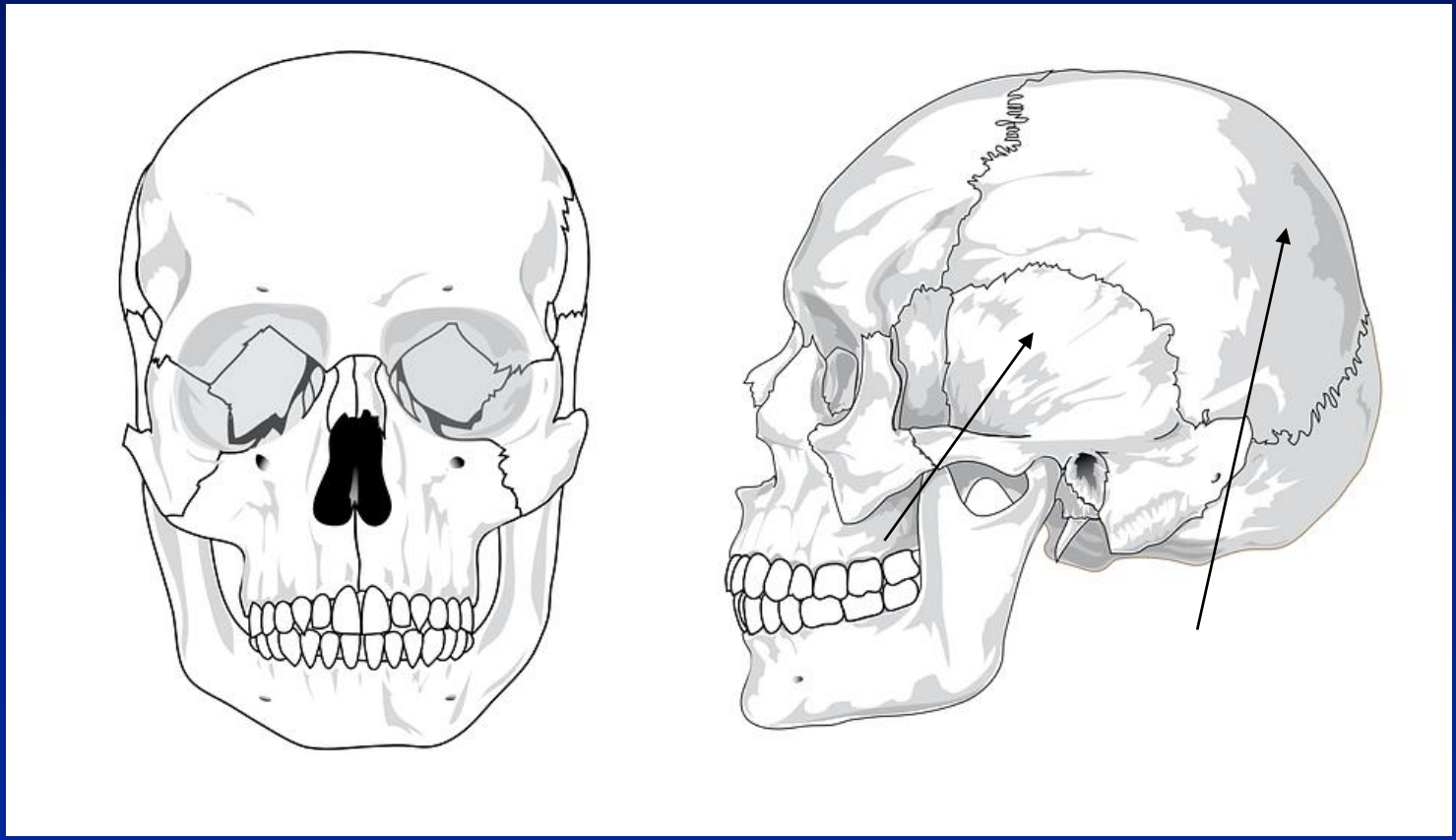
Migraine and other headaches

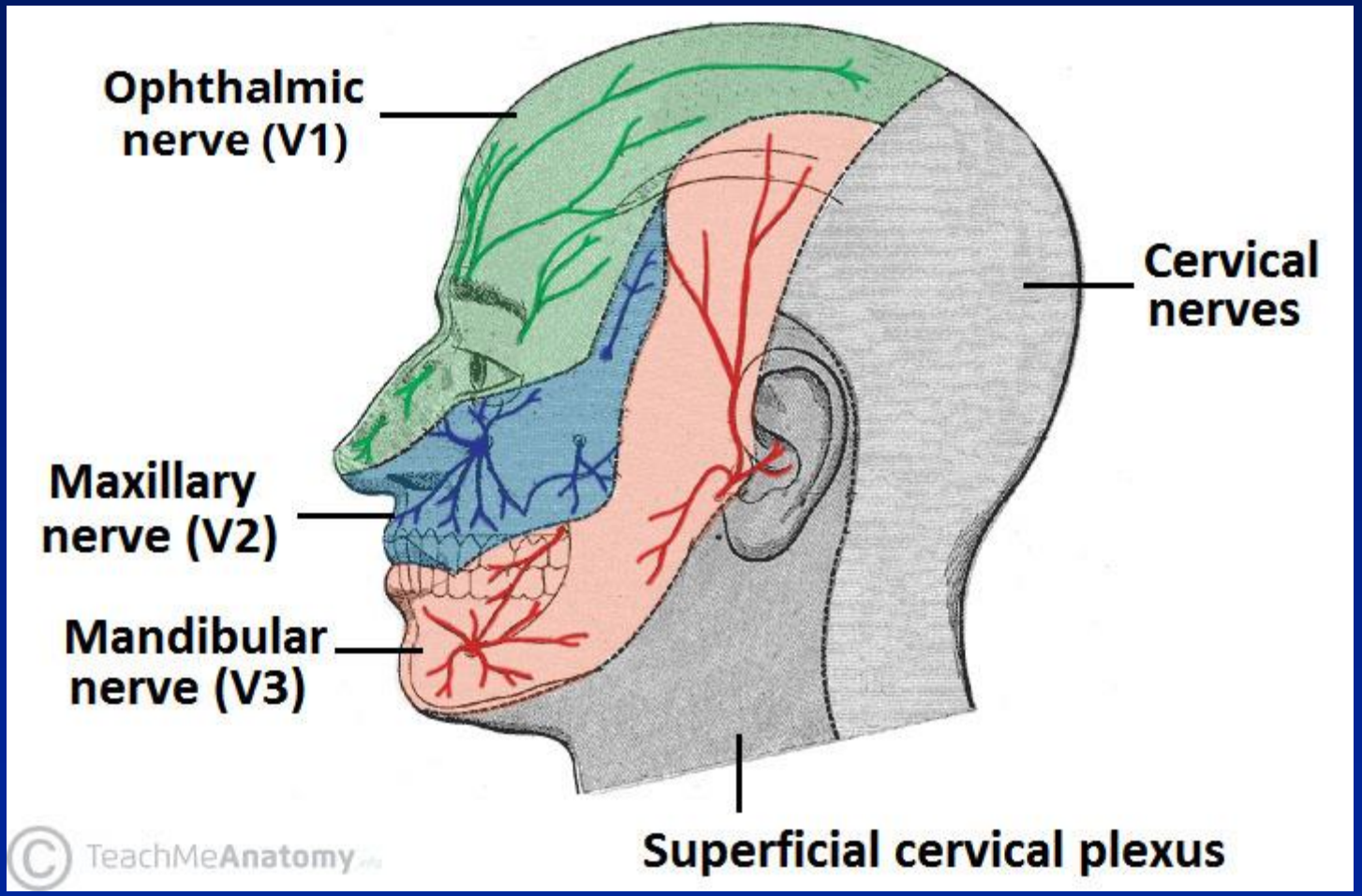
Dr David Kernick
Exeter Headache clinic

Outline

- Where does headache come from?
- Epidemiology
- Classification
- Management



