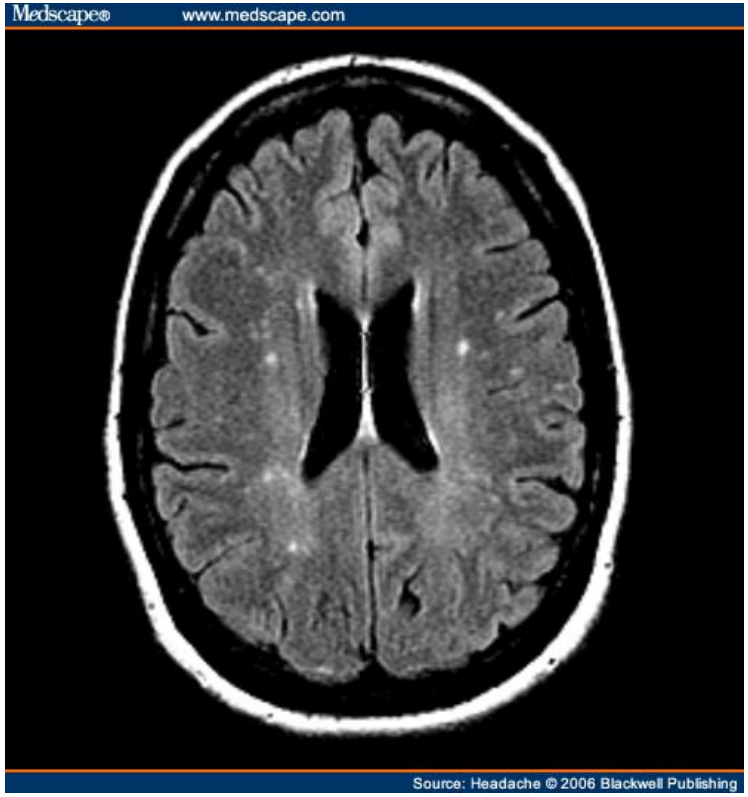
Imaging Findings of Migraine

F. Michael Cutrer, MD, David F. Black, MD | Disclosures

Headache. 2006;46(7):1095-1107.

1 comment

During a typical eva



Neuro-Imagen en Migraña

O.B.N.I.

Cefaleas y Neuroimagen

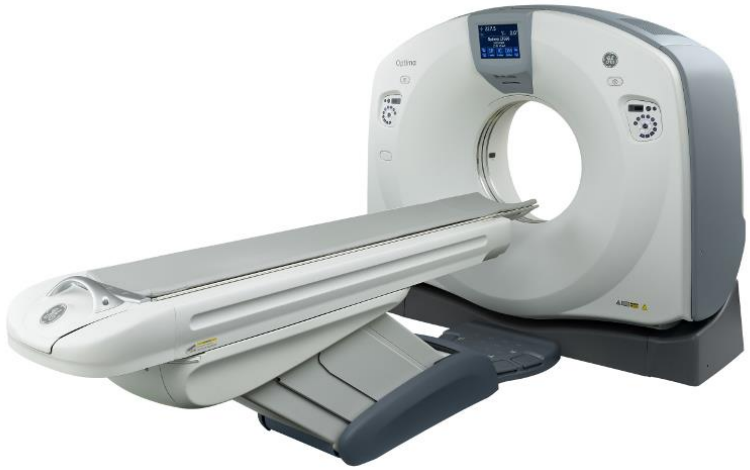
Box 1
Reasons to consider neuroimaging for headaches

Temporal and headache features

1. The "first or worst" headache
2. Subacute headaches with increasing frequency or severity
3. A progressive headache or NDPH
4. Chronic daily headache
5. Headaches always on the same side
6. Headaches not responding to treatment

Table 1
Balance sheet. CT or MRI in patients with headaches and normal neurologic examinations. Technology: CT with intravenous contrast or MRI without contrast. Indications: (1) migraine and (2) any headache

	CT	MRI	No Test
Health outcomes			
Benefits			
Discovery of potentially treatable lesions			
1. Migraine	0.3%	0.4%	0
2. Any headache	2.4%	2.4%	0
Relief of anxiety	30%	30%	0



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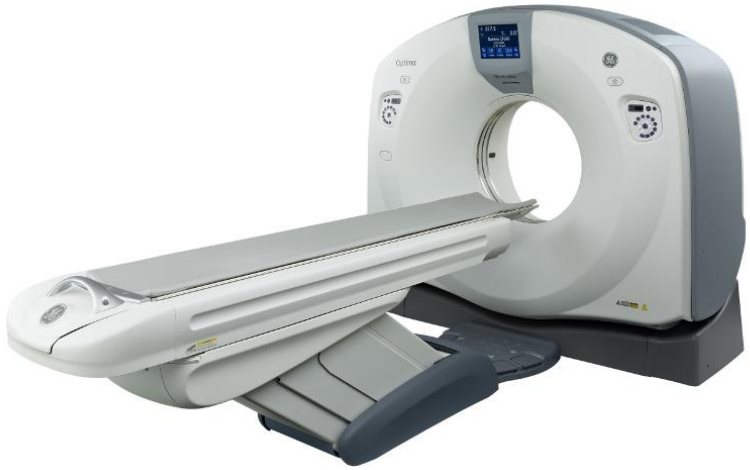


Relief of anxiety 30%

Tratamiento

- No Farmacológico: Dieta, higiene mental, etc.
- Farmacológico:
    - a. Abortivo
    - b. Profiláctico

