HEADACHES, MIGRAINES AND MIMICS

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WHY HEADACHE IS IMPORTANT

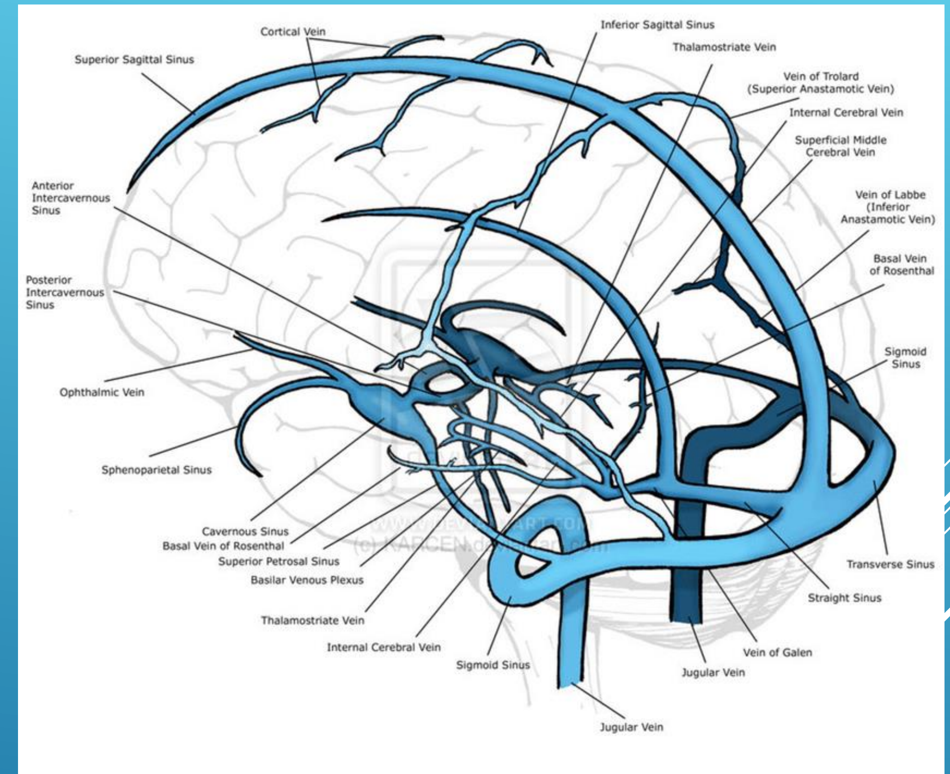
- Up to 51 % of 7 year olds
- Up to 82 % of 15 year olds
- Migraines: 4 % children under 5yr
- Migraines: 10 % children 5-15 yr
- Boys>Girls when young.
- Girls>>Boys by teens

Image Credit: Africa Studio / Shutterstock

WHERE HEADACHE COMES FROM: INTRACRANIAL

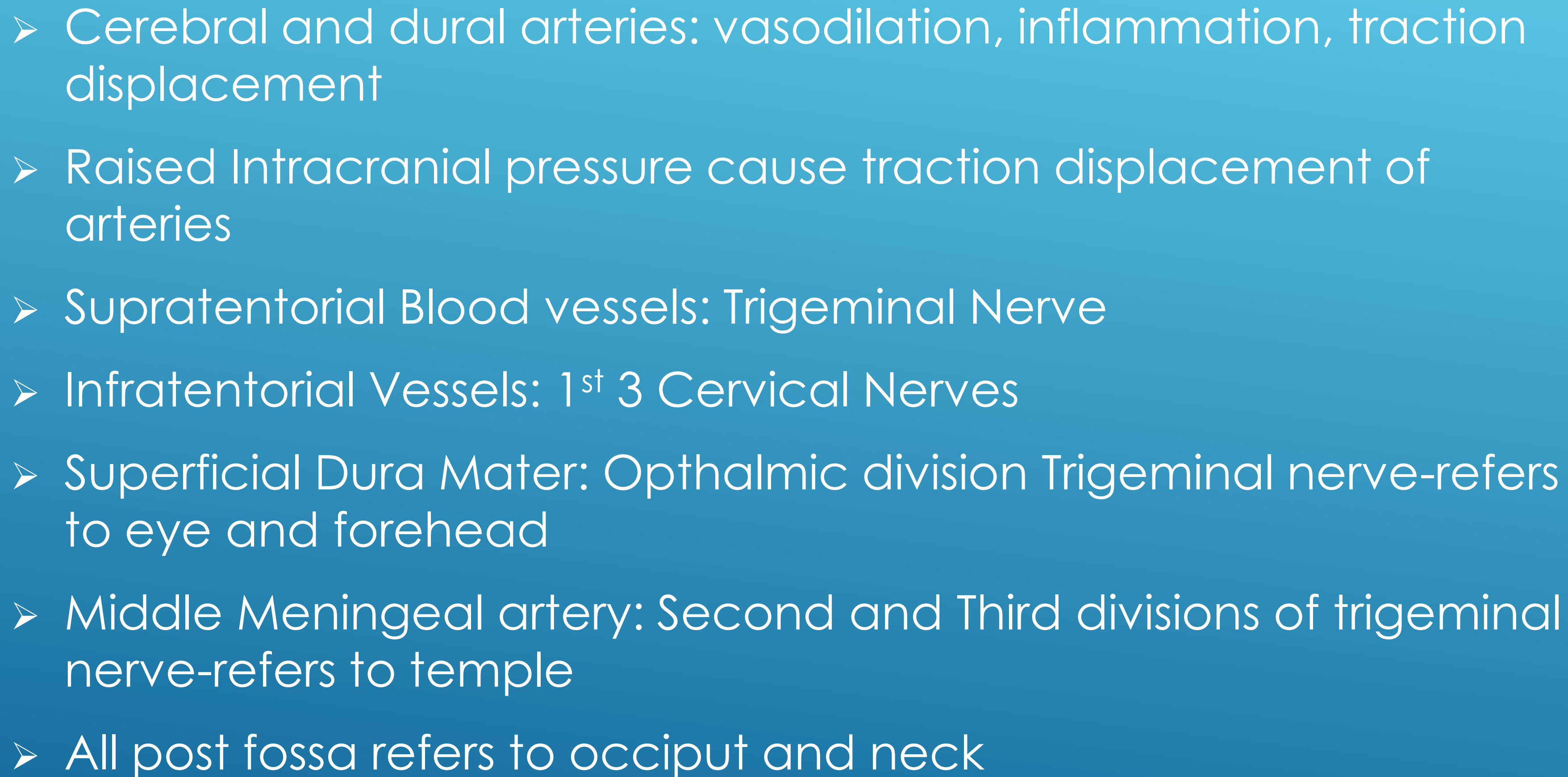
- Cerebral and dural arteries
- Dura Mater at base of brain
- Large veins and venous sinuses

- No pain-brain parenchyma,
- ependymal linings, meninges, dura



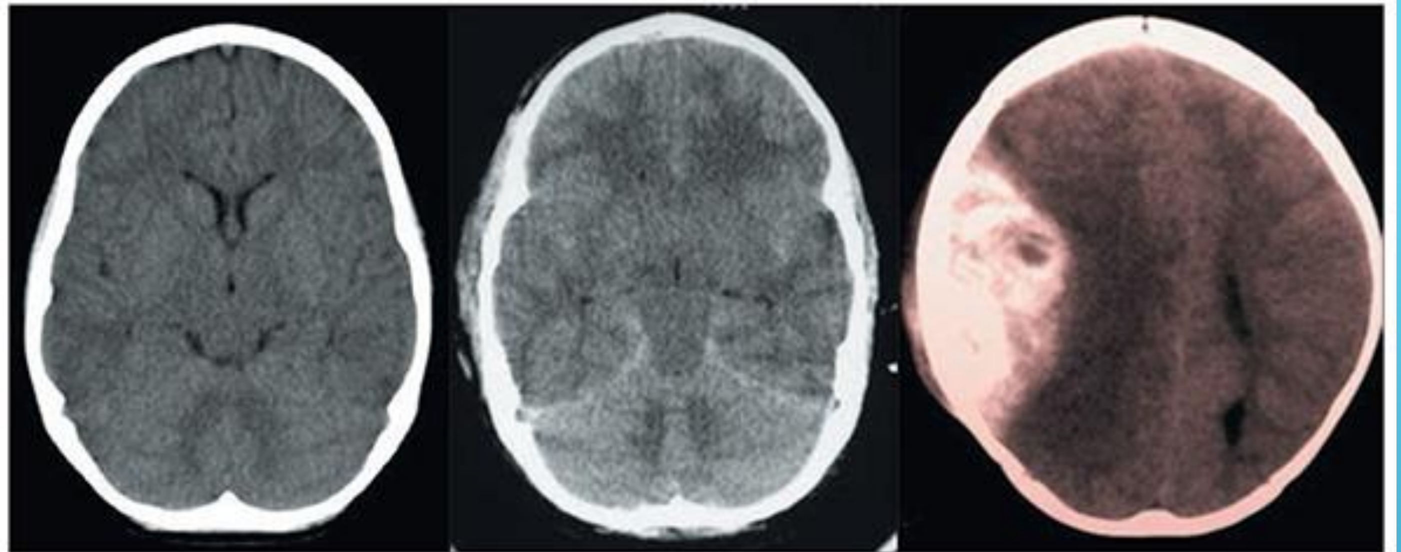
Normal Anatomy of the cerebral venous system

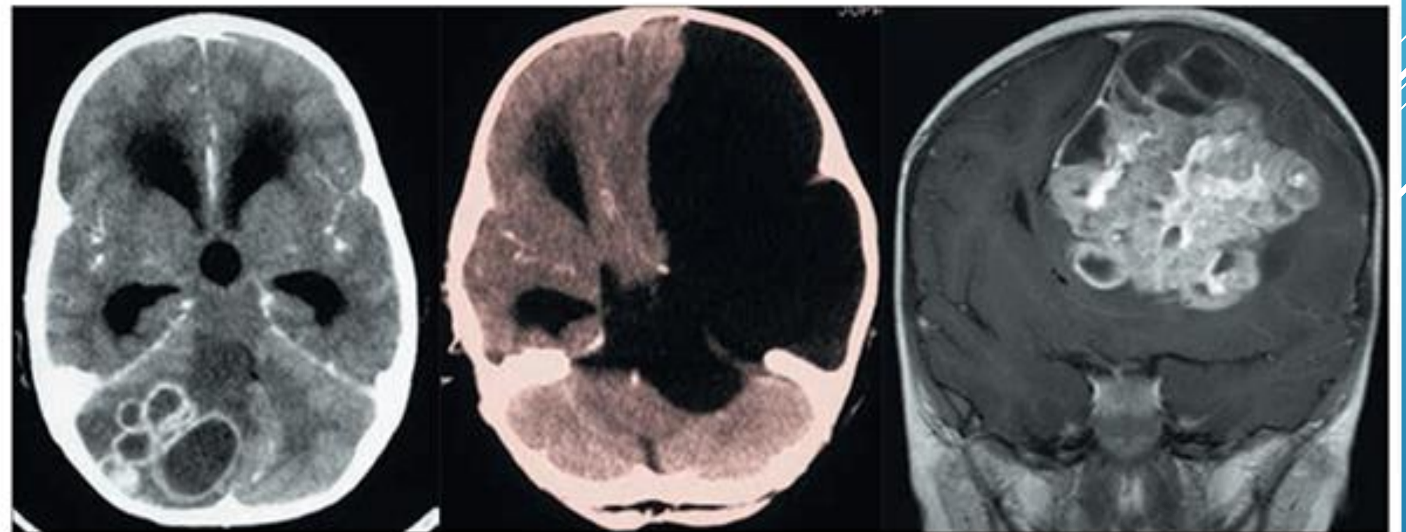
WHERE HEADACHE COMES FROM: INTRACRANIAL CONT



- Cerebral and dural arteries: vasodilation, inflammation, traction displacement
- Raised Intracranial pressure cause traction displacement of arteries
- Supratentorial Blood vessels: Trigeminal Nerve
- Infratentorial Vessels: 1st 3 Cervical Nerves
- Superficial Dura Mater: Opthalmic division Trigeminal nerve-refers to eye and forehead
- Middle Meningeal artery: Second and Third divisions of trigeminal nerve-refers to temple
- All post fossa refers to occiput and neck