HEADACHE – pain from cranium that can be reffered to or from the neck and face

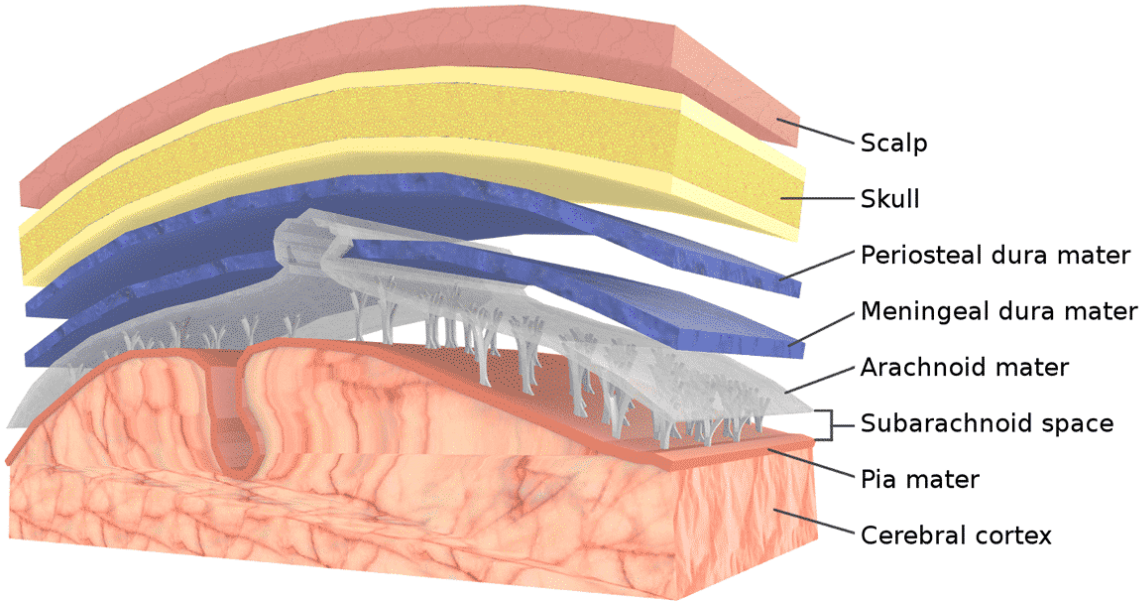


Extra cranial origin

Where does the pain come from?
Extra - cranial

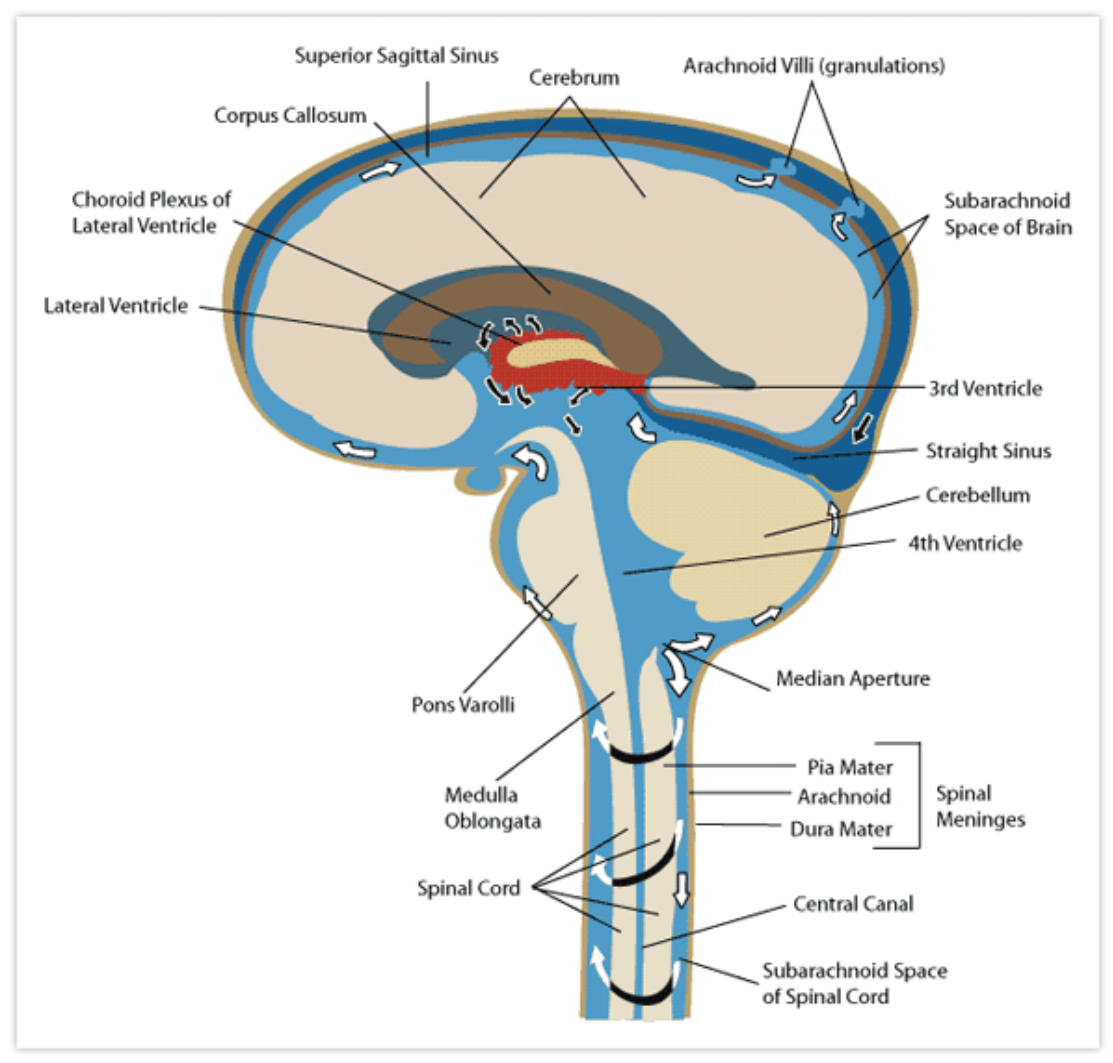
- Arteritis
- Neuralgia
- Muscle tension
- Facial structures