Objetivos del Tratamiento

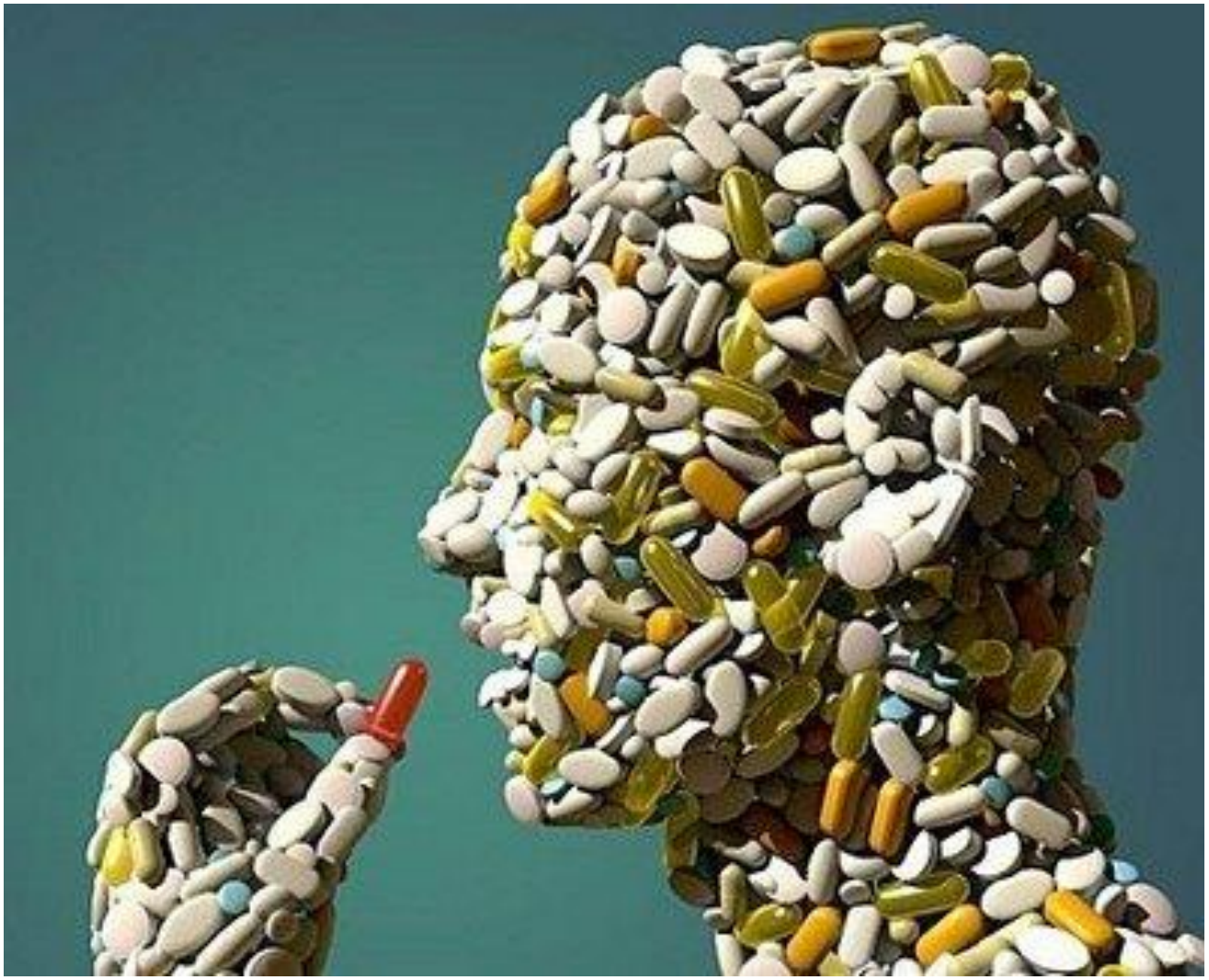
- Reducir frecuencia y severidad de los ataques
- Reducir la discapacidad
- Mejorar la calidad de vida
- Prevenir cuadros de cefalea
- Evitar la escalación de medicamentos
- Educar al paciente

Tratamiento Farmacológico **Abortivo**

- EVA Leve: AAS, Paracetamol, AINES
- EVA Moderado: AINES, AAS, Triptanos
- EVA Severo: 1º Triptanos, 2ª Ergotamínicos

- Se puede asociar metoclopramida
- Barbitúricos y Opioides poco recomendados
- Toxina Botulínica útil para casos ´difíciles´

Cefalea por Analgésicos. Ergotamínicos



Tratamiento **Preventivo o Profiláctico**

- Farmacológico
- No Farmacológico

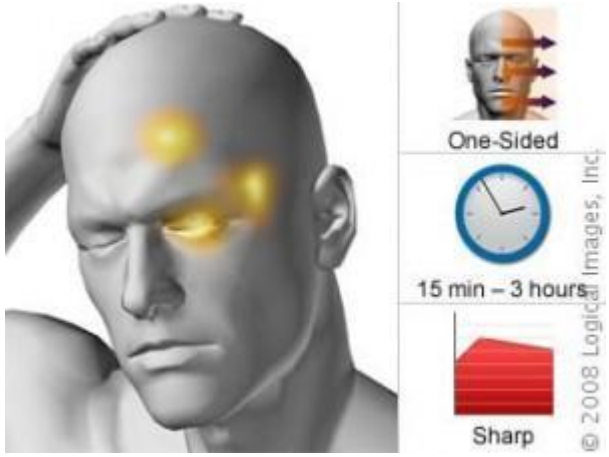
What can you expect from your preventive headache treatment?

- Preventive treatments will not “cure” migraine but CAN:
  - *Reduce frequency of attacks by 20% to >60%*
  - *Reduce severity of attacks*
  - *Improve response to acute therapy*
  - *Reduce use of acute and rescue medications*

- You need to give these medications adequate time to demonstrate benefit (2- 3 months to fully evaluate)

Tratamiento Preventivo o Profiláctico
Indicaciones

- Ataques semanales o ≥ 3 crisis/mes
- Ataques prolongados
- Interferencia en las AVD
- Se mantiene por 6-12 meses



SPECIAL ARTICLE

Evidence-based guideline update: Pharmacologic treatment for episodic migraine prevention in adults

Report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Headache Society

S.D. Silberstein, MD, FACP
S. Holland, PhD
F. Freitag, DO
D.W. Dodick, MD
C. Argoff, MD
E. Ashman, MD

Correspondence & reprint requests to American Academy of Neurology

ABSTRACT

Objective: To provide updated evidence-based recommendations for the preventive treatment of migraine headache. The clinical question addressed was: What pharmacologic therapies are proven effective for migraine prevention?

Methods: The authors analyzed published studies from June 1999 to May 2009 using a structured review process to classify the evidence relative to the efficacy of various medications available in the United States for migraine prevention.

Results and Recommendations: The author panel reviewed 284 abstracts, which ultimately yielded 29 Class I or Class II articles that are reviewed herein. Divalproex sodium, sodium valproate, topiramate, metoprolol, propranolol, and timolol are effective for migraine prevention and

***Neurology* 2012;78:1337–1345**

AMERICAN ACADEMY OF NEUROLOGY®

Level A: Medications with established efficacy (≥2 Class I trials)	Level B: Medications are probably effective (1 Class I or 2 Class II studies)	Level C: Medications are possibly effective (1 Class II study)
Antiepileptic drugs	Antidepressants/ SSRI/SSNRI/TCA	ACE inhibitors Lisinopril
Divalproex sodium	Amitriptyline	Angiotensin receptor blockers
Sodium valproate	Venlafaxine	Candesartan
Topiramate	β-Blockers	α-Agonists
β-Blockers	Atenolol[a]	Clonidine[a]
Metoprolol	Nadolol[a]	Guanfacine[a]
Propranolol	Triptans (MRM[b])	Antiepileptic drugs
Timolol[a]	Naratriptan[b]	Carbamazepine[a]
Triptans (MRM[b])	Zolmitriptan[b]	β-Blockers
Frovatriptan[b]		Nebivolol

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Divalproex sodium	Amitriptyline	Angiotensin receptor blockers
Sodium valproate	Venlafaxine	Candesartan
Topiramate	β-Blockers	α-Agonists
β-Blockers	Atenolol[a]	Clonidine[a]
Metoprolol	Nadolol[a]	Guanfacine[a]
Propranolol	Triptans (MRM[b])	Antiepileptic drugs
Timolol[a]	Naratriptan[b]	Carbamazepine[a]
Triptans (MRM[b])	Zolmitriptan[b]	β-Blockers
Frovatriptan[b]		Nebivolol