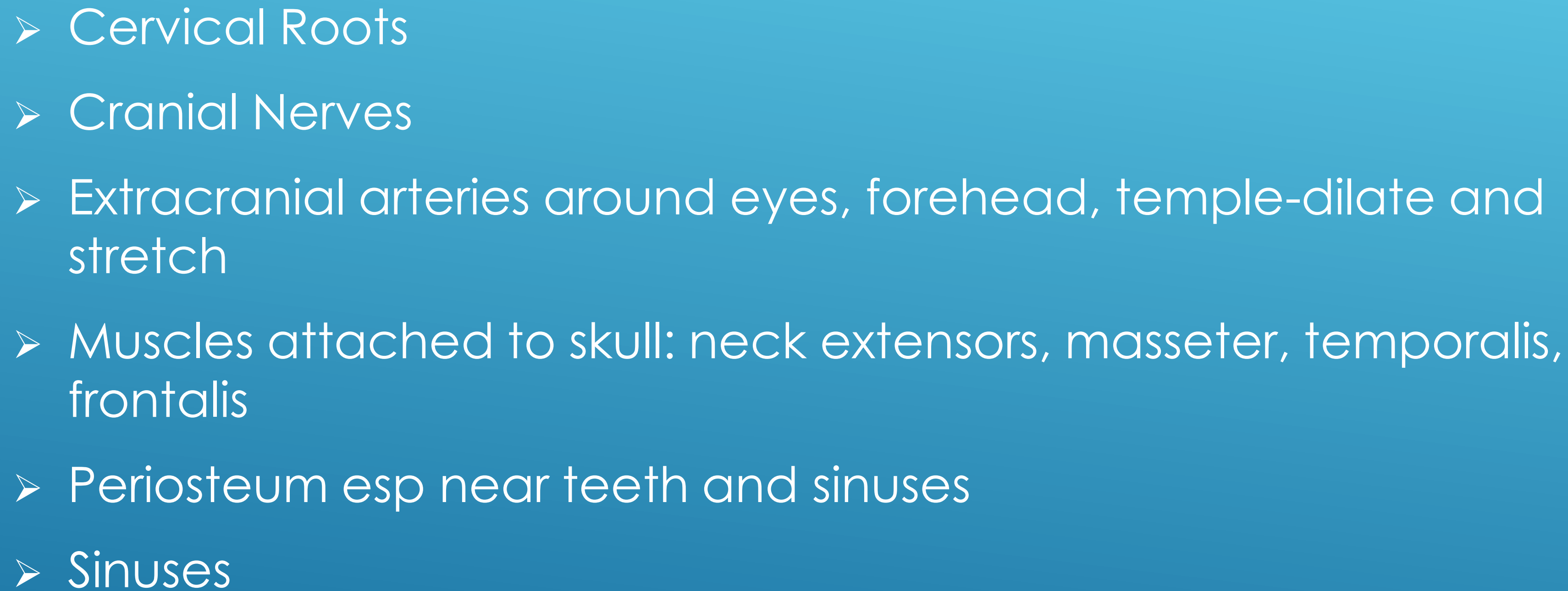
RAISED INTRACRANIAL PRESSURE CAUSING BLOOD VESSEL TRACTION DISPLACEMENT





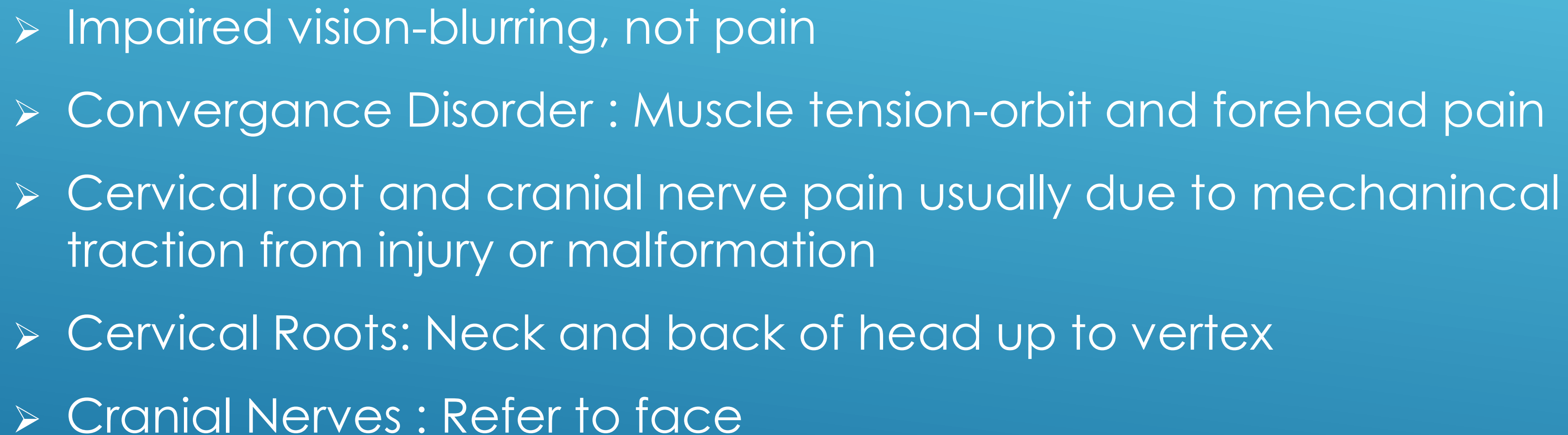
ROYTOWSKI, David; FIGAJI, Anthony. Raised intracranial pressure: What it is and how to recognise it. **Continuing Medical Education**, [S.l.], v. 31, n. 3, p. 85-90, mar. 2013. ISSN 2078-5143.

WHERE HEADACHE COMES FROM: EXTRACRANIAL

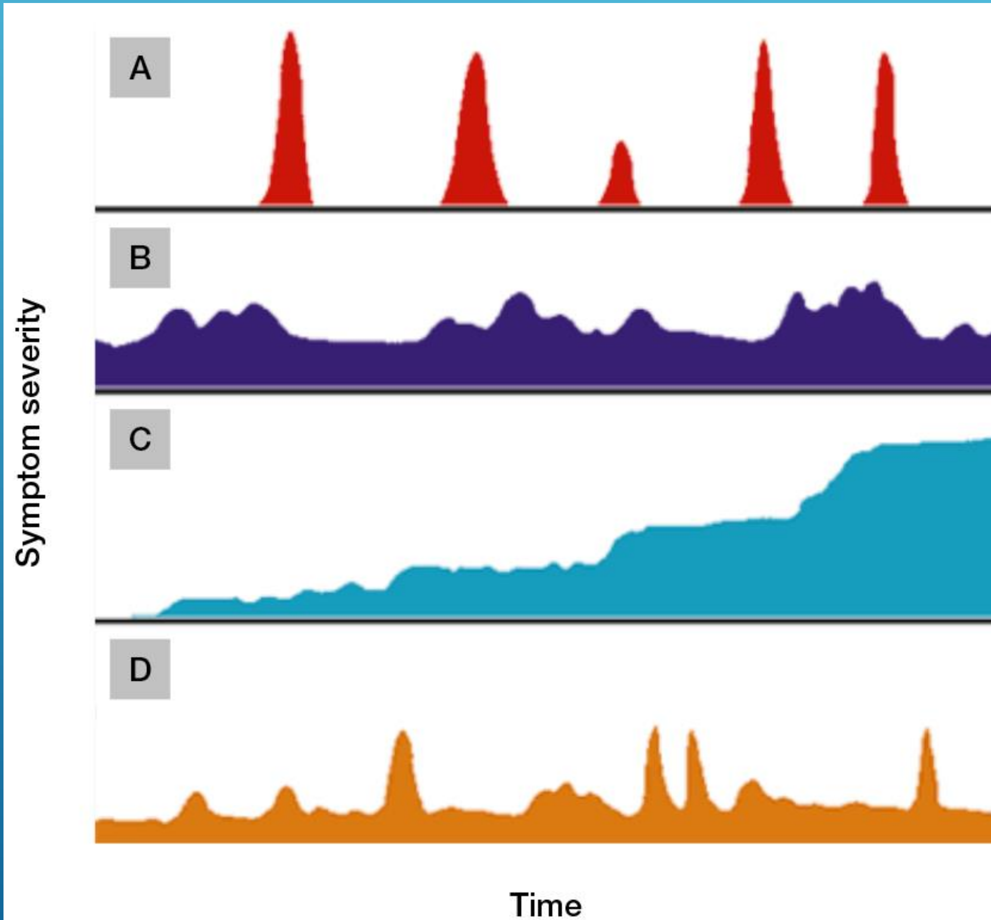


- Cervical Roots
- Cranial Nerves
- Extracranial arteries around eyes, forehead, temple-dilate and stretch
- Muscles attached to skull: neck extensors, masseter, temporalis, frontalis
- Periosteum esp near teeth and sinuses
- Sinuses

WHERE HEADACHE COMES FROM: EXTRACRANIAL CONT



HISTORY: HOW OFTEN HOW BAD?



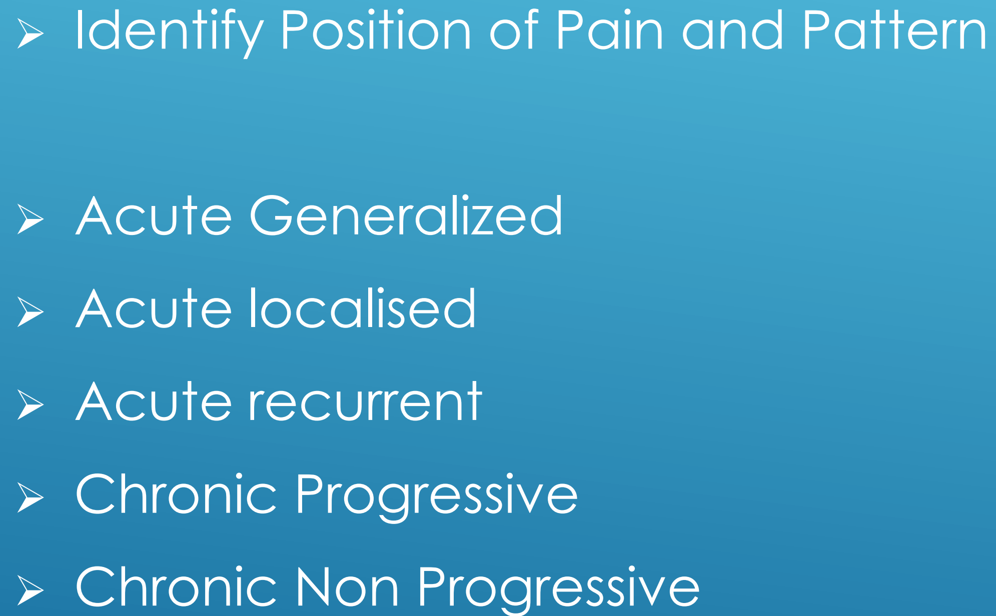
A. Acute recurrent
Migraine (common, classical, complicated)

B. Chronic non-progressive
Tension
Anxiety
Depression
Somatisation

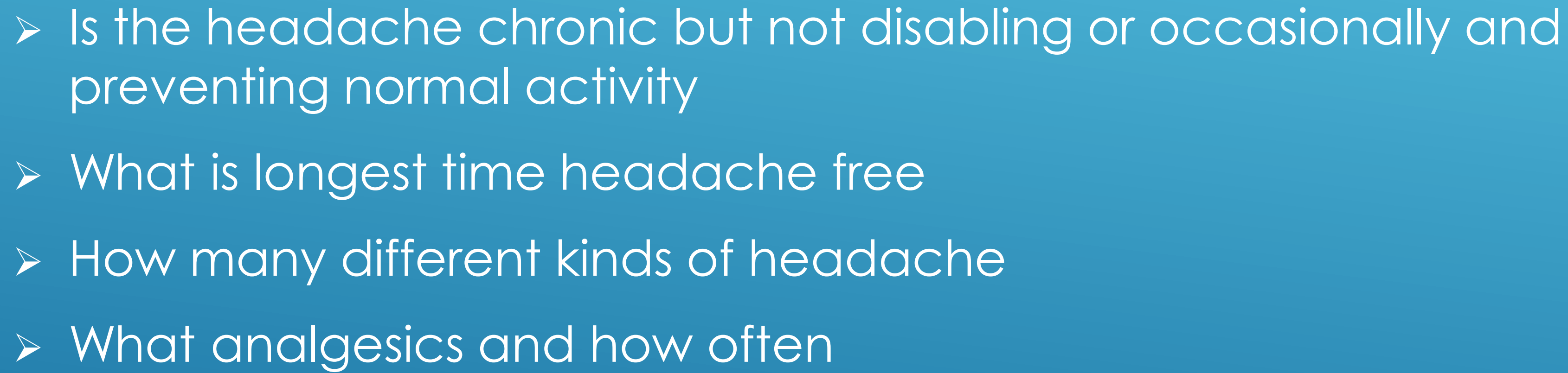
C. Chronic progressive
Tumour
Benign intracranial hypertension
Brain abscess
Hydrocephalus