Meninges



Intra cranial pain

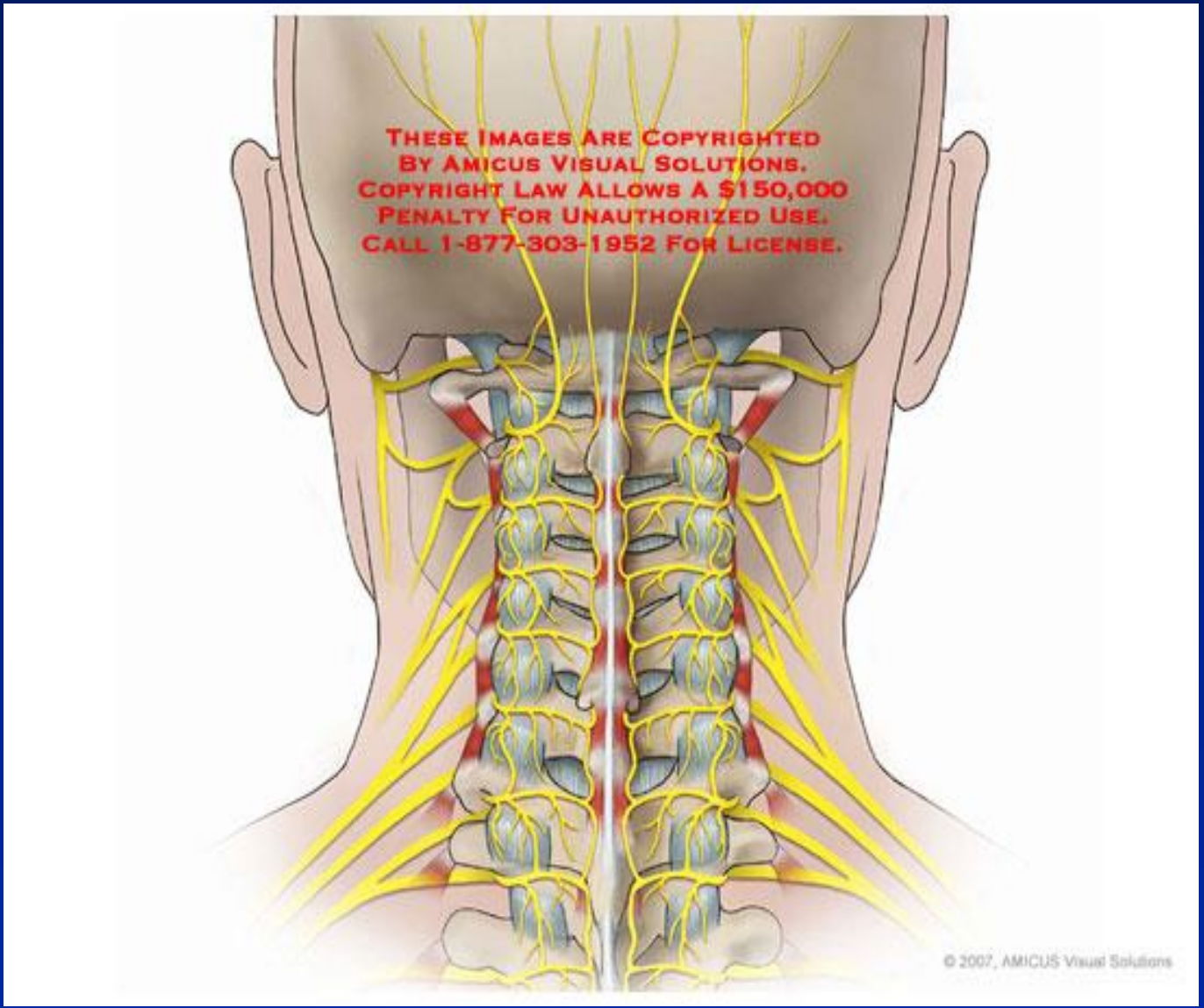
image via: thoughtco.com



CSF – 20 mls/hr, 150 mls capacity

Where does the pain come from?
Intra – cranial (dural pain fibres)

- Tension – raised intracranial pressure
- Compression – tumour
- Inflammation - migraine,meningitis,blood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From neck

Migraineur on metopralol. Uses salbutamol inh 5 times a week.