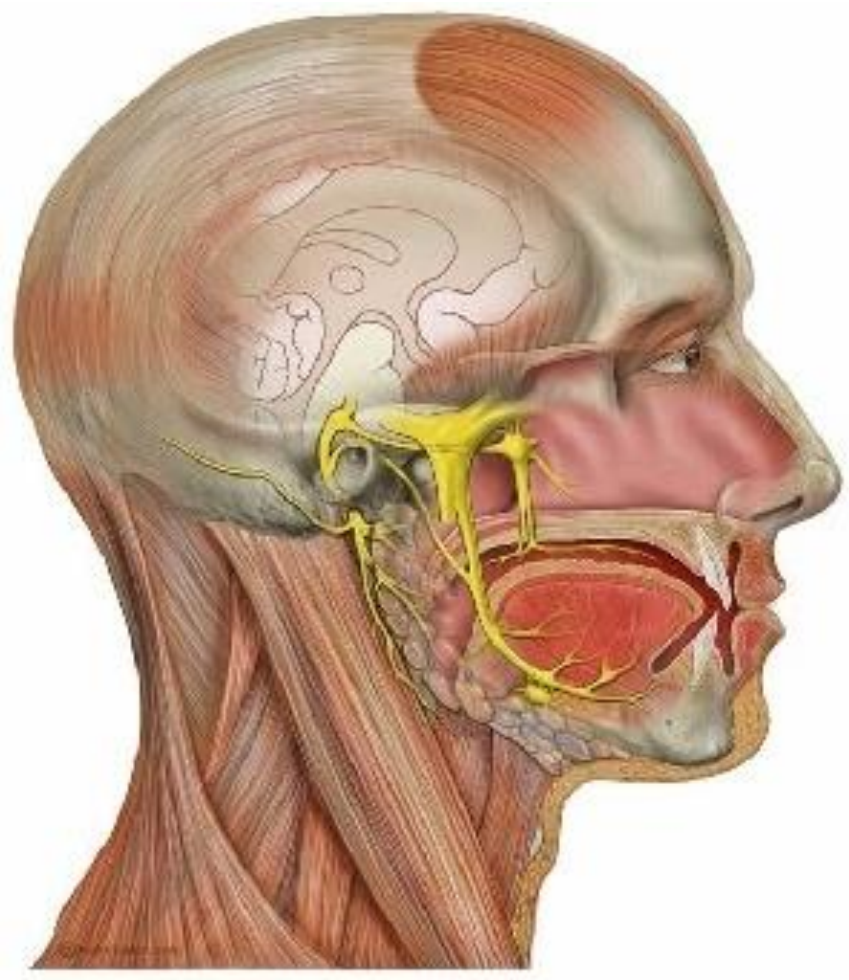
Level U: Inadequate or conflicting data to support or refute medication	Other: Medications that are established as possibly or probably ineffective
Carbonic anhydrase inhibitor	Established as not effective
Acetazolamide	Antiepileptic drugs
Antithrombotics	Lamotrigine
Acenocoumarol	Probably not effective
Coumadin	Clomipramine[a]
Picotamide	Possibly not effective
Antidepressants SSRI/SSNRI	Acebutolol[a]
Fluvoxamine[a]	Clonazepam[a]
Fluoxetine	Nabumetone[a]
Antiepileptic drugs	Oxcarbazepine


Estilo de Vida
Fármacos
Tratamiento
Migraña
Terapia de Relajación
Co-Morbilidades

Conclusiones. Migraña

- 16% de la población la padece
- 8 de 10 pacientes son ♀
- Diagnóstico es clínico
- Cualidad pulsátil, hemicraneal, fotofobia.
- La imágen para calmar a pacientes 2-3 locos
- Importante el tx profiláctico
- El major tratamiento es el que incluye medidas no farmacológicas y farmacológicas

Cefalea Tipo Tensional



Cefalea Tipo Tensional

Generalidades

- 30-70% de la población
- Se pensaba que era meramente Psicológica pero hay datos de un sustrato Neurobiológico
- Mecanismo exacto no definido

  Mecanismos periféricos y centrales
- El dato clínico principal es dolor en músculos epicraneanos
- ♂:♀ casi igualmente afectados

Cefalea Tipo Tensional

Clasificación

- CT Episódica Infrecuente
- CT Episódica Frecuente
- CT Crónica
- Probable CT

Cefalea Tipo Tensional
Clínica

- Bilateral
- Opresiva (no pulsátil)
- Leve a moderada
- Sin incremento con actividades físicas rutinarias
- Escasa fotofobia u otro dato vascular

Tabla I. Criterios diagnósticos de la cefalea tensional crónica (ICHD-III) [1].

A. Cefalea que se presenta de media ≥15 días al mes durante más de tres meses (≥ 180 días por año) y cumple los criterios B-D

B. Duración de minutos a días, o sin remisión

C. Al menos dos de las siguientes cuatro características:

   1. Localización bilateral
   2. Calidad opresiva o tensiva (no pulsátil)
   3. De intensidad leve o moderada
   4. No empeora con la actividad física habitual, como andar o subir escaleras

D. Ambas de las siguientes:

   1. Solamente uno de los siguientes síntomas: fotofobia, fonofobia o náuseas leves
   2. Ni náuseas moderadas o intensas ni vómitos

E. Sin mejor explicación por otro diagnóstico de la ICHD-III

ICHD-III: Clasificación Internacional de Cefaleas, tercera edición.