D. Acute on chronic non-progressive
Tension headache with co-existent migraine

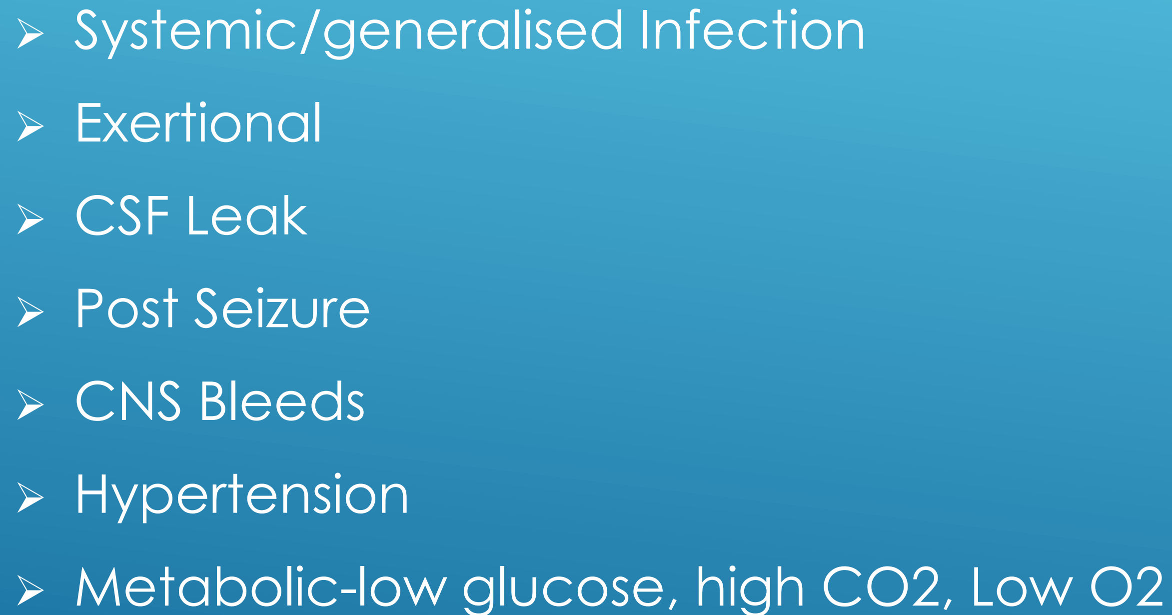
HISTORY



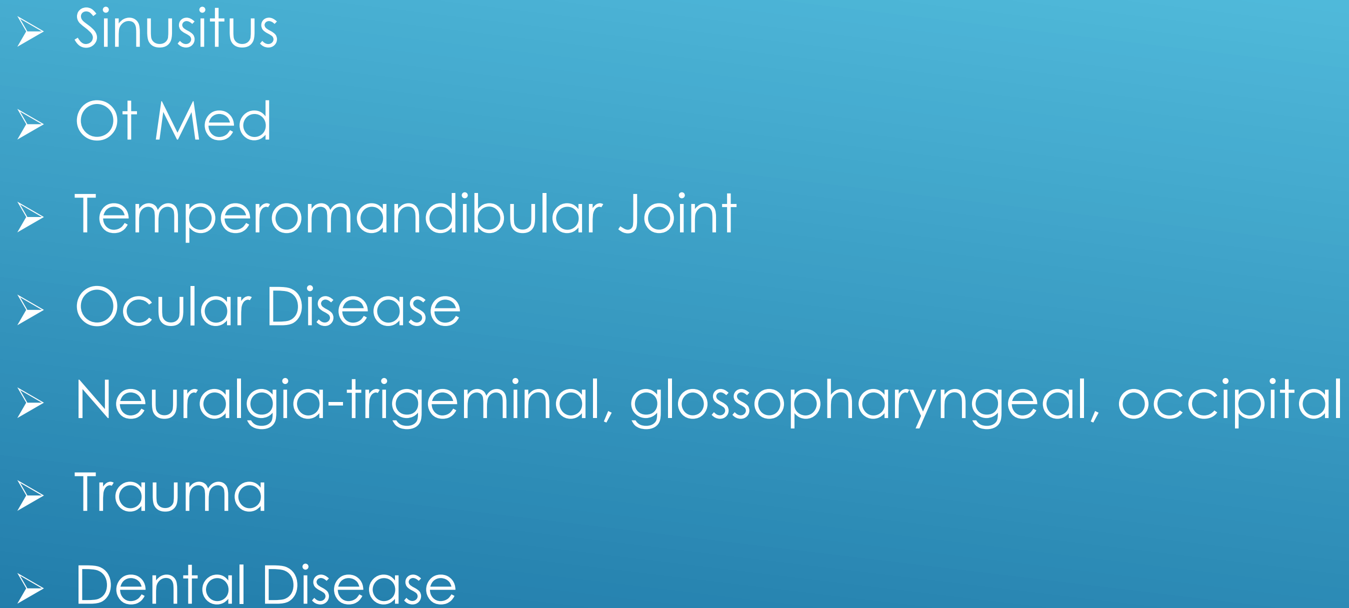
USEFUL QUESTIONS



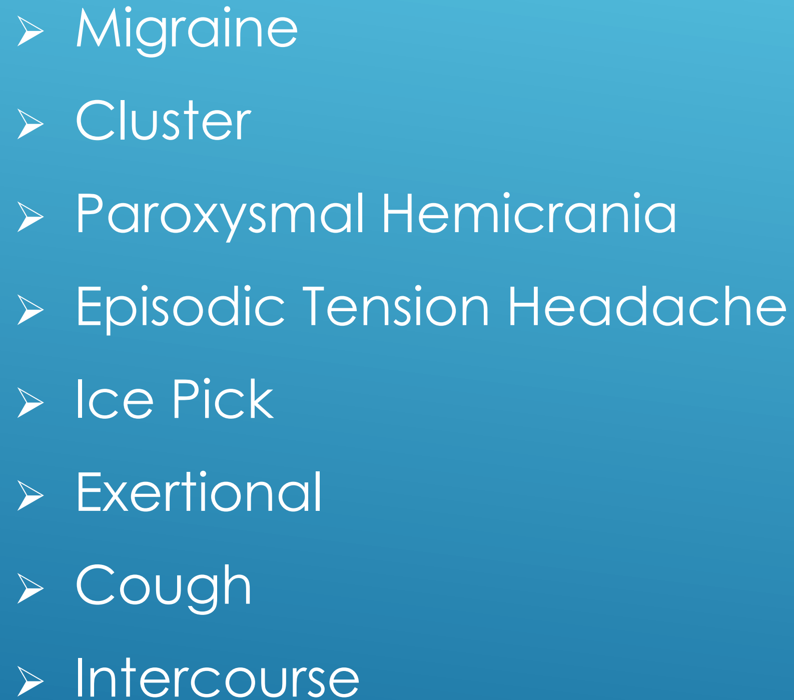
ACUTE GENERALISED HEADACHE



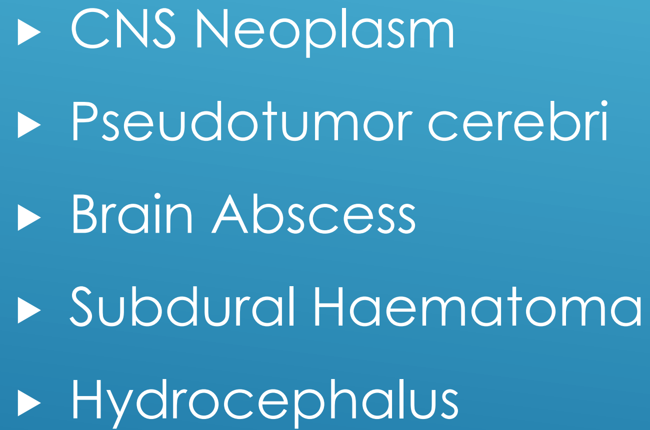
ACUTE LOCALISED HEADACHE



ACUTE RECURRENT HEADACHE



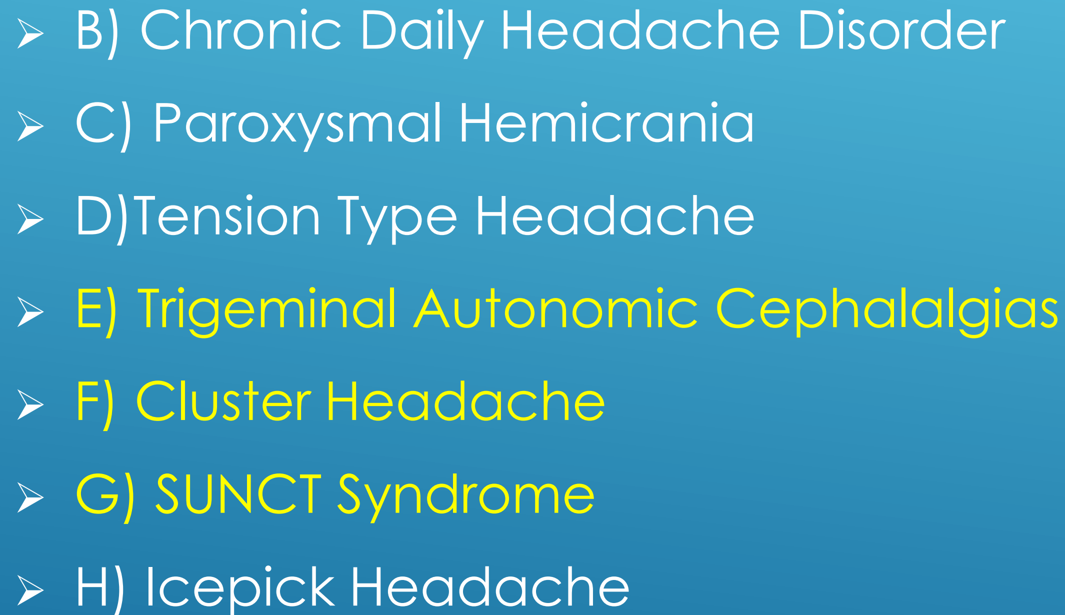
CHRONIC PROGRESSIVE HEADACHE



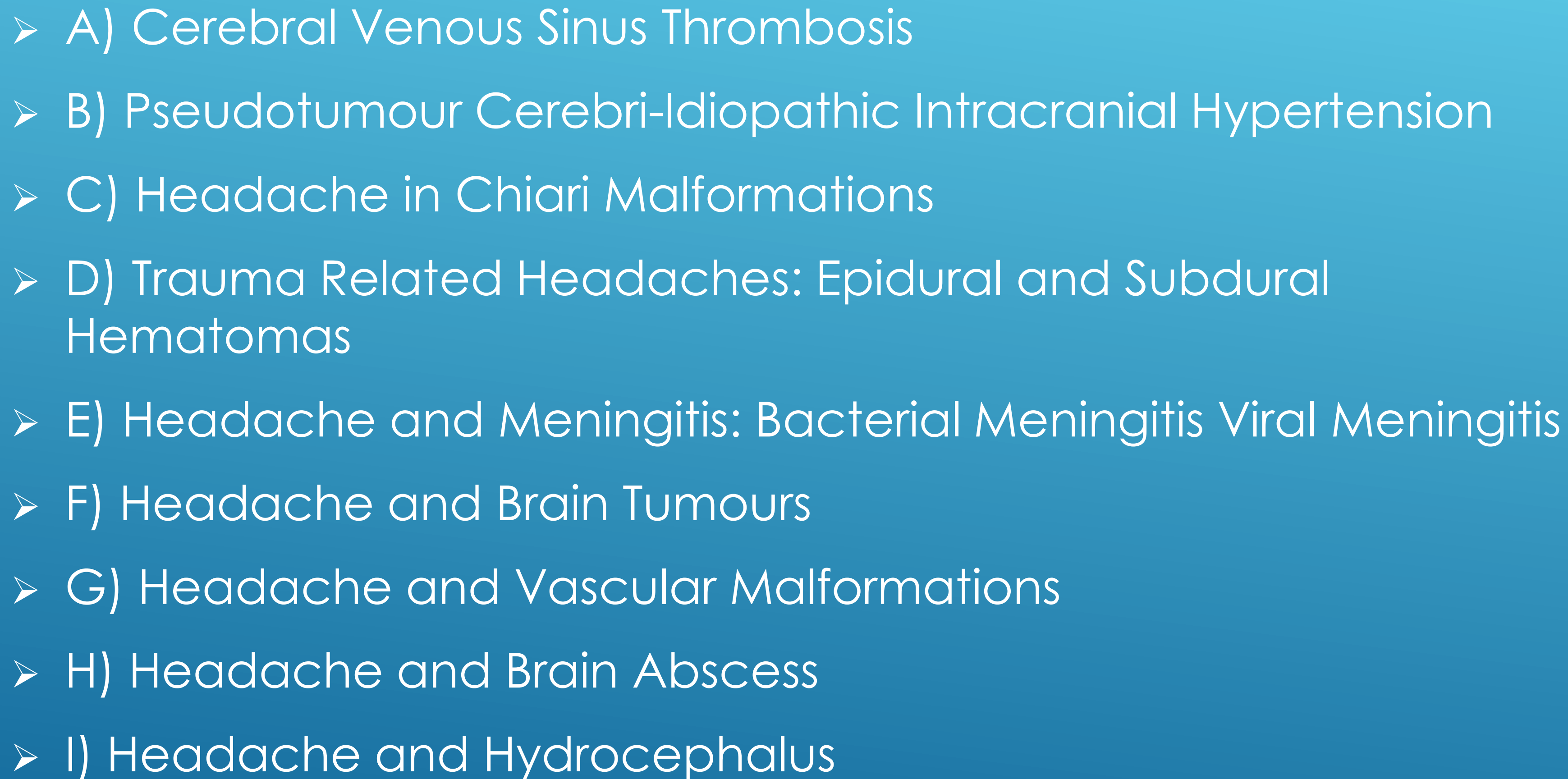
- CNS Neoplasm
- Pseudotumor cerebri
- Brain Abscess
- Subdural Haematoma
- Hydrocephalus