Classification of β-blockers

- Nonselective (β1 and β2)
- a. Without intrinsic sympathomimetic activity
- Propranolol, Sotalol, Timolol.
- b. With intrinsic sympathomimetic activity
- Pindolol
- c. With additional α blocking property
- Labetalol, Carvedilol

- Cardioselective (β1)
- Metoprolol, Atenolol, Acebutolol, Bisoprolol, Esmolol, Betaxolol, Celiprolol, Nebivolol

Respiratory effect of beta-blockers in people with asthma and cardiovascular disease: population-based nested case control study

Daniel R. 2017

35,502 with active asthma and CVD

14.1% and 1.2% were prescribed cardioselective and non-selective beta-blockers

Results

Beta-blocker use was not associated with a significantly increased risk of moderate or severe asthma exacerbations.

Conclusion

Cardioselective beta-blockers in asthma and CVD were not associated with a significantly increased risk of moderate or severe asthma exacerbations and potentially could be used more widely when strongly indicated.

Outline

- Where does headache come from?
- Epidemiology
- Classification
- Management

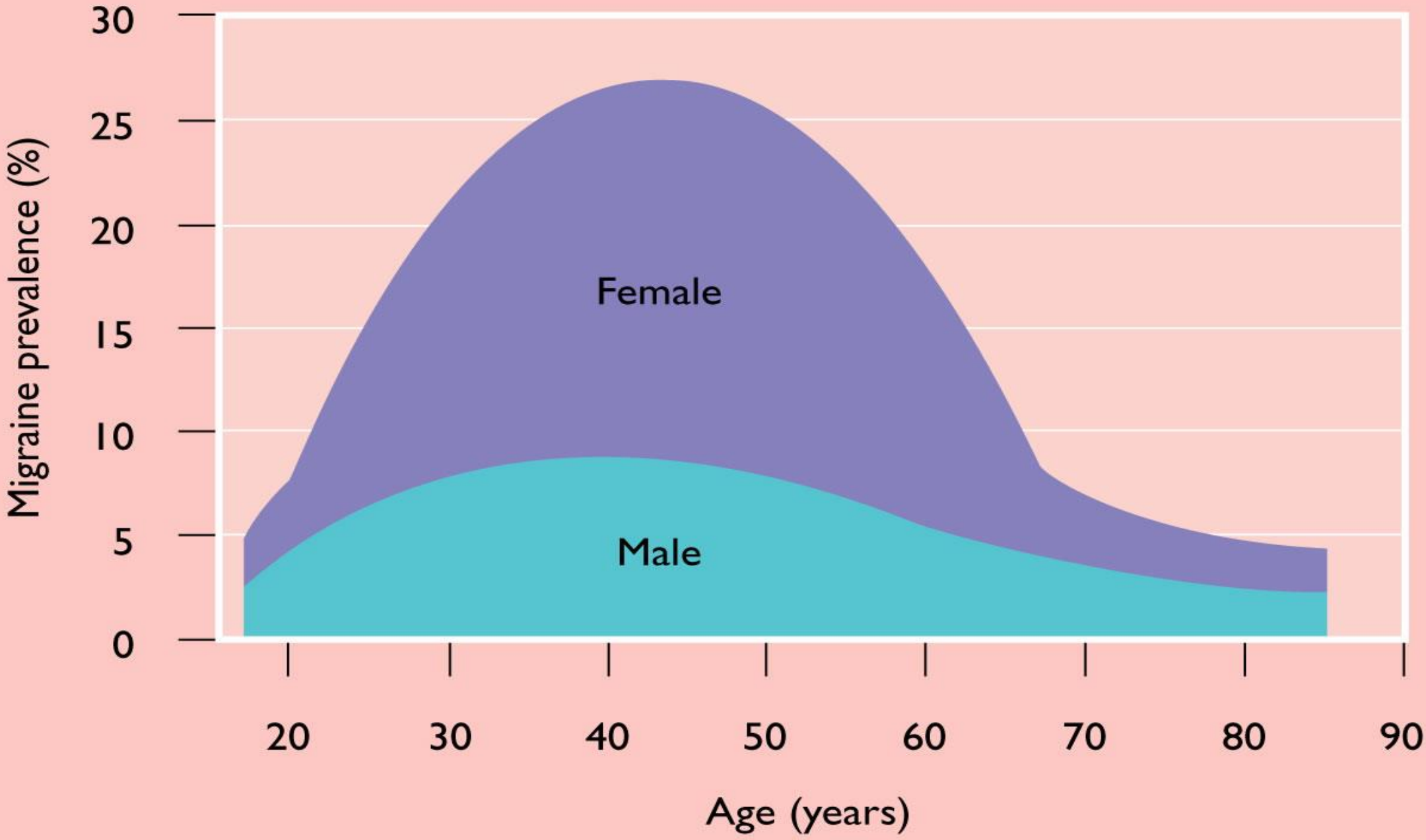
Epidemiology

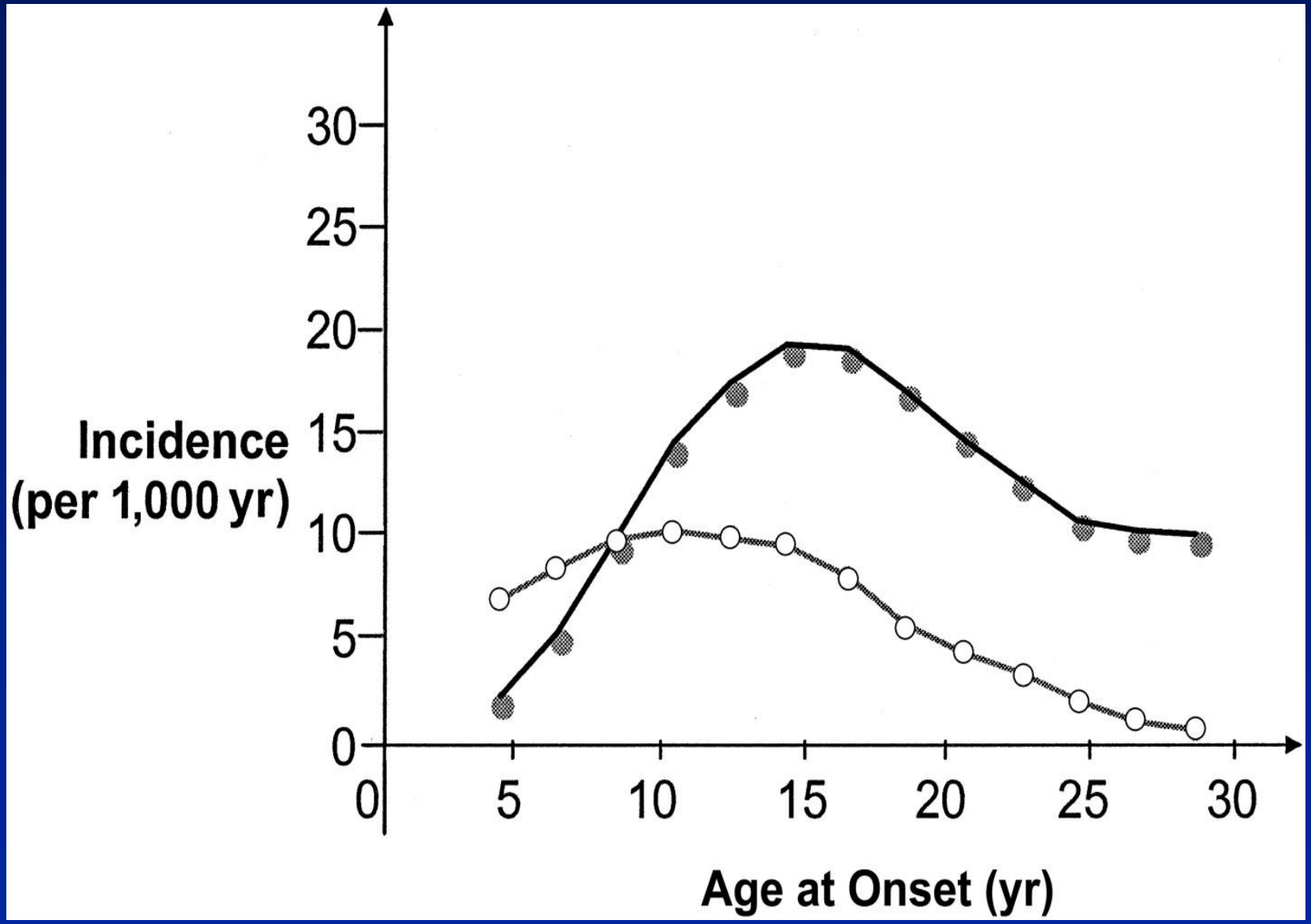
- Prevalence
- Incidence
- Impact – QoL, Economic
- Health seeking behaviour

Headache annual prevalence

- Population:

- Tension type 70%
- Migraine 12%,
- Cluster 0.1%