Cefalea Tipo Tensional

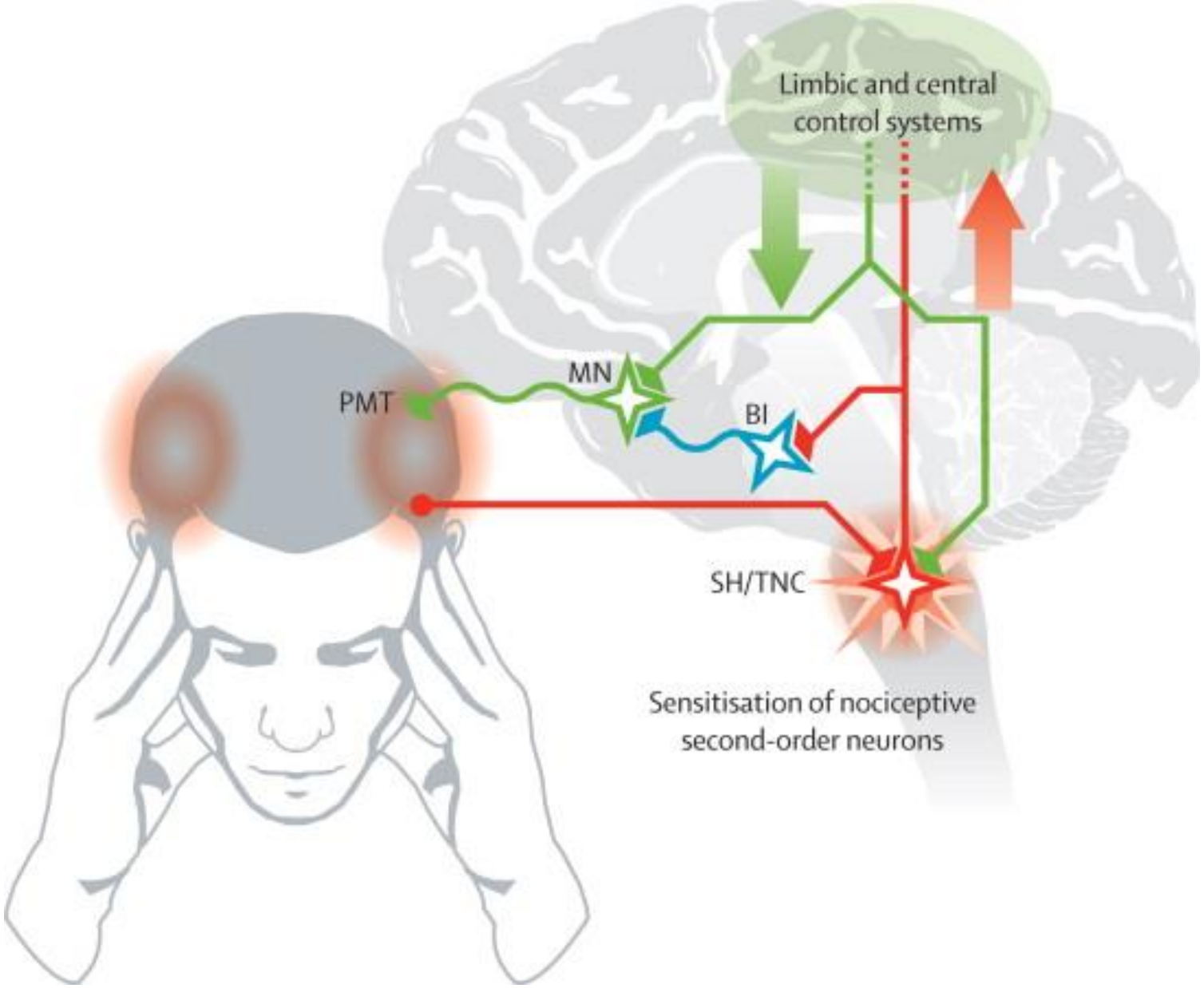
Diagnósticos Diferenciales

- Migraña Crónica (Transformada)
- Cefalea por Analgésicos
- Cervicogénica
- Trastorno Somatomorfo
- Cefalea por SAOS
- Cefalea Postraumática
- Etc

Cefalea Tipo Tensional

Fisiopatología

- Sensibilización central ↔ Depresión
- Contracción e isquemia en los músculos
- Nociceptores pericraneales pero también a nivel central (núcleo del V, neuronas supraespinales..)
- Sensibilidad dolorosa miofacial
- Decremento de antinociceptores (inhibitorios)

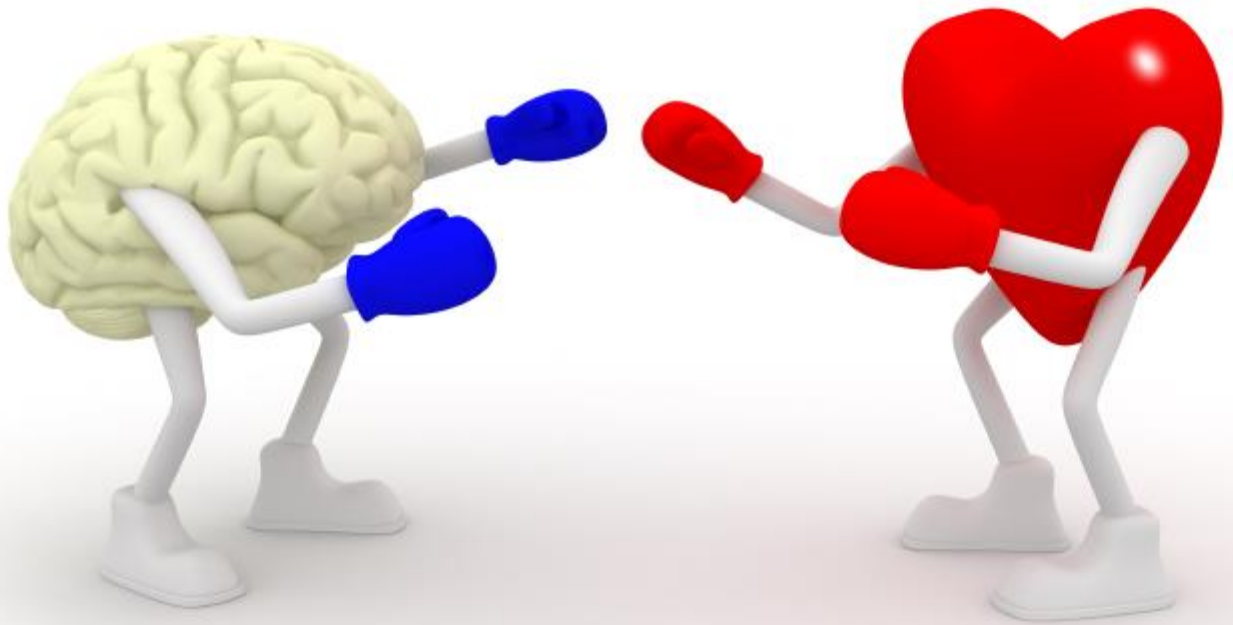


Lancet Neurology. 7(1). 2008

Cefalea Tipo Tensional

Clínica

- En relación con un conflicto emocional y estrés psicosocial



Chronic tension-type headache

Continuous nociceptive input from pericranial myofascial tissues

induce and maintain

central sensitization such that stimuli that are normally innocuous are misinterpreted as pain

Conversion from episodic to chronic tension-type headache

Pharmacotherapy

Acute

Ibuprofen 200-400 mg
or
Naproxen sodium 375-550 mg
or
Ketoprofen 25-50 mg
or
Diclofenac potassium 50-100 mg
Aspirin 500-1000 mg
Acetaminophen 1000 mg

Prophylactic

Mirtazapine 15-30 mg per day

Amitriptyline 10-75 mg per day

Tension Headache- Management

- Antidepressants-tricyclics e.g Amitriptyline
- Beta-blockers
- Relaxation exercises
- Treatment of underlying depression or anxiety
- Cognitive behavioural therapy
- Massage
- Ice-packs
- Acupuncture