PRIMARY HEADACHE DISORDERS

PRIMARY HEADACHE DISORDERS



SECONDARY HEADACHE DISORDERS



MIGRAINE

Preschool	School	Adolescents
Looks ill	Bilat	Unilat
Pale	Frontal	Bilat
Abd pain	Temporal	Temporal
Vomit	Retroorbital	Aura
Sleep	Nausea anorexia	Location and intensity changes between episodes
Dark room	Abd cramps	
Irritable	Vomit	
crying	Photophobia	
	Phonophobia	
	Sleep	
	Aura	
	Confusion	
	Memory loss	

MIGRAINE AURA

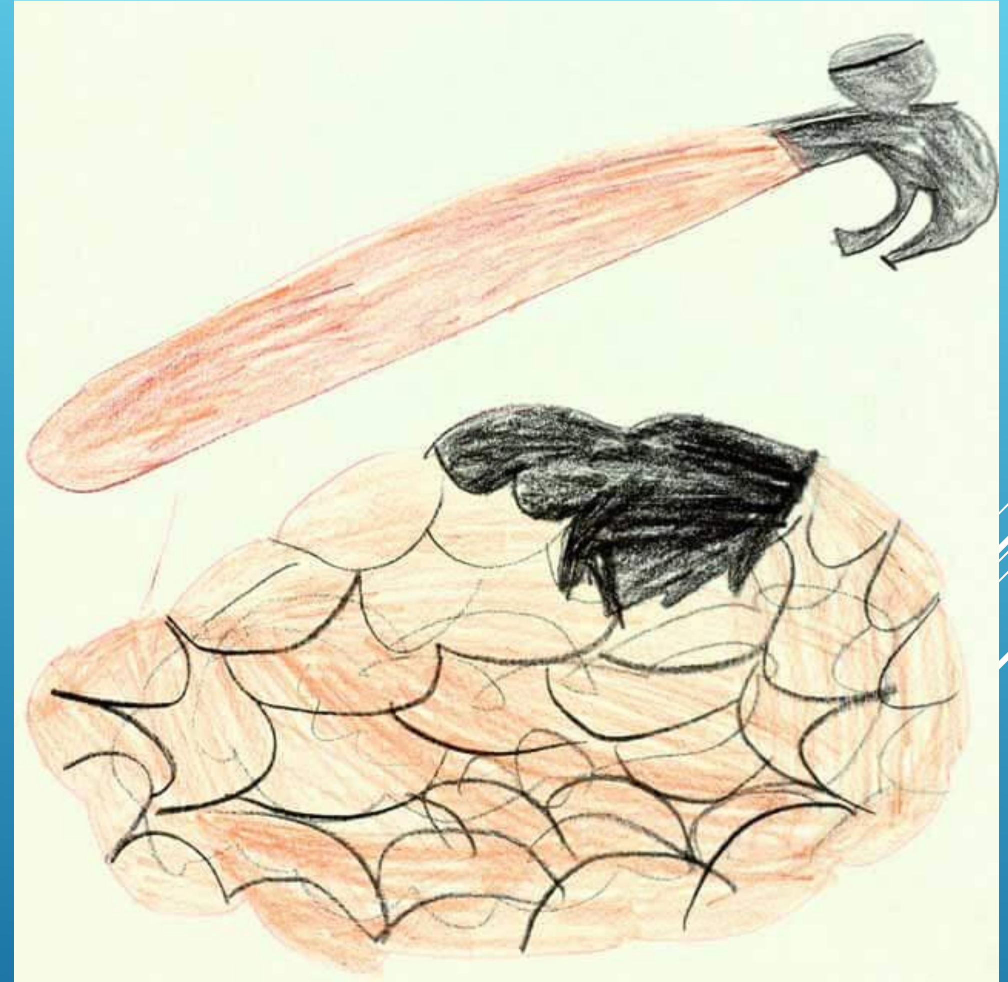
- 10-20% of over 8 yr have Aura
- Precedes headache< 60 mins
- Lasts 5-20 mins
- NONVISUAL AURAS
- Attention loss, confusion, amnesia, agitation
- Aphasia, ataxia, dizzinyness, vertigo
- Paresthesia, hemiparesis

MIGRAINE AURA

- VISUAL AURAS
- Blurred vision, scotoma
- Scintillations, black dots
- Fortification Spectra, Kaleidoscopic Colour patterns
- Micropsia, Macropsia, Metamorphopsia (Alice in Wonderland)
- Moving or Changing Shapes
- Headache then 1 hr to 48 hr, usually < 4 hrs, young 10-20 mins

MIGRAINE COMORBIDITIES

- Epilepsy
- Motion sickness
- Sleep Disturbances
- Ice cream Headache
- Psychiatric:
- Depression
- Panic Episodes
- Anxiety
- Phobias



PEDMIDAS

TABLE 1

Pediatric Migraine Disability Assessment (PedMIDAS)

In the past three months:

How many full days of school did you miss because of headaches?

How many partial days of school did you miss because of headaches?

How many days did you go to school but functioned at less than one-half of your ability because of a headache?

How many days were you not able to do things at home because of a headache?

How many days were you not able to participate in other activities because of a headache?

How many days did you participate in other activities but functioned at less than one-half of your ability because of headaches?

Total the answers of all questions to get the PedMIDAS score.

PedMIDAS disability grades

Score	Grade	Disability
0 to 10	1	Little to none
11 to 30	2	Mild
31 to 50	3	Moderate
> 50	4	Severe

Information from references 1 and 2.

Revised International Headache Society diagnostic criteria for paediatric migraine without aura

MIGRAINE: DIAGNOSTIC CRITERIA

A. At least five attacks fulfilling criteria B–D (below)

B. Headache attacks lasting 1 h to 72 h

C. Headache has at least two of the following characteristics:Unilateral location, may be bilateral, frontotemporal (not occipital)
•Pulsating quality
•Moderate or severe pain intensity
•Aggravation by or causing avoidance of routine physical activity (eg, walking, climbing stairs)

D. During the headache, at least one of the following:Nausea, vomiting or both
•Photophobia and phonophobia, which may be inferred from behaviour

E. Not attributed to another disorder

Dooley JM, Gordon KE. Ophthalmoscopy: A 7-step program. *Can J Neurol Sci.* 2008;35:237–42.

PRIMARY HEADACHE DISORDERS

A) MIGRAINE

1. Status Migrainosus
2. Familial Hemiplegic Migraine
3. Basilar Type Migraine
4. Benign Paroxysmal Vertigo of Childhood
5. Acute Confusional Migraine
6. Migraine Associated Cyclic Vomiting Syndrome
7. Abdominal Migraine
8. Paroxysmal Torticollis of Infancy
9. Acephalgic Migraine of Childhood
10. Opthalmoplegic Migraine

MIGRAINE: STATUS MIGRAINOSUS

MIGRAINE: FAMILIAL HEMIPLEGIC MIGRAINE

- Familial Hemiplegic Migraine
- Autosomal Dominant with Aura
- CACNA1A,ATP1A2, SCN1A,PRRTZ genes +fam Hx and <16yrs
- Prolonged Hemiplegia with numbness, aphasia and confusion
- Hemiplegia before, during or after headache
- Hours to days
- Hemiplegia contralateral to pain
- Some with cerebellar ataxia
- Rx Acetazolamide or Calcium Channel Blockers
- Diff Dx: structural lesions,vasculitis,cerebral hemmorhage,brain tumour, mitochondrial myopathy,encephalopathy
- Alternating hemiplegia, Lactic acidosis

MIGRAINE: BASILAR TYPE MIGRAINE

- Occipital Migraine with Aura
- Aura at least 2 of Dysarthria, vertigo,tinnitus,hyperaccusia,diplopia,bifield visual symptoms,ataxia, decreased level of consciousness, bilateral paresthesias
- Hx of migraine in family
- Intermingled with typical migraine
- Disturbance in brainstem function, occipital cortex, cerebellum

MIGRAINE: BENIGN PAROXYSMAL VERTIGO OF CHILDHOOD

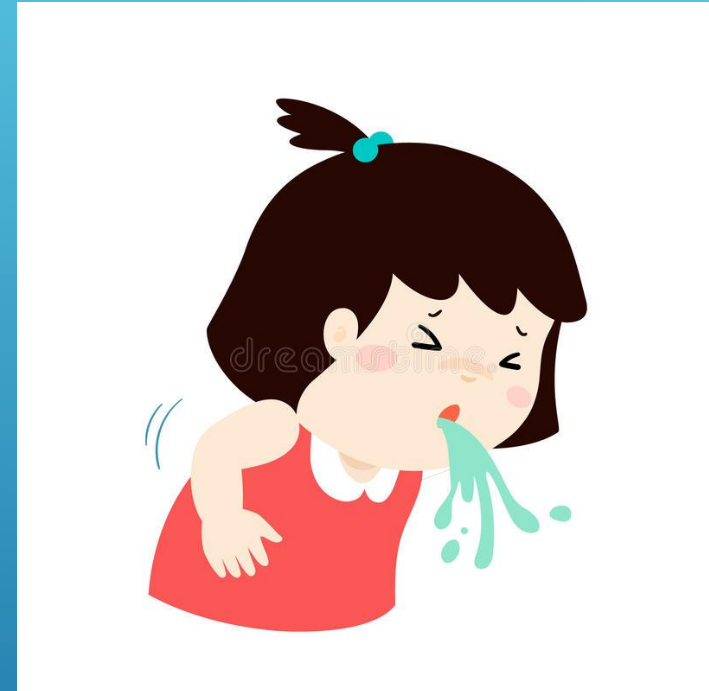
- Benign Paroxysmal Vertigo of Childhood
- 2-6 yr
- Brief episodes vertigo, disequilibrium, nausea
- Nystagmus within but not between episodes
- A few minutes
- Often migraine as older
- MRI post fossa pathology if neuro abnormal between episodes

MIGRAINE: ACUTE CONFUSIONAL MIGRAINE

- Acute confusion before/after
- Agitation
- Lethargy
- Dysphasia, expressive/receptive aphasia
- Often precipitated by minor head trauma
- May be recurrent
- Typical Migraine when older
- Exclude hypoglycaemia, intox,encephalitis,structural lesions, seizures
- Transient amnesia

MIGRAINE: CYCLIC VOMITING SYNDROME

- Recurrent regular/cyclic episodes intense vomit with symptom free intervals
- Rapid onset night/early morning
- 6-48 hrs
- Abd pain, Nausea ,anorexia
- Pallor lethargy
- Photo and phonophobia
- Headache
- Girls>boys Resolves in adolescence
- Fam Hx Migraine
- Fluid electrolyte disturbance
- Exclude Malrotation, neoplasm,urinary tract, metab,endocrine,mitochondrial