30
25
20
15
10
5
0
Migraine prevalence (%)
Female
Male
20
30
40
50
60
70
80
90
Age (years)



Annual Migraine incidence

Epidemiology

- Prevalence
- Incidence
- Impact – QoL, Economic
- Health seeking behaviour

National Challenge	Reference
Approximately 9 million people live with migraine in the UK	Migraine: the seventh disabler (Steiner et al 2013)
Migraine is the second leading cause of years lived with disability	Global Burden of Disease (The Lancet 2016)
25 million days lost from work or school each year in England because of migraine alone	The prevalence and disability burden of adult migraine in England and their relationships to age, gender and ethnicity. (Steiner et al 2003)

Headache impact

- 20% adult population – headache impacts on their quality of life Kernick 2001

Impact upon children

Kernick *BJGP* 2009

- 20% - 1 or more headaches each week, significant impact home or school

University new entrants Kernick 2002

- 1124 students
- 21% headache that impacted on life
- 13% > 15 days of the month
- 45% seen a GP
- <5% prescribed medications for headache

Epidemiology

- Prevalence
- Incidence
- Impact – QoL, Economic
- Health seeking behaviour

When people develop headache what do they think they have?

What do GPs think they have?

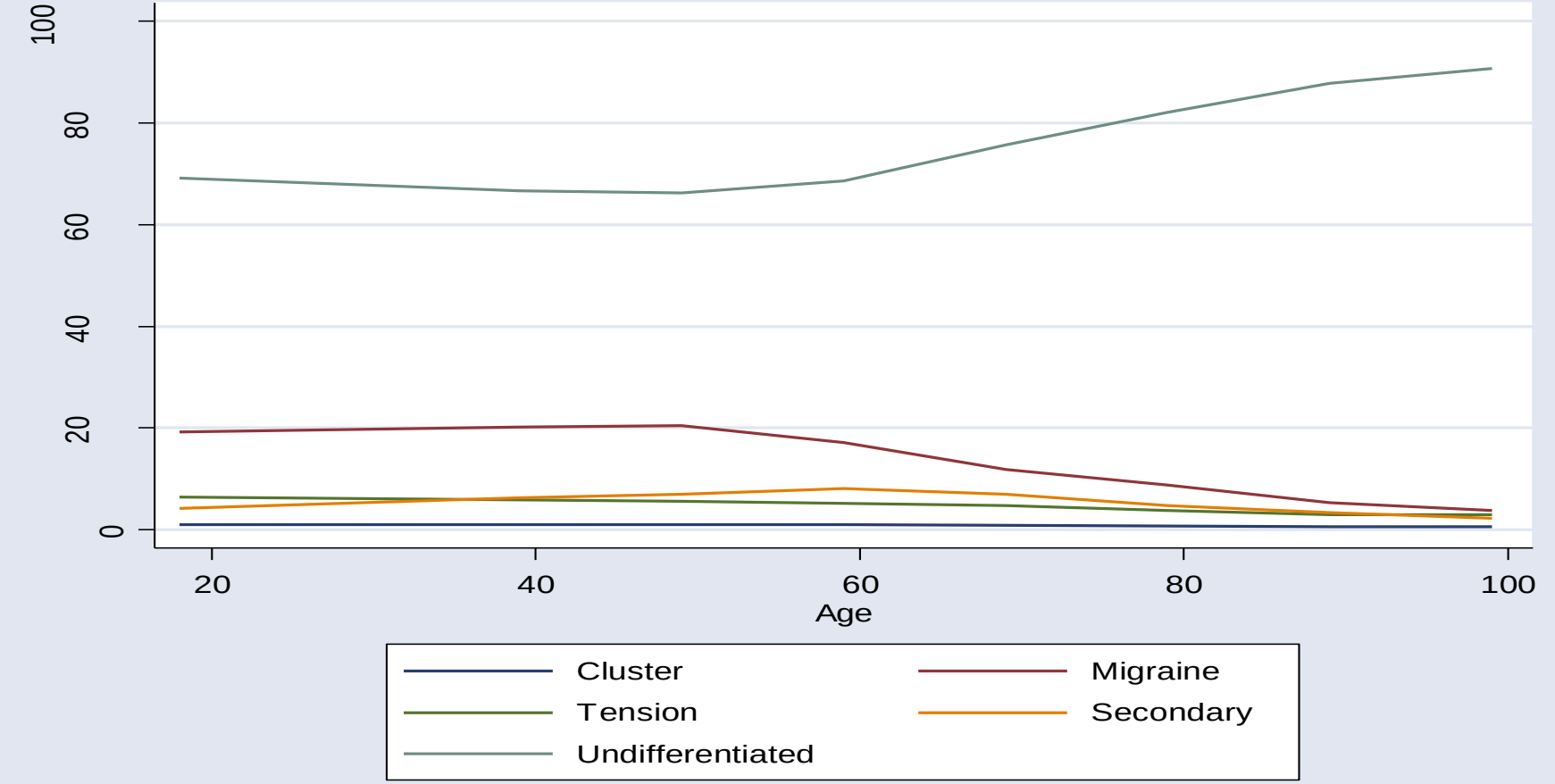
What do they actually have?