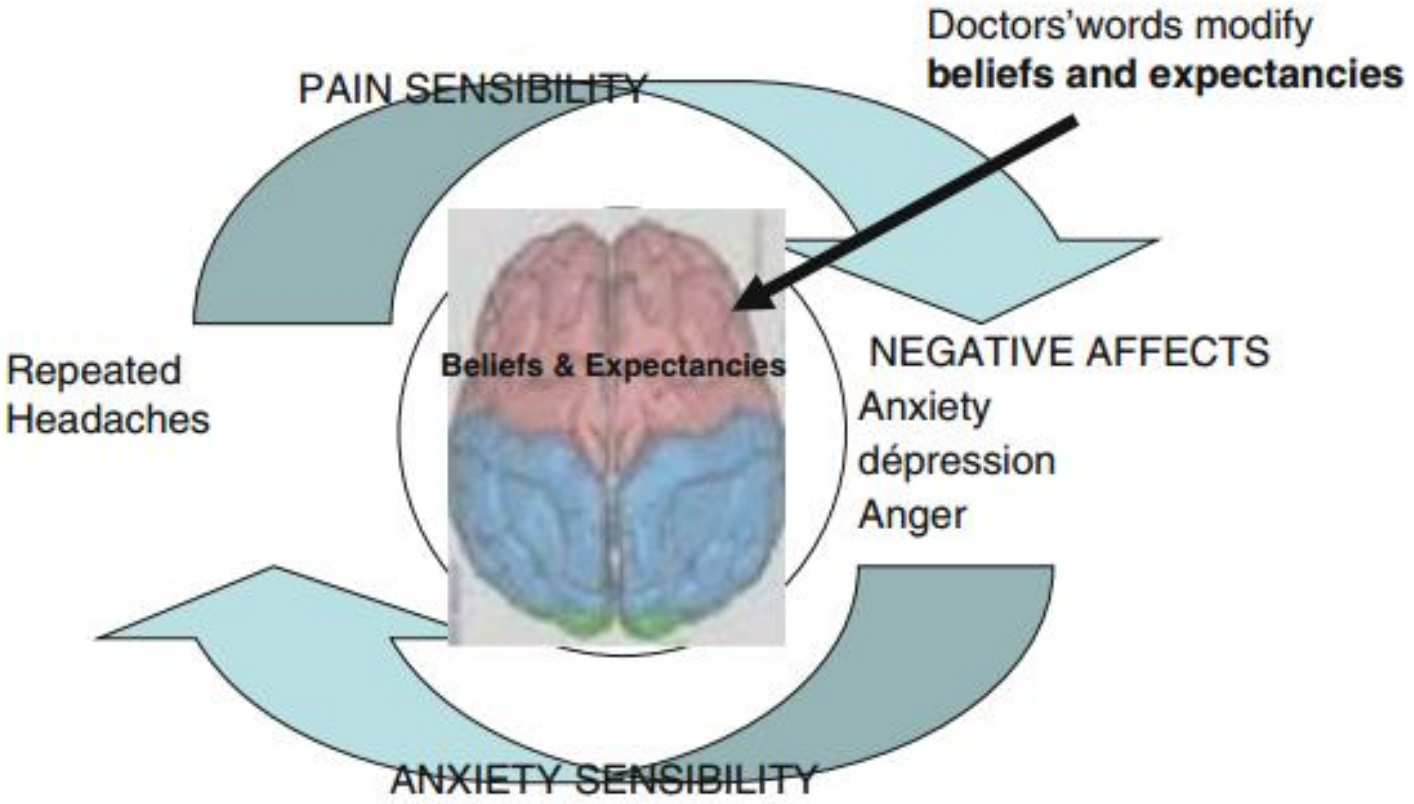
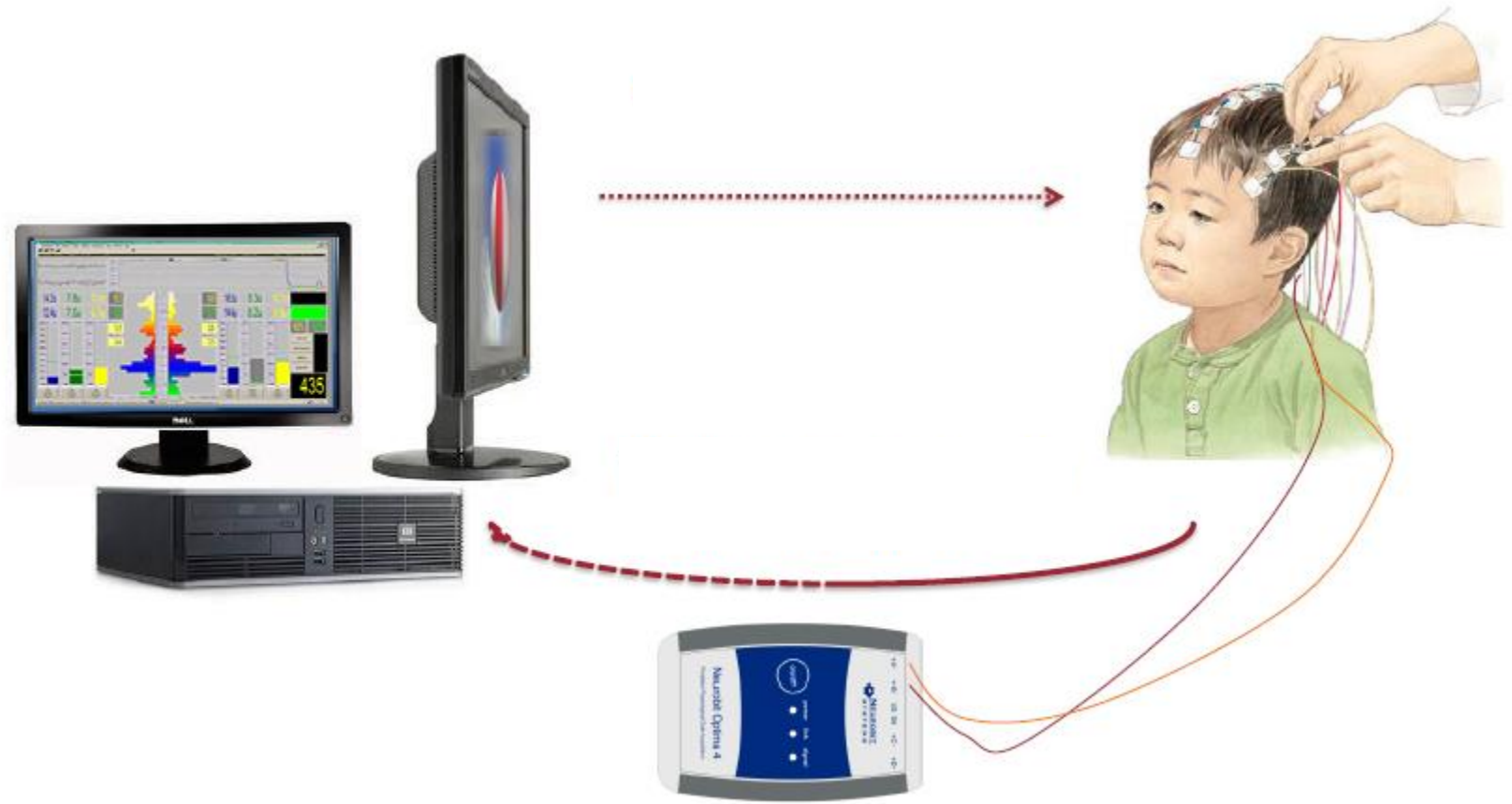


Fig. 1 Repeated headaches induce negative affects according to an individual dimension of "pain sensibility". Negative affects increase repeated headaches according to an individual dimension of "anxiety sensitivity". Both are modulated, as placebo/nocebo effects by beliefs and expectancies strongly influenced by doctors' words