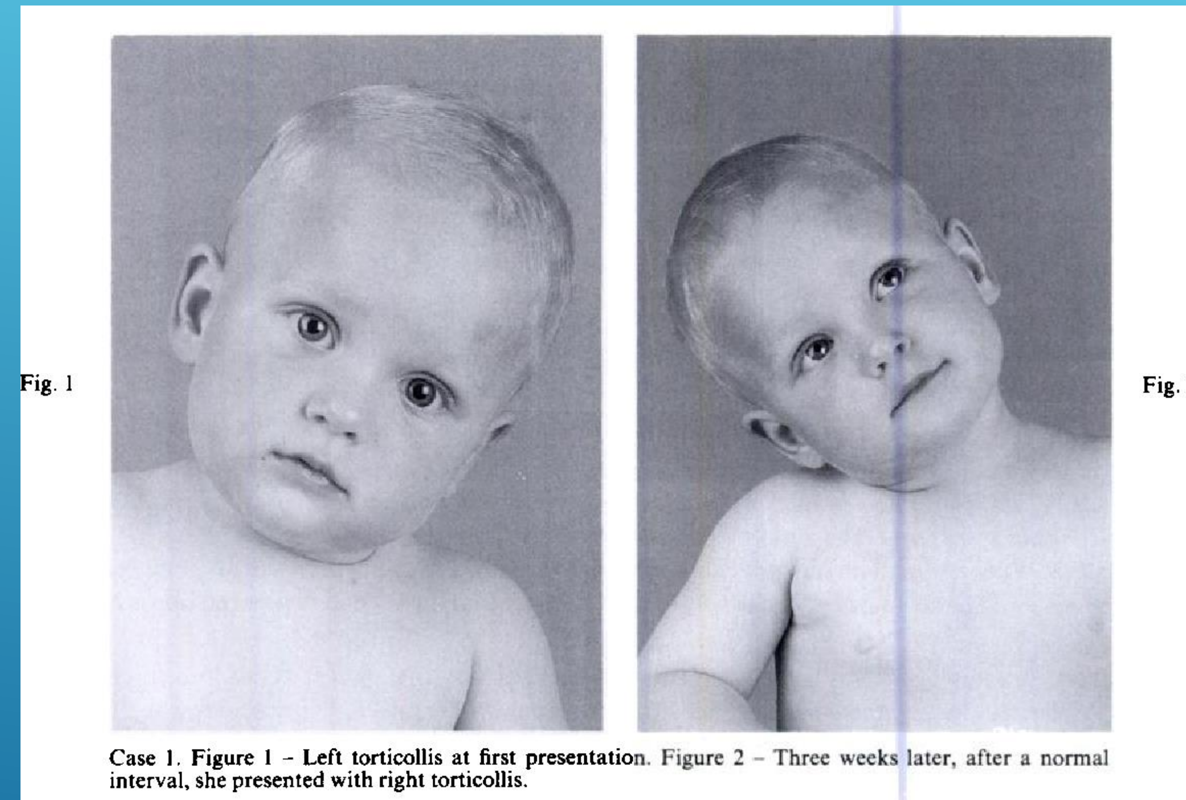


MIGRAINE: ABDOMINAL MIGRAINE

- Recurrent abdominal pain with nausea and vomiting
- Often no headache
- Sleep relieves
- Can alternate with typical migraine
- Develops adult migraine
- Rx Migraine prophylaxis

MIGRAINE: PAROXYSMAL TORTICOLLIS OF INFANCY

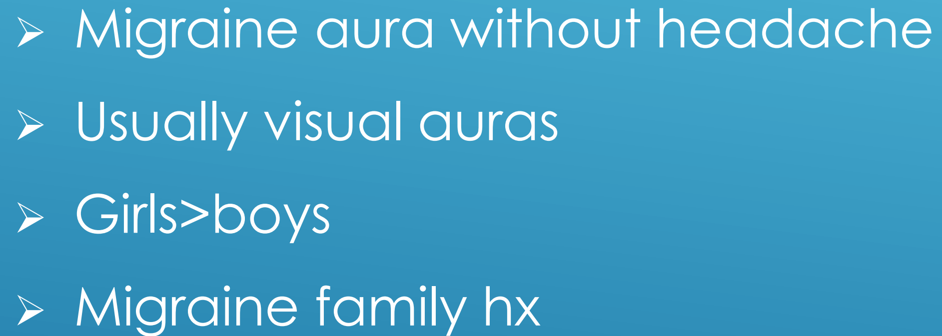
- Uncommon
- Repeated episodes of headtilt
- With nausea vomiting and headache
- Infants
- Minutes to days
- DDX: Post Fossa
- CACNA1A Gene



Case 1. Figure 1 – Left torticollis at first presentation. Figure 2 – Three weeks later, after a normal interval, she presented with right torticollis.

Published in The Journal of bone and joint surgery. British volume 1992
Benign paroxysmal torticollis of infancy. H. Bratt, M. Menelaus

MIGRAINE: ACEPHALGIC MIGRAINE OF CHILDHOOD



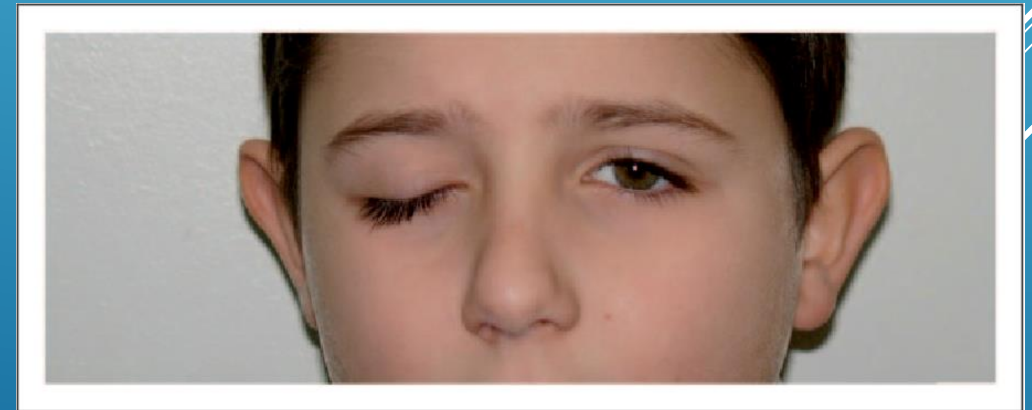
MIGRAINE: AURA

- 1/3 of adult and adolescent pts
- Retinal migraine-uncommon
- Monocular visual disturbance with migraine headache

Art inspired by migraine auras CREDIT: British Migraine Association

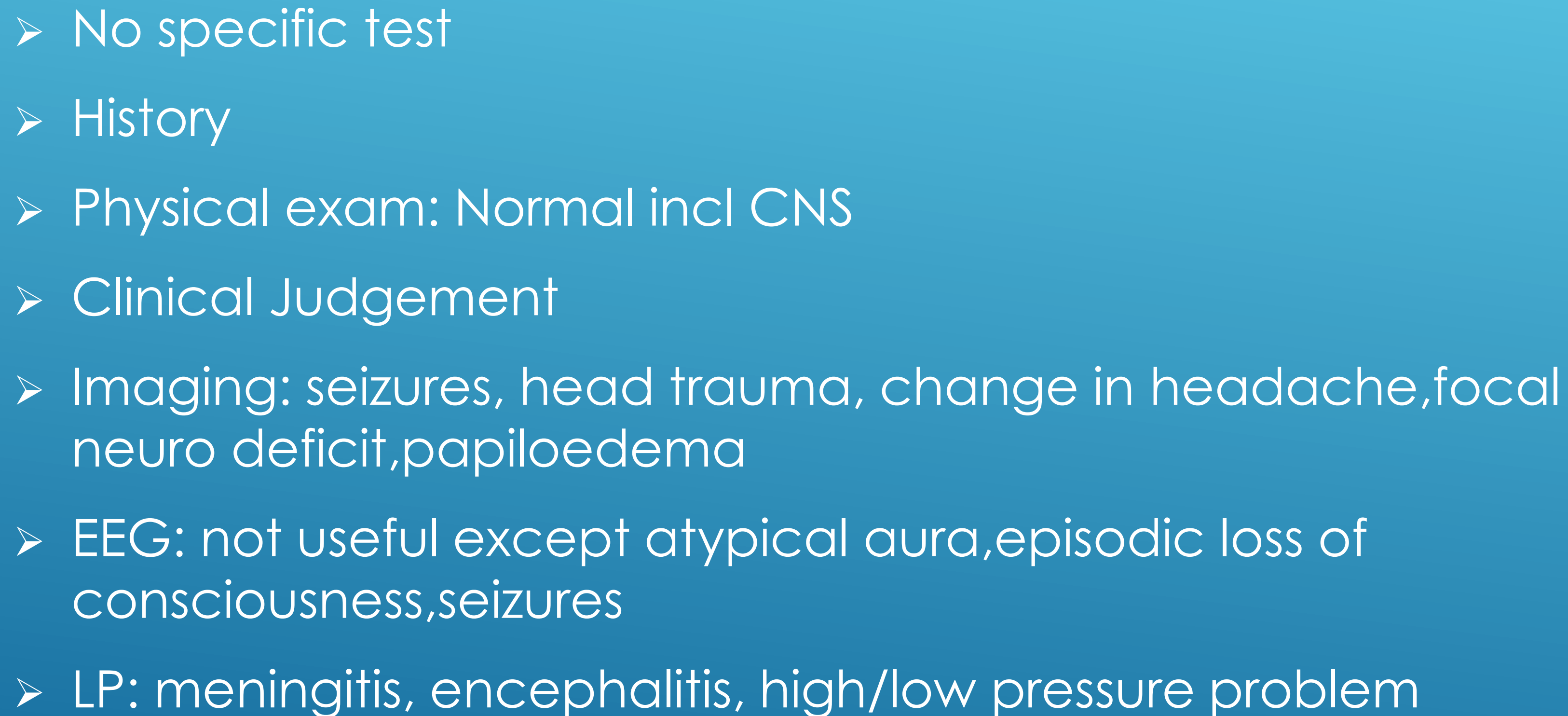
MIGRAINE: OPTHALMOPLEGIC MIGRAINE

- Inflammatory
- Opthalmoplegia- N III palsy unilat with headache
- MRI inflammation of N III
- Can last days
- Can be recurrent