When people come to see you what do they think they have?

- Need glasses
- Blood pressure
- Brain tumour

What do GPs think when patients present with headache?

(Kernick 2008)



What do patients have when they present to GP with headache? Landmark Study

- 85% migraine
- 10% Tension type headache
- 5% secondary headache
- <1% other types of headache

What happens?

- Less than 50% migraineurs will see GP
- Less than 10% will receive Triptan

Walling 2006

- 10% of those who would benefit from prevention receive it

Rahimtoola 2005

What happens?

- 3% GP presentations are referred to secondary care (25% children)

(Loughey)

- 30% of neurology referrals are for headache

(Hopkins)

What do patients have when they present to A and E with headache? Valade 2000

Migraine	55%
TTH	25%
Cluster	7%
Trauma	1.6%
Trig Neuralgia	1.6%
Sinusitis	1.6%
Vascular disorders	1.2%
Low Pressure	1.2%
Meningitis	0.35%
Tumour	0.17%
Other Misc	< 5%

What is the unmet need in primary care?

Kernick *Journal of Headache and Pain* 2008

- < 50 % adults, <10% children see GP

Why don’t people seek help?

Why don’t people seek help?

- Can’t measure
- Only a headache
- Everyone gets them – natural
- No one takes me seriously
- Parents don’t want to reinforce illness behaviour - pattern their health seeking behaviour

How should we deliver headache services

- Self management
- GPs first line management
- GPSI support
- Tertiary headache centres

Outline

- Where does headache come from?
- Epidemiology
- Classification
- Management

IHS Headache classification

Primary

- Migraine
- Tension type
- Autonomic cephalalgias (cluster)

Secondary

- Traumatic
- Vascular
- Non-vascular (SOL)
- Substance induced
- Infection
- Disturbed homoestasis
- Facial structures

Headache Pathway

EXCLUDE A SECONDARY HEADACHE

- Do something now
- Do something soon

- DIAGNOSE A PRIMARY HEADACHE
- Exclude medication overuse and manage the primary headache