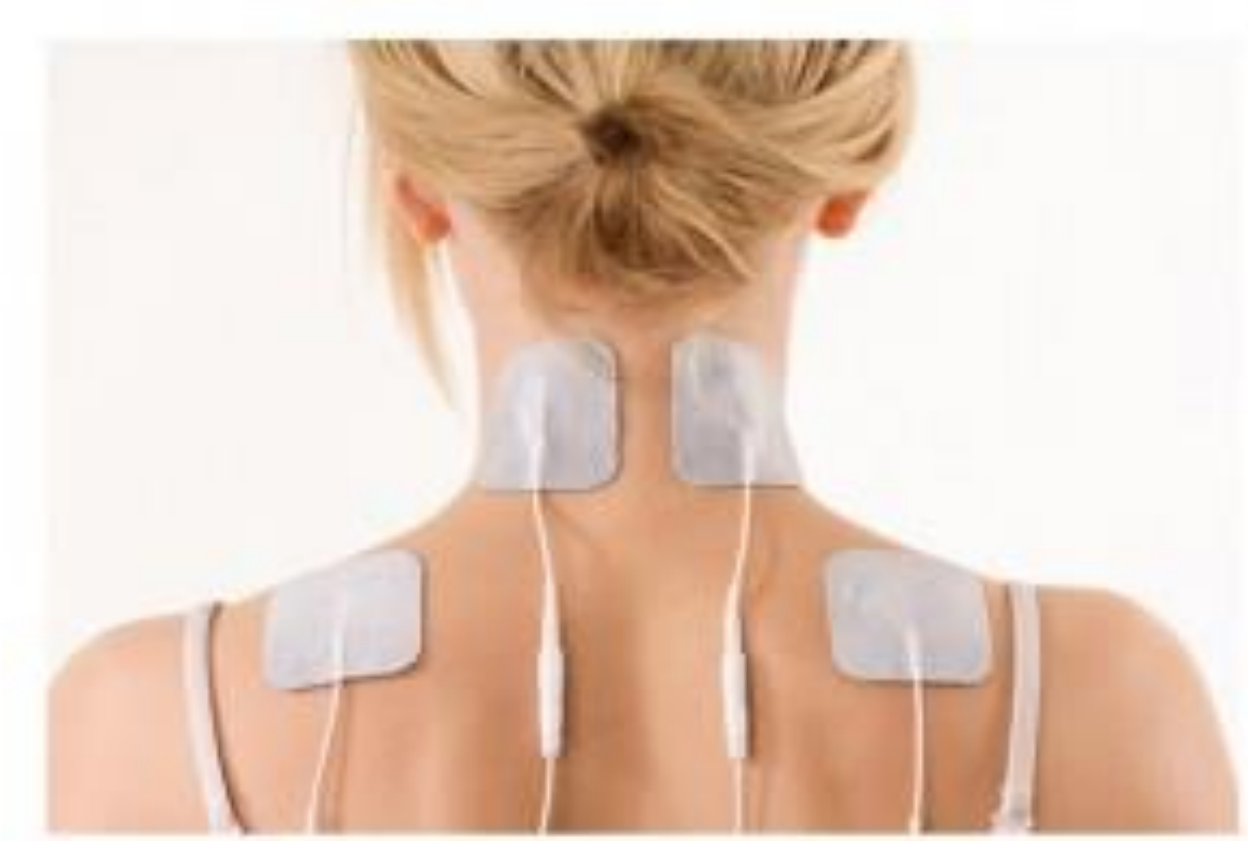
Tension Headache- Management

Biofeedback

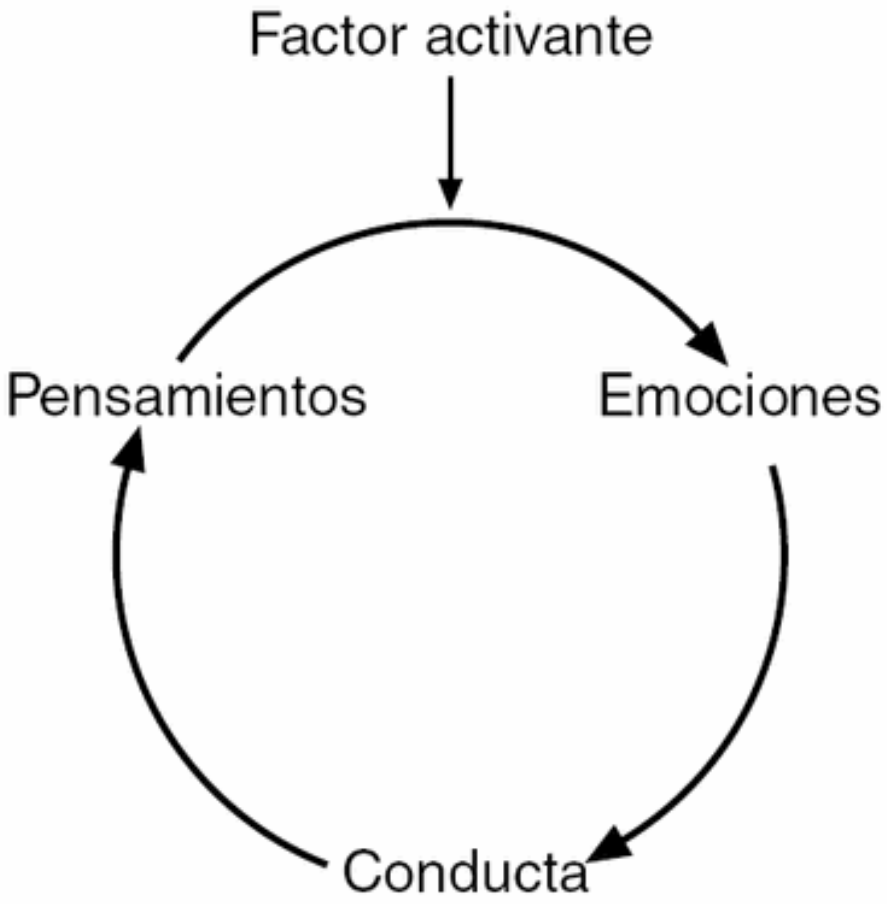


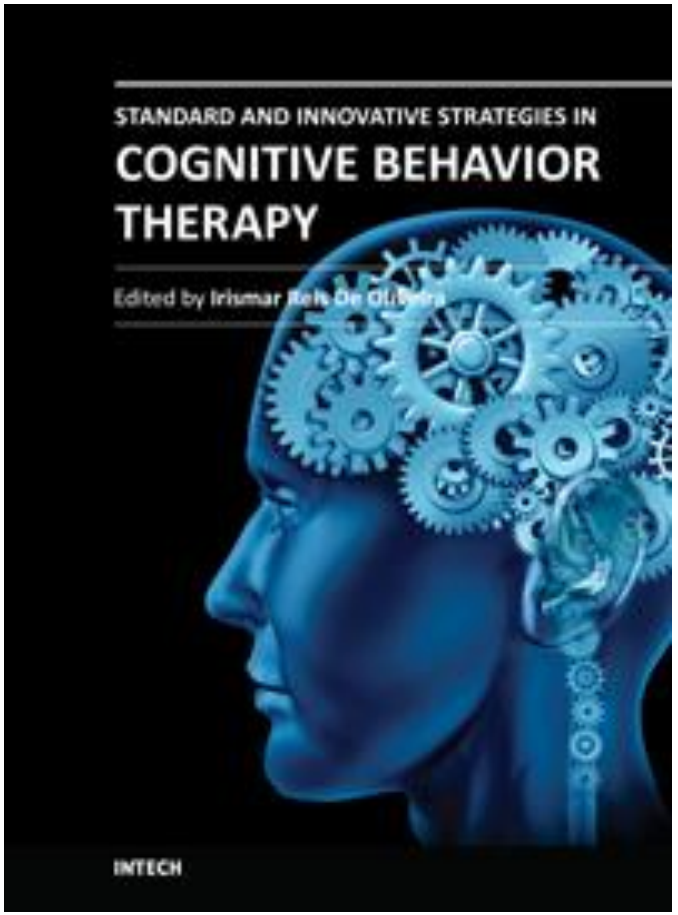
Tension Headache- Management

Electrical Stimulation



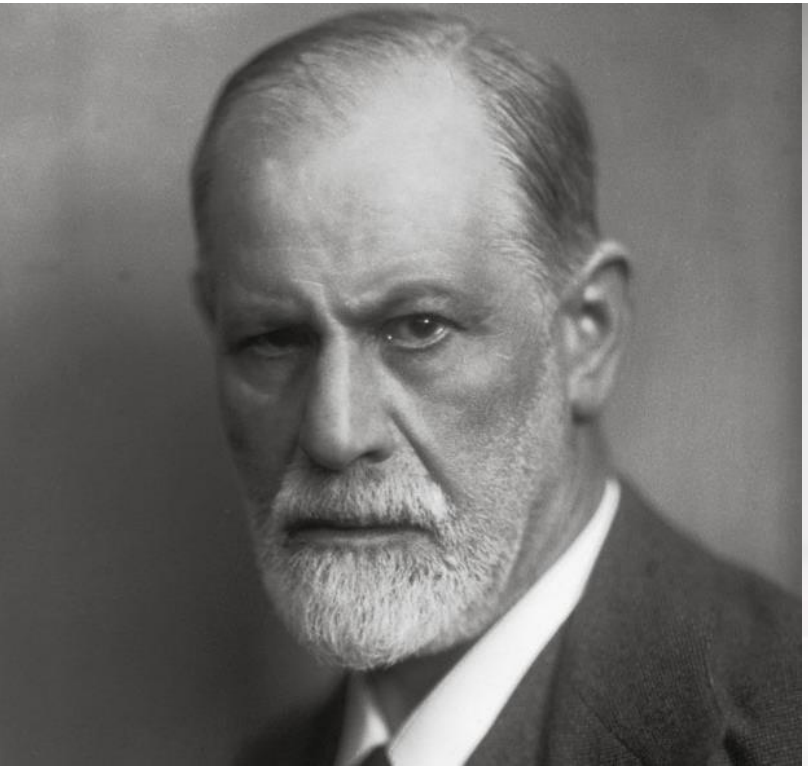
Tension Headache- Management



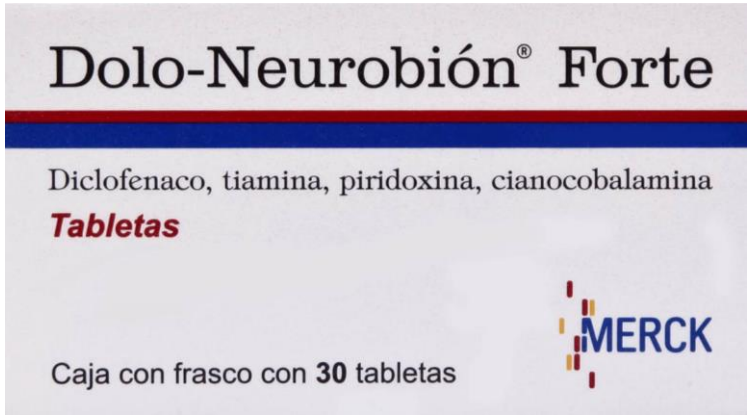


Tension Headache- Management

Tension Headache- Management



Tension Headache- Management



J Headache Pain (2012) 13:191–198
DOI 10.1007/s10194-012-0422-0

REVIEW ARTICLE

Placebo and other psychological interactions in headache treatment

A. Autret · D. Valade · S. Debiais