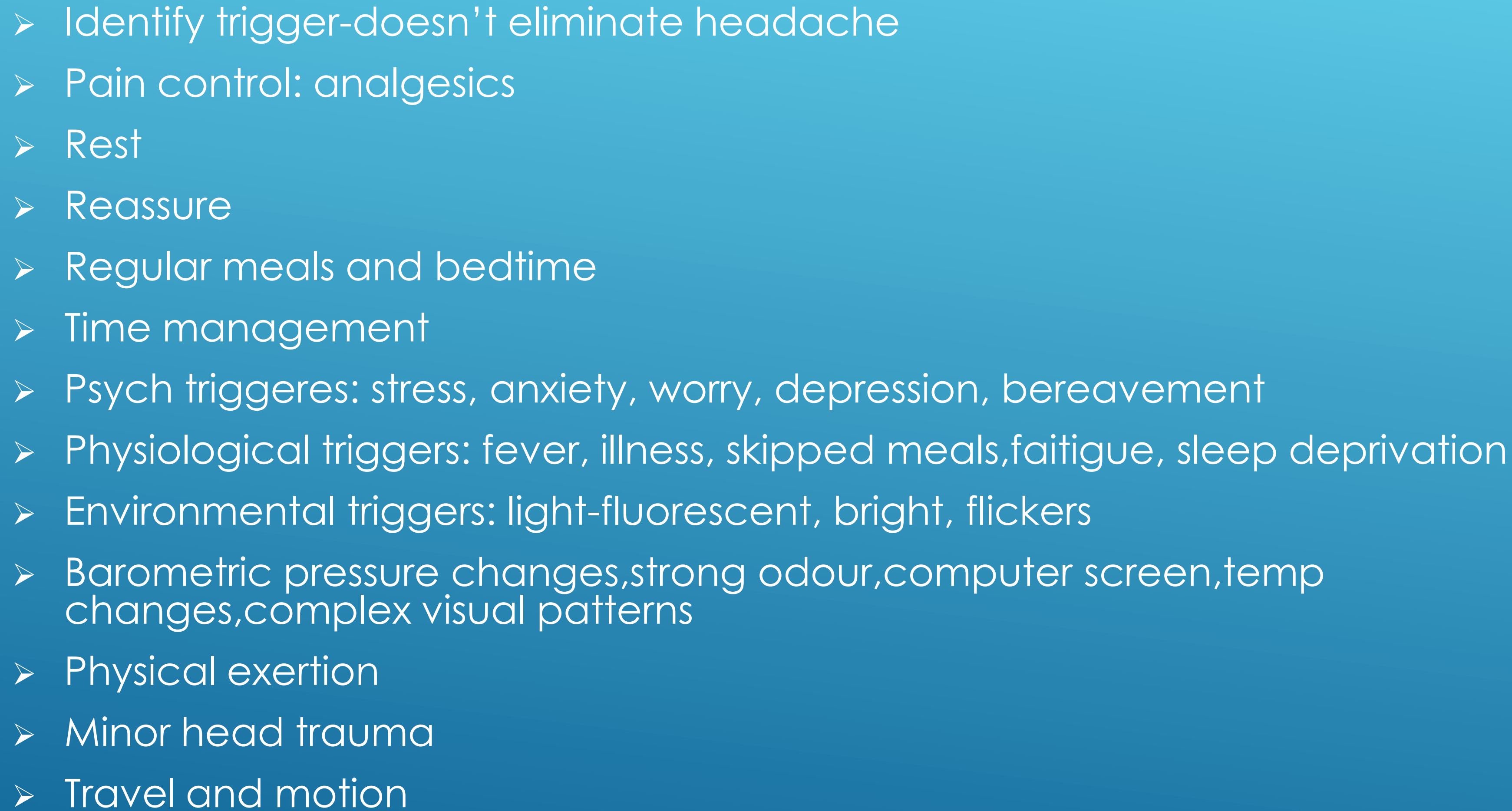


Published in Cephalalgia : an international journal of headache 2012
Ophthalmoplegic migraine: Migraine or oculomotor neuropathy? L. Margari, A. R. Legrottaglie, F. Craig, M. Petruzzelli, U. Procoli, F. Dicuonzo

MIGRAINE: EVALUATION AND DIAGNOSIS



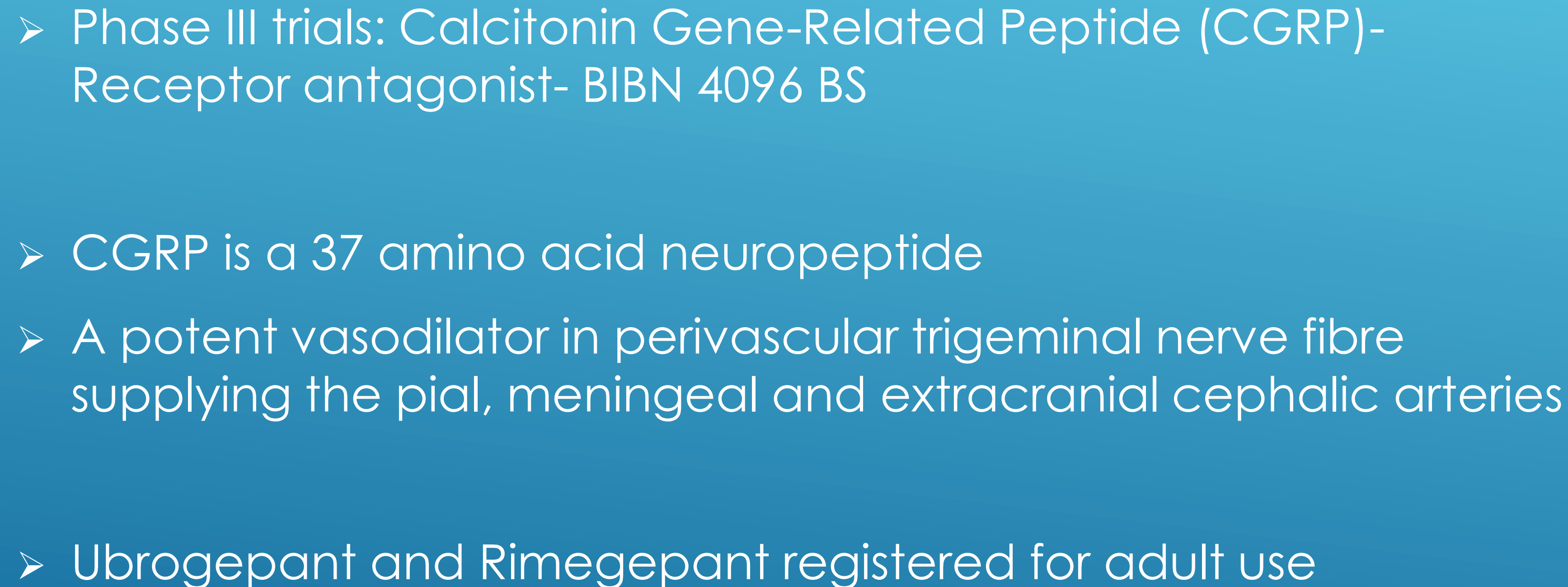
MIGRAINE: MANAGEMENT AND PROGNOSIS



MIGRAINE: MANAGEMENT AND PROGNOSIS

- Sleep: cool dark quiet
- Ice or pressure: temporary relief
- Paracetamol
- NSAIM: Ibuprofen early-migraine gives gastric stasis
- Oral 25-100 mg po/ **Nasal 5-20 mg** in one nostril Sumatriptan
- Non Pharmacological: self relaxation, biofeedback,self hypnosis
- IV Fluid
- Antiementics: Metoclopramide/Prochlorperazine (better)
- Consider ergotamine/dihydroergotamine-vasoconstrictive-consider angio MRI before prescribing IV,nasal,oral
- >6 years: almotriptan,zolmitriptan,rizatriptan

MIGRAINE: MANAGEMENT AND PROGNOSIS

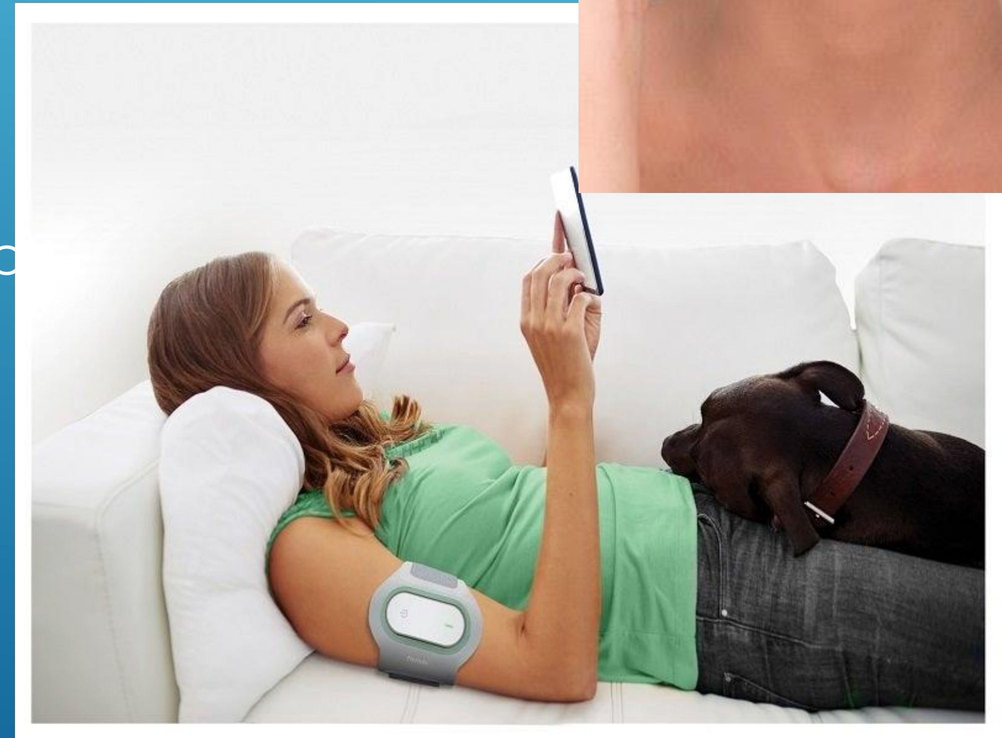


MIGRAINE: PROPHYLAXIS

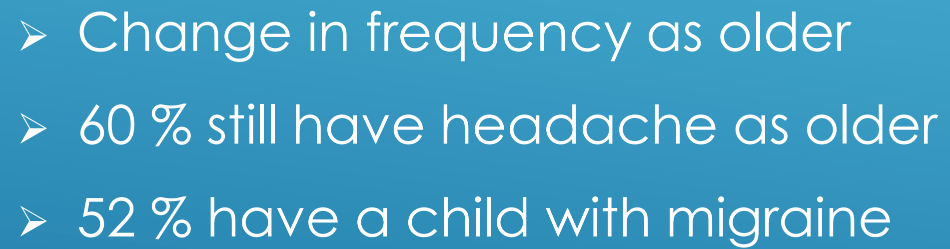
- Use daily to decrease frequency and severity
- 50% decrease in frequency considered good response
- Consider >2x per week/or prolonged and disabling
- Topiramate: best evidence
- Propranolol heart rate and orthostatic pressure monitor 3 monthly,beware asthmatics,DM,Depresion
- Cyproheptadine
- Amitriptyline
- Gabapentin
- Valproate
- Flunarizine
- Ca channel blockers: Verapamil , Cinnarizine, Flunarizine
- Riboflavin
- Onabotulinumtoxin A: approved in adults

MIGRAINE: PROPHYLAXIS IN ADULTS

- Gepants (Calcitonin gene-related peptide (CGRP) receptor antagonists
- Ditans (5HT1F receptor antagonists)
- Anti –CGRP monoclonal antibodies
- Nerivio-wearable neuromodulation devic
- Cefaly headband