Headache Pathway

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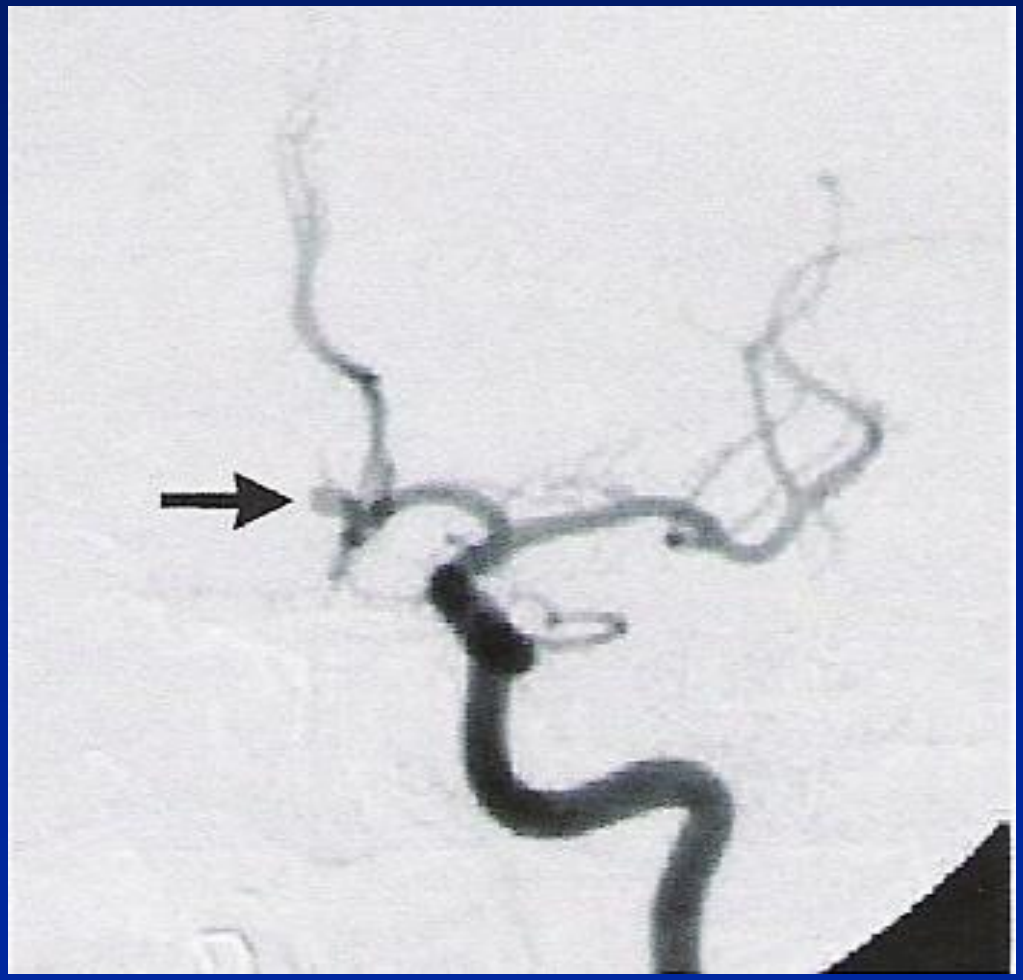
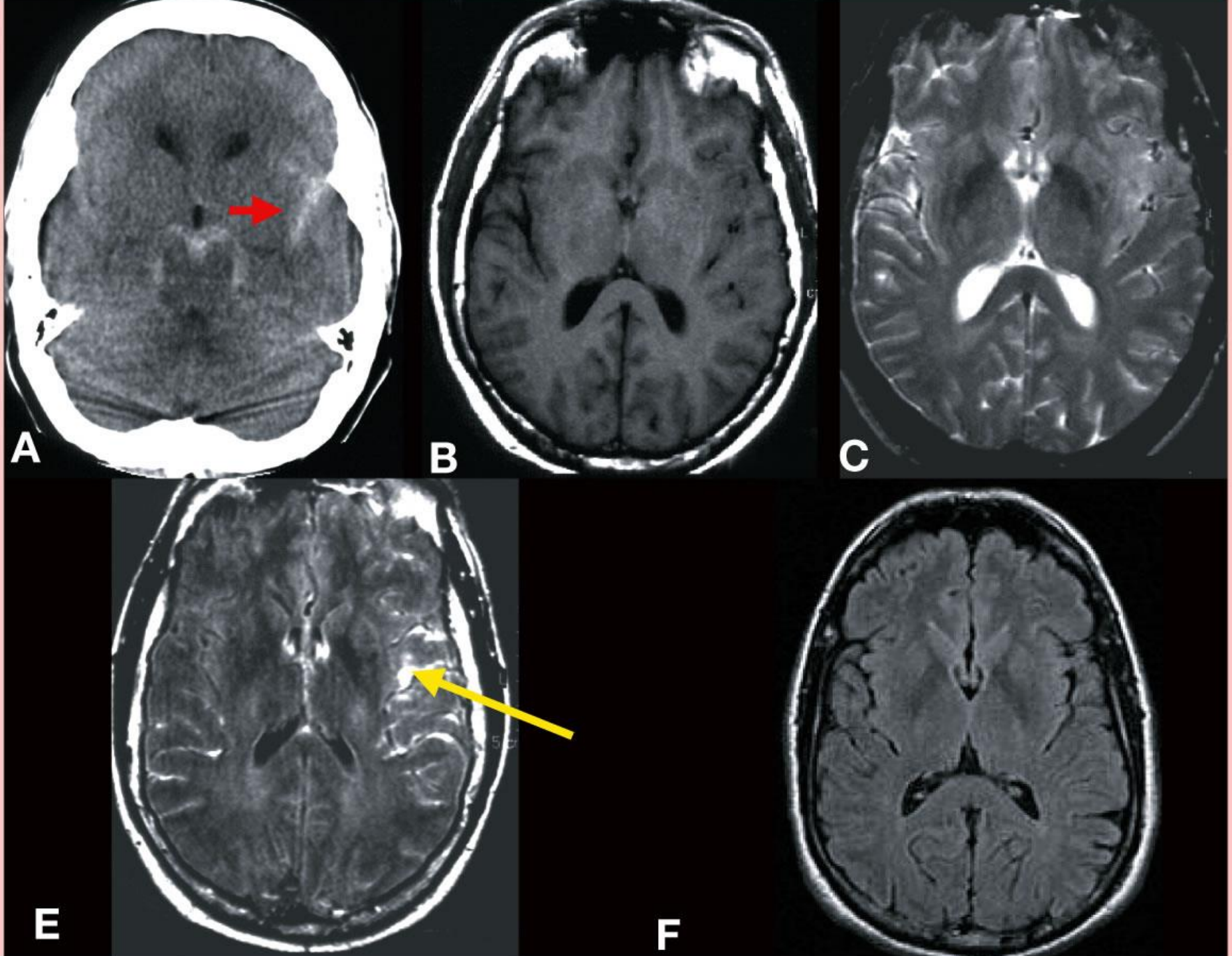
70 year old drug review

- Simvastatin
- Thyroxine
- Amlodipine
- Bendrofuazide
- Developed dull L sided headache. Gets pain in his jaw on eating. Should he see the dentist?

Sub Arachnoid - thunderclap headache

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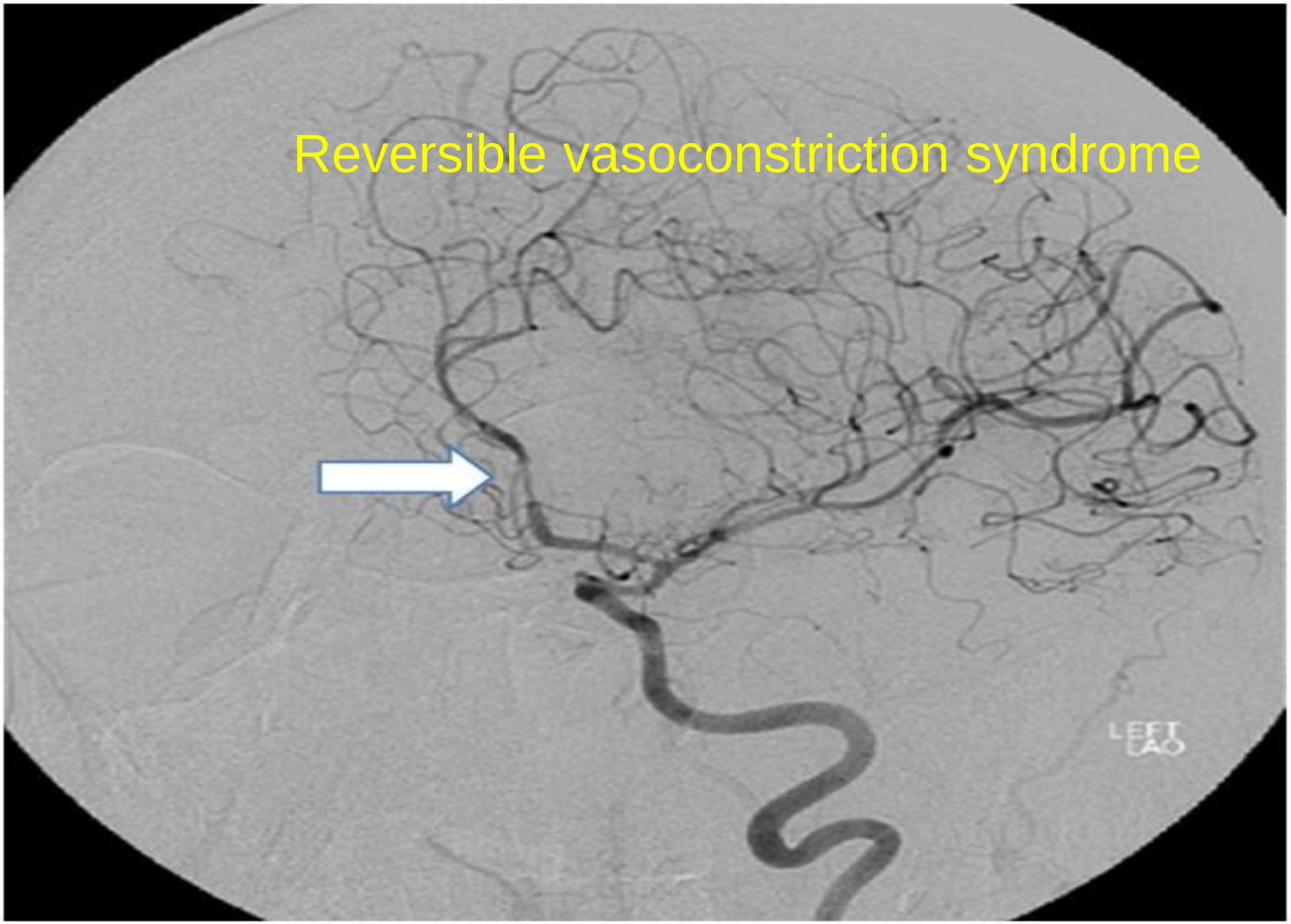
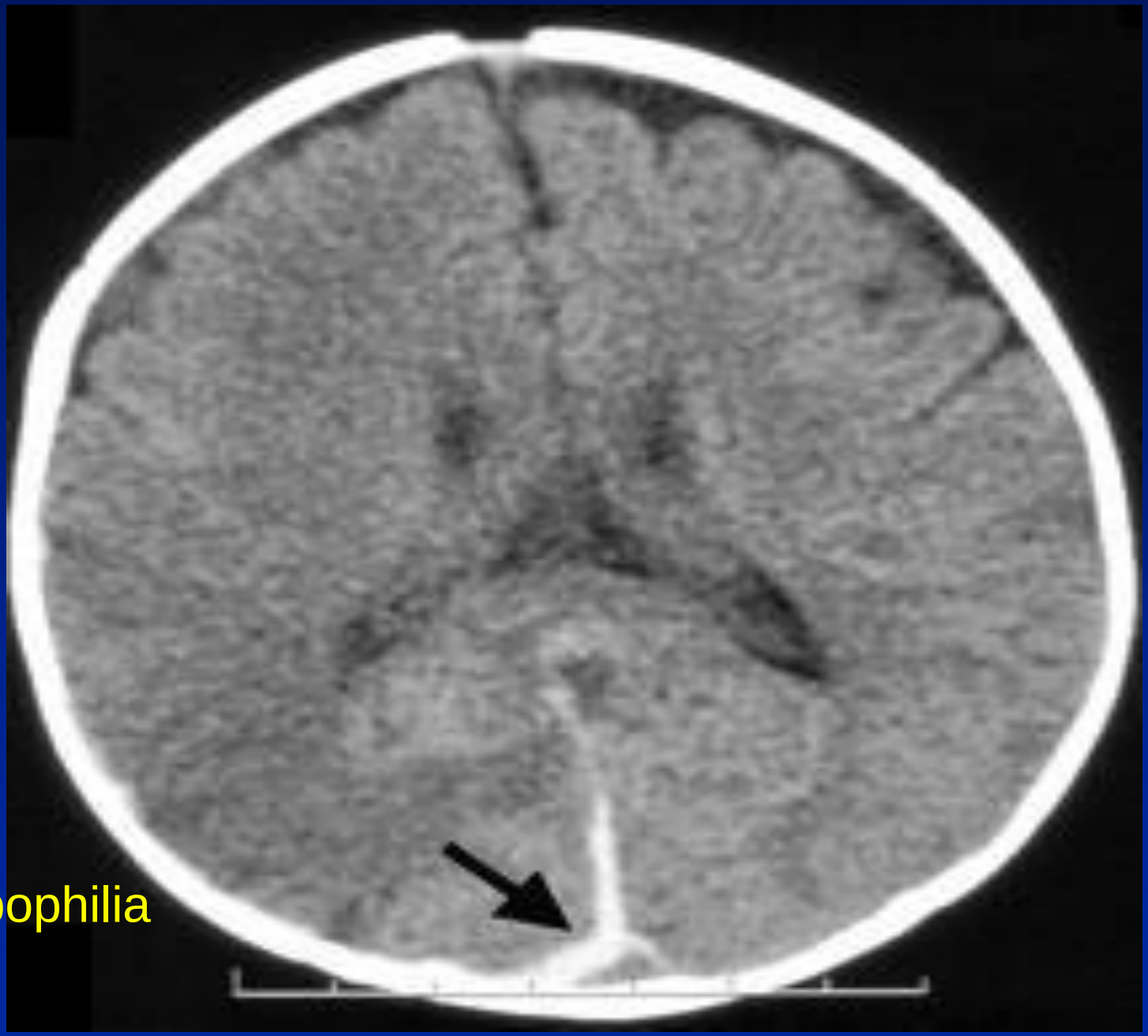