Cefalea Tipo Tensional
Tratamiento. Recomendaciones

- Investigar un Trastorno del Ánimo o un Trastorno de Ansiedad
- No dudar en proporcionar un Tratamiento Antidepresivo
- Tampoco en proporcionar Ansiolíticos (benzodiacepinas)
- Insistir en que el paciente lleve una vida organizada ("*lavarle bien el coco*").
- Darle opción al paciente de una Terapia Alternativa (en forma conjunta al Tx médico)

Cefalea en Racimos

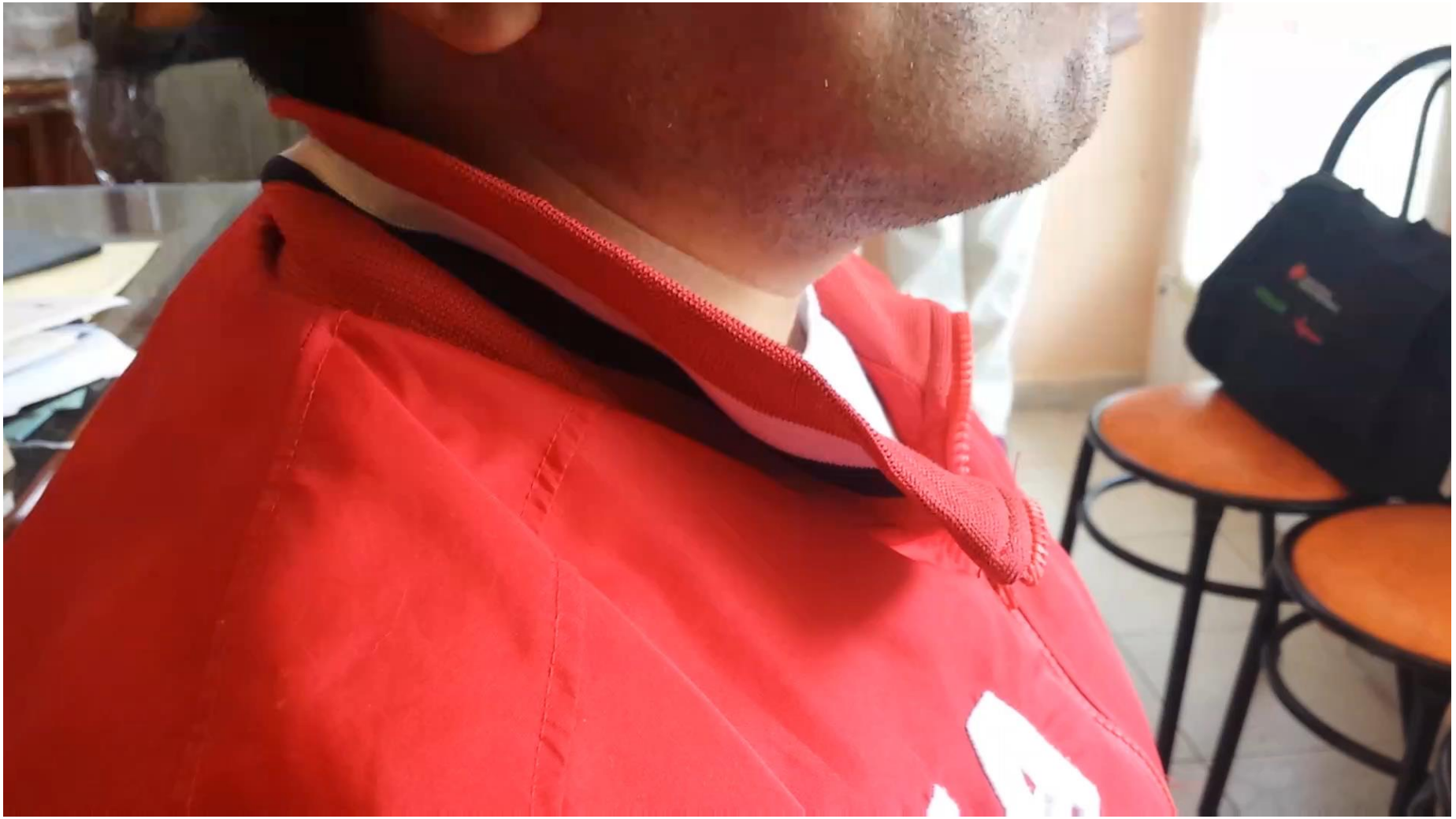
Horton, Harris-Horton, Cluster, Histamínica, Neuralgia Ciliar,
Eritromeralgia, Eritroprosopalgia de Bing,
Neuralgia Petrosal de Gardner