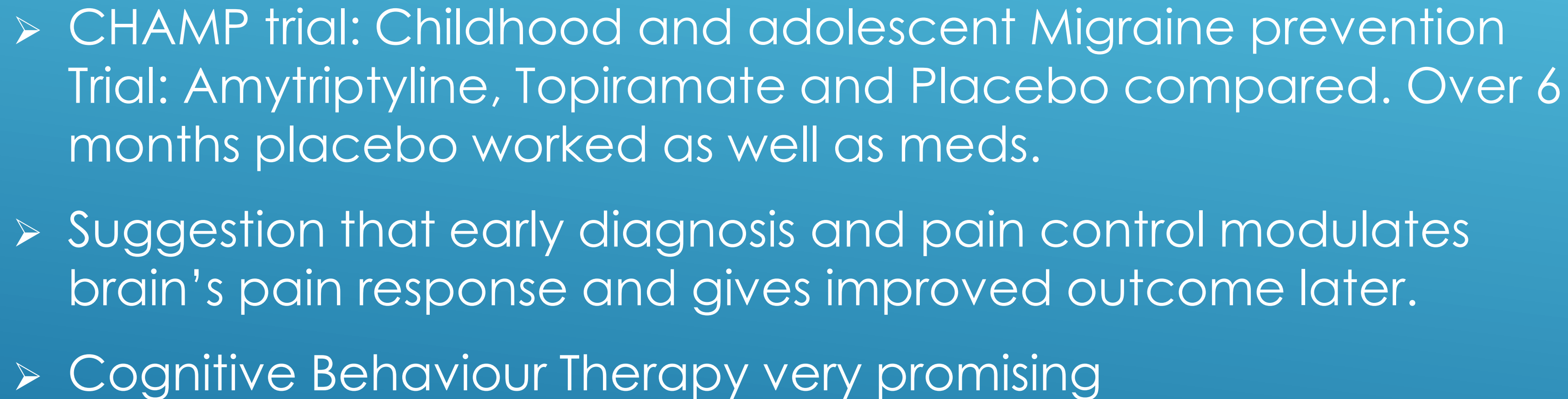


MIGRAINE: PROGNOSIS

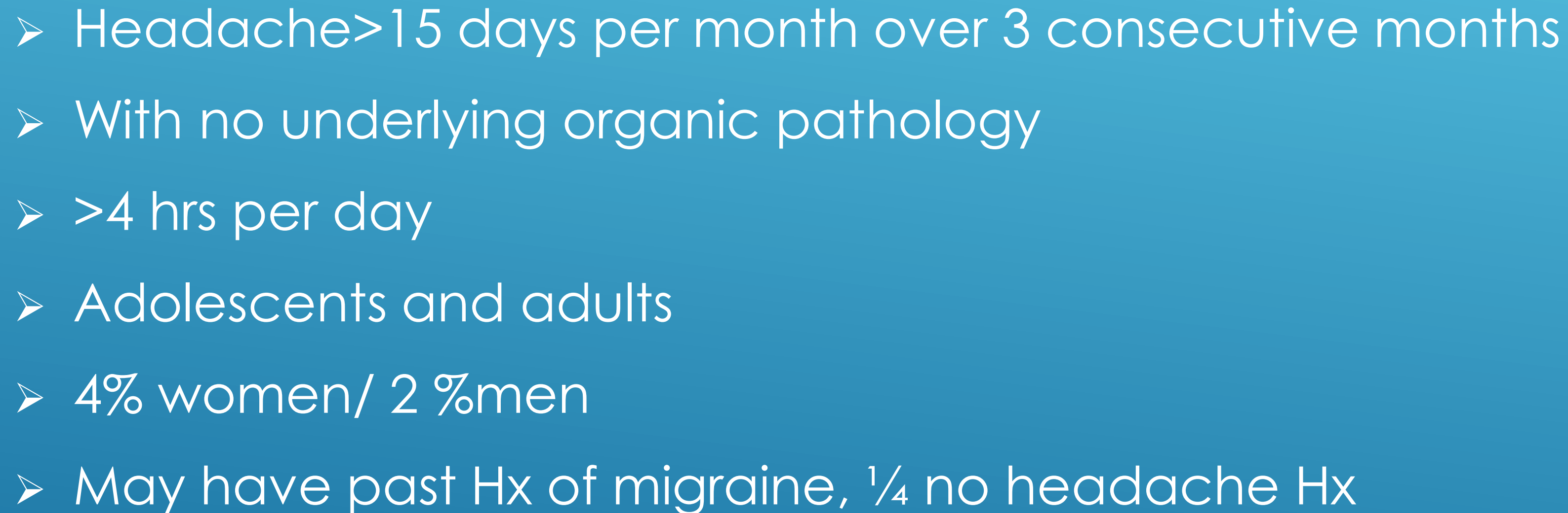


- Change in frequency as older
- 60 % still have headache as older
- 52 % have a child with migraine

MIGRAINE PLACEBO

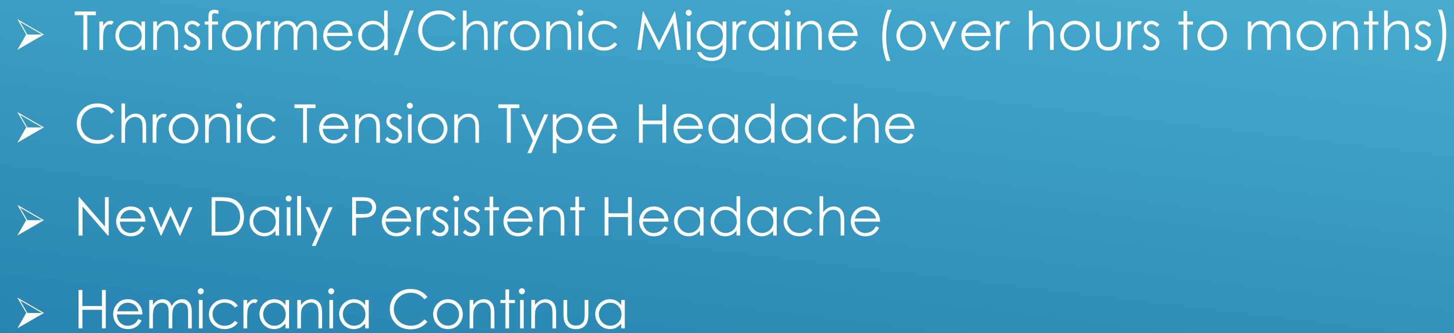


CHRONIC DAILY HEADACHE DISORDER



- Headache>15 days per month over 3 consecutive months
- With no underlying organic pathology
- >4 hrs per day
- Adolescents and adults
- 4% women/ 2 %men
- May have past Hx of migraine, ¼ no headache Hx

CHRONIC DAILY HEADACHE DISORDER: 4 TYPES



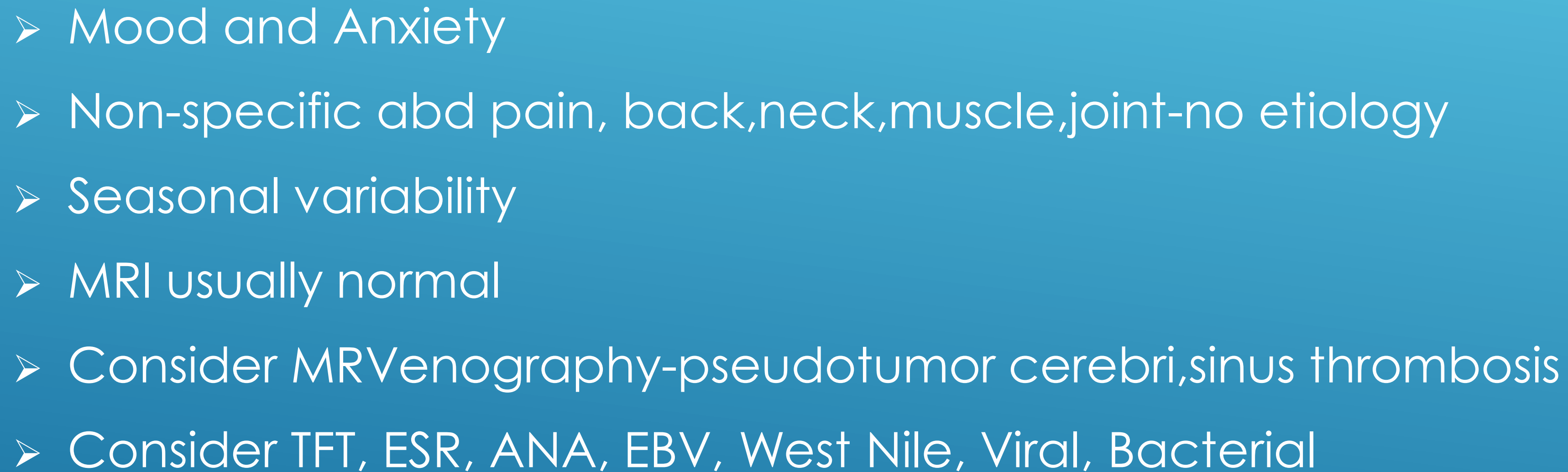
CHRONIC DAILY HEADACHE DISORDER:

- 2 types of Headache

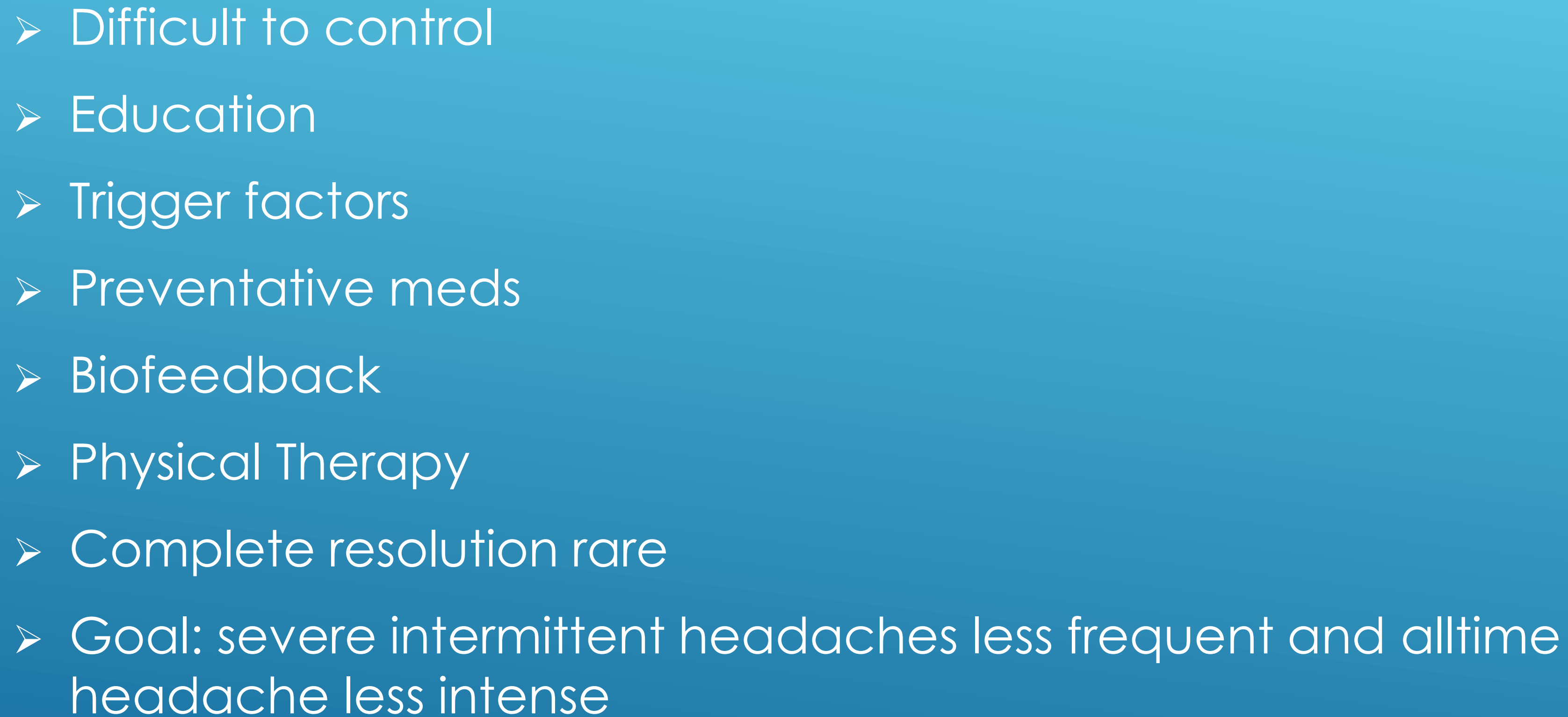
1. Prominent severe throbbing migraine like pancephalic/frontal
2. Persistent headache when awake wax and wane 24/7,less intense, band, crushing

- Sleep improves headache
- Weak Dizzy, unsteady
- Blurry, loss of vision
- Syncopy/nearsyncopy after standing several minutes
- No vertigo except severe headache episodes
- Diff in BP standing and seated

CHRONIC DAILY HEADACHE DISORDER:



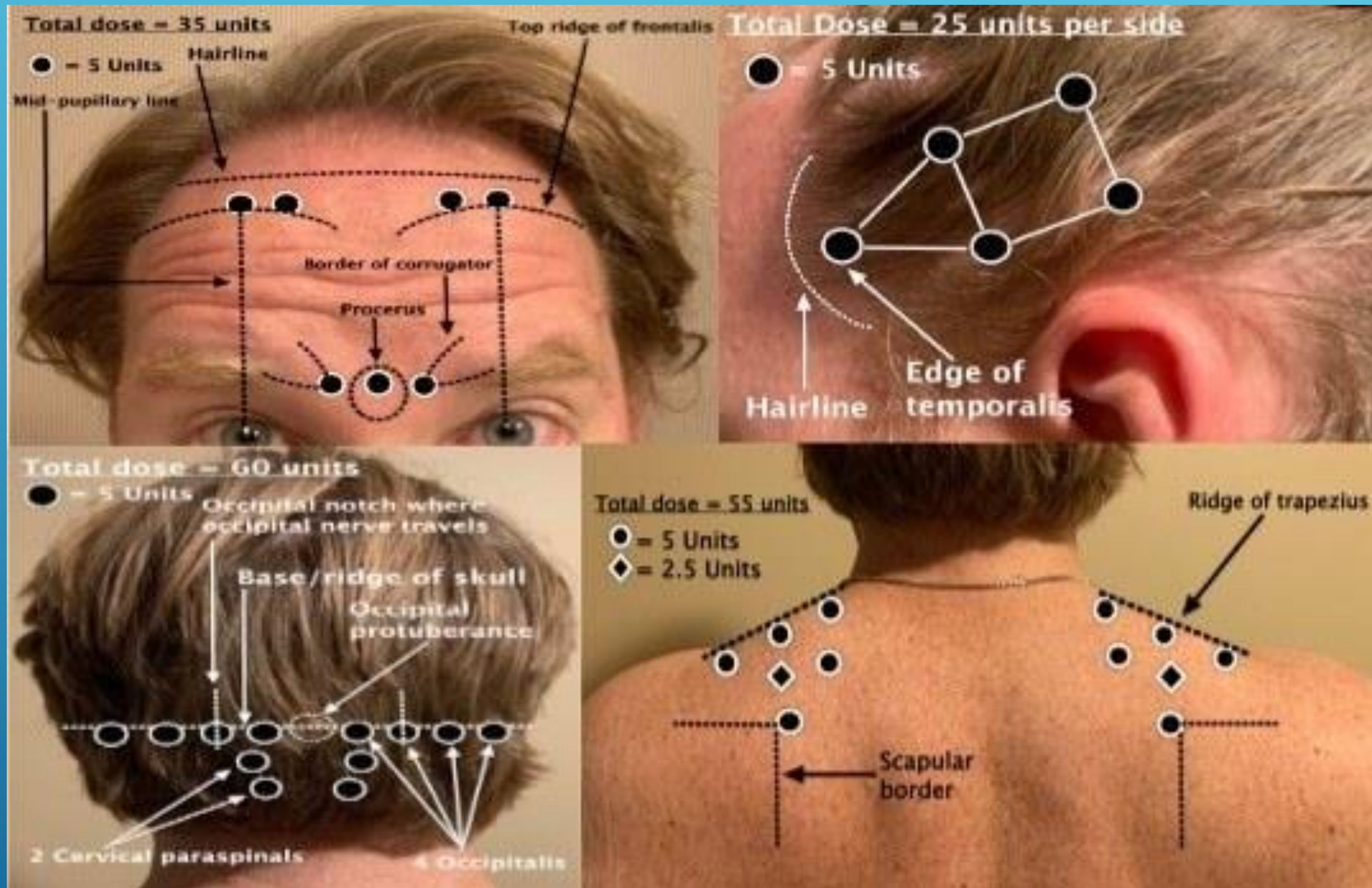
CHRONIC DAILY HEADACHE DISORDER: RX AND PROGNOSIS



CHRONIC DAILY HEADACHE DISORDER: RX AND PROGNOSIS

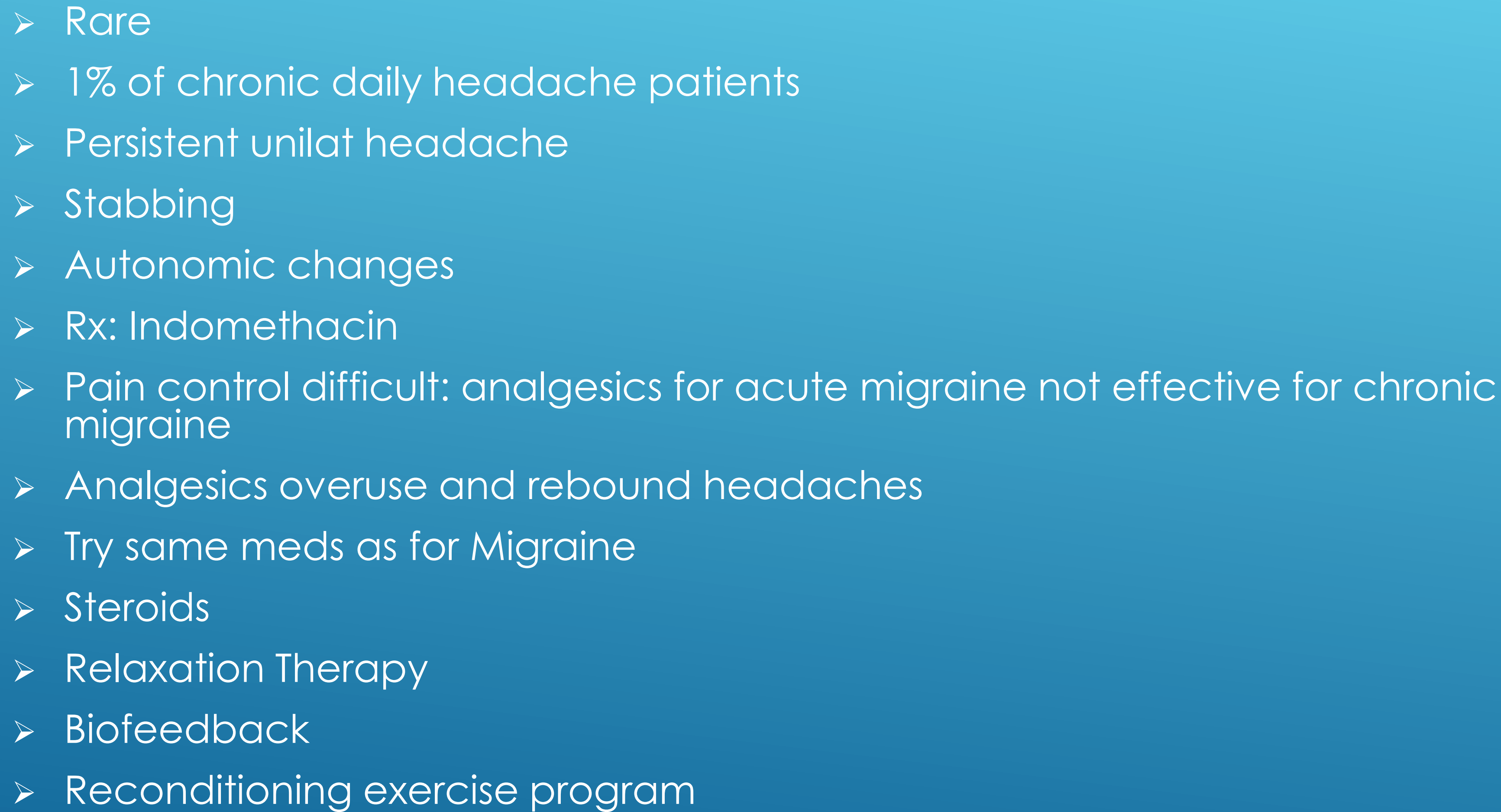
- Rx:
- SSRI-good effect on mood too
- Tricyclic antidepressants; Amitriptyline, Nortriptyline,Protriptyline
- Anticonvulsants: Valproate, Topiramate, Gabapentin
- Botox

CHRONIC DAILY HEADACHE DISORDER: RX AND PROGNOSIS



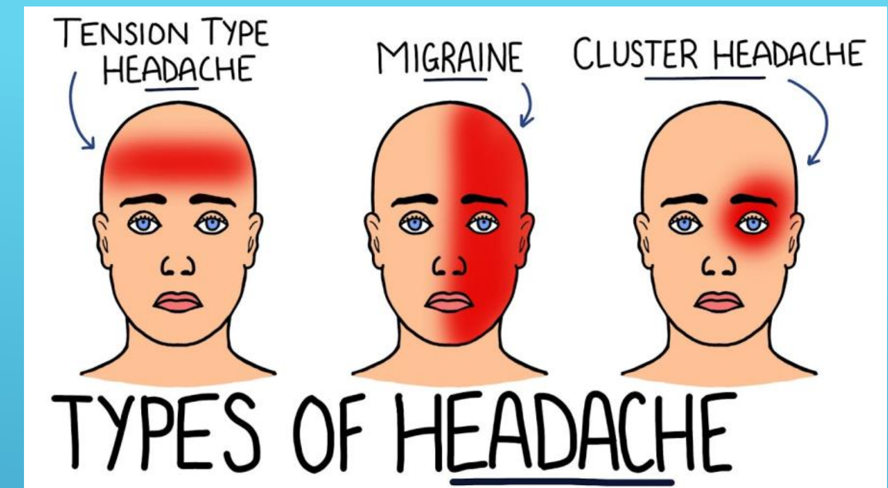
BOTOX (OnabotulinumtoxinA) FOR CHRONIC MIGRAINE; EFFECTIVE PATTERN, TECHNIQUE, AND WHAT YOU NEED TO KNOW. NOT ALL BOTOX TREATMENTS ARE CREATED EQUAL. Dr. Eric Baron
November 24, 2020, The headache Specialist

HEMICRANIA CONTINUA



- Rare
- 1% of chronic daily headache patients
- Persistent unilat headache
- Stabbing
- Autonomic changes
- Rx: Indomethacin
- Pain control difficult: analgesics for acute migraine not effective for chronic migraine
- Analgesics overuse and rebound headaches
- Try same meds as for Migraine
- Steroids
- Relaxation Therapy
- Biofeedback
- Reconditioning exercise program

TENSION TYPE HEADACHE



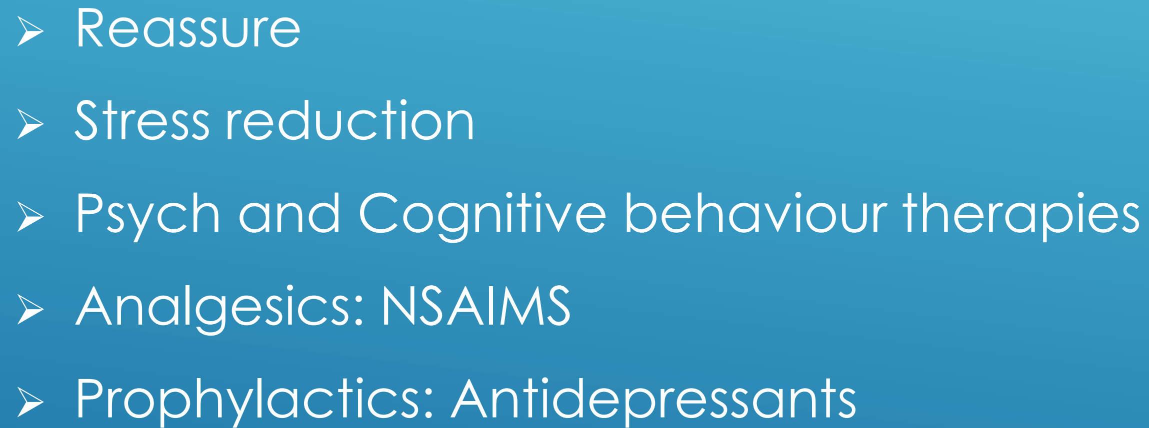
- Most common headache in children: Migraine and Tension-73%
- 5-12 yrs onset
- Girls>Boys
- Not familial Hx
- Pathophysiology may involve trigeminal activation

TENSION TYPE HEADACHE: CHARACTERISTICS

- Variable Intensity
- Bilateral
- Dull
- Pressure pain
- Phonophobia +-
- Minutes to days

1) Episodic: < 1 x per month
2) Frequent: 1-14/7 per month
3) Chronic:>15/7 per month

TENSION TYPE HEADACHE: MANAGEMENT



TRIGEMINAL AUTONOMIC CEPHALAGIAS

- Repetitive,brief
- Severe
- Unilat
- Neuralgiform pain with ipsilateral autonomic features
- Rhinorrhea, nasal congestion
- Lacrimation
- Conjunctival injection
- Types

1. SUNCT
2. Cluster headaches
3. Paroxysmal Hemicrania

TRIGEMINAL AUTONOMIC CEPHALAGIAS: SUNCT

- SUNCT: Shortlasting Unilateral Neuralgiform Conjunctival injection and Tearing, up to 100x per day, triggers touch face, chewing

TRIGEMINAL AUTONOMIC CEPHALAGIAS: CLUSTER HEADACHES

- Boys>girls
- <1% adults
- >5yr onset
- Pathophysiology theory: hypothalamic activation with neurogenic inflammation
- Several bouts per day lasting weeks
- Circadian Rhythmicity
- Severe unilat orbital, supraorbital, temporal pain
- 15 mins-3 hrs with autonomic features
- Familial predisposition
- CT/MRI should be done to exclude brain lesion

Cluster headaches may involve pain around one eye, along with drooping of the lid, tearing and congestion on the same side as the pain

TRIGEMINAL AUTONOMIC CEPHALAGIAS: CLUSTER HEADACHES

- Rx:
- Verapamil
- Oxygen
- Triptans
- Steroids
- Triggers:smoke alcohol

TRIGEMINAL AUTONOMIC CEPHALAGIAS: PAROXYSMAL HEMICRANIA

- Rare
- Short episodes-minutes
- More frequent but less severe than cluster headache
- Indomethacin

ICE PICK HEADACHE

- Benign Primary Headache Disorder
- Sudden Icepick-like pain
- Seconds to minutes
- Different parts of head
- Migraine pt often
- Infrequent and mostly no Rx needed-Indomethacin

BIBLIOGRAPHY

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When I get
a headache.
I take 2
aspirins and
keep away
from children
just like it
says on the bottle!

THANK YOU

Hey, my
migraine is gone.