Cefalea en Racimos

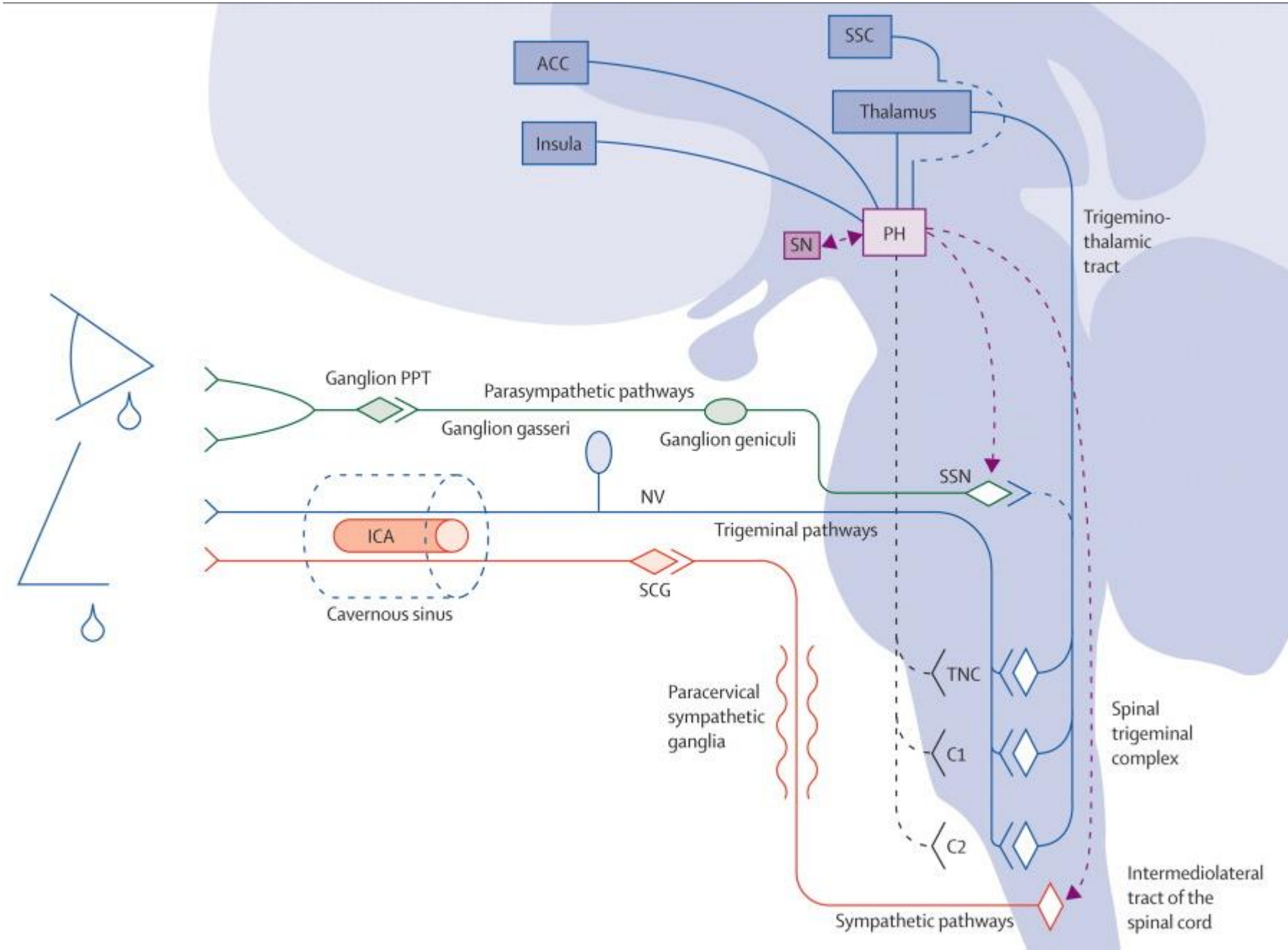
Generalidades

- Rara
- Predominio en Hombres
- 20-40 años
- Dolor orbitario (peri) intenso
- Unilateral
- Inyección conjuntival
- Congestión nasal o rinorrea
- Miosis o ptosis


NO
PASSING
ZONE



Fisiopatología



Cefalea en Racimos

Tratamiento Agudo

Therapy	Level of Evidence (EFNS Guidelines)[42,87]*	Dose	More Common AEs	Comments
Oxygen	A	7-10 L/min (higher flow rates may be needed)	None	Inhaled via a non-rebreathable mask for 15-20 minutes
Sumatriptan SC	A	6 mg	Nausea, fatigue, paresthesias, chest/throat tightness	May be taken up to twice daily during a cluster period; contraindicated in patients with CV diseases
Sumatriptan IN	A	20 mg	Nausea, fatigue, paresthesias, chest/throat tightness, unpleasant taste	Slower onset of action then sumatriptan SC; contraindicated in patients with CV diseases
Zolmitriptan IN	A	5-10 mg	Nausea, fatigue, paresthesias, chest/throat tightness, unpleasant taste	Comparable in efficacy to sumatriptan IN; contraindicated in patients with CV diseases
Octreotide SC	B	100 μg	Injection site pain, abdominal pain, nausea, hyperglycemia	Can be used in patients with CV diseases
Lidocaine IN	B	1 mL (4-10%)	none	Only moderate effect on

(*Headache* 2011;51:272-286)

Cefalea en Racimos

Tratamiento Profiláctico

Therapy	Level of Evidence (EFNS Guidelines)[42,87]*	Target Dose per Day	Monitoring	More Common AEs
Verapamil	A	200-900 mg	EKG	Hypotension, constipation, peripheral edema
Lithium carbonate	B	600-900 mg	Lithium levels, renal function, thyroid function	Diarrhea, tremor, polyuria
Topiramate	B	50-200 mg	Serum bicarbonate	Paresthesias, weight loss, cognitive dysfunction, fatigue, dizziness, taste alteration
Valproic acid	C	500-2000 mg	CBC, liver function	Weight gain, fatigue, tremor, hair loss, nausea
Melatonin	C	10 mg	None	Fatigue, sedation
Baclofen	C	15-30 mg	None	Drowsiness, dizziness, ataxia, muscle weakness
Botulinum toxin	Not rated	50 units	None	Muscle weakness, injection site pain
Gabapentin	Not rated	800-3600 mg	CBC	Somnolence, fatigue, dizziness, weight gain, peripheral edema, ataxia
Clonidine	Not rated	0.2-0.3 mg	None	Fatigue, hypotension

(*Headache* 2011;51:272-286)

THE LANCET Neurology

Review

Clinical features, pathophysiology, and treatment of medication-overuse headache

Lancet Neurol 2010; 9: 391–401

“Noble cosa es,
aún para un anciano,
el **aprender**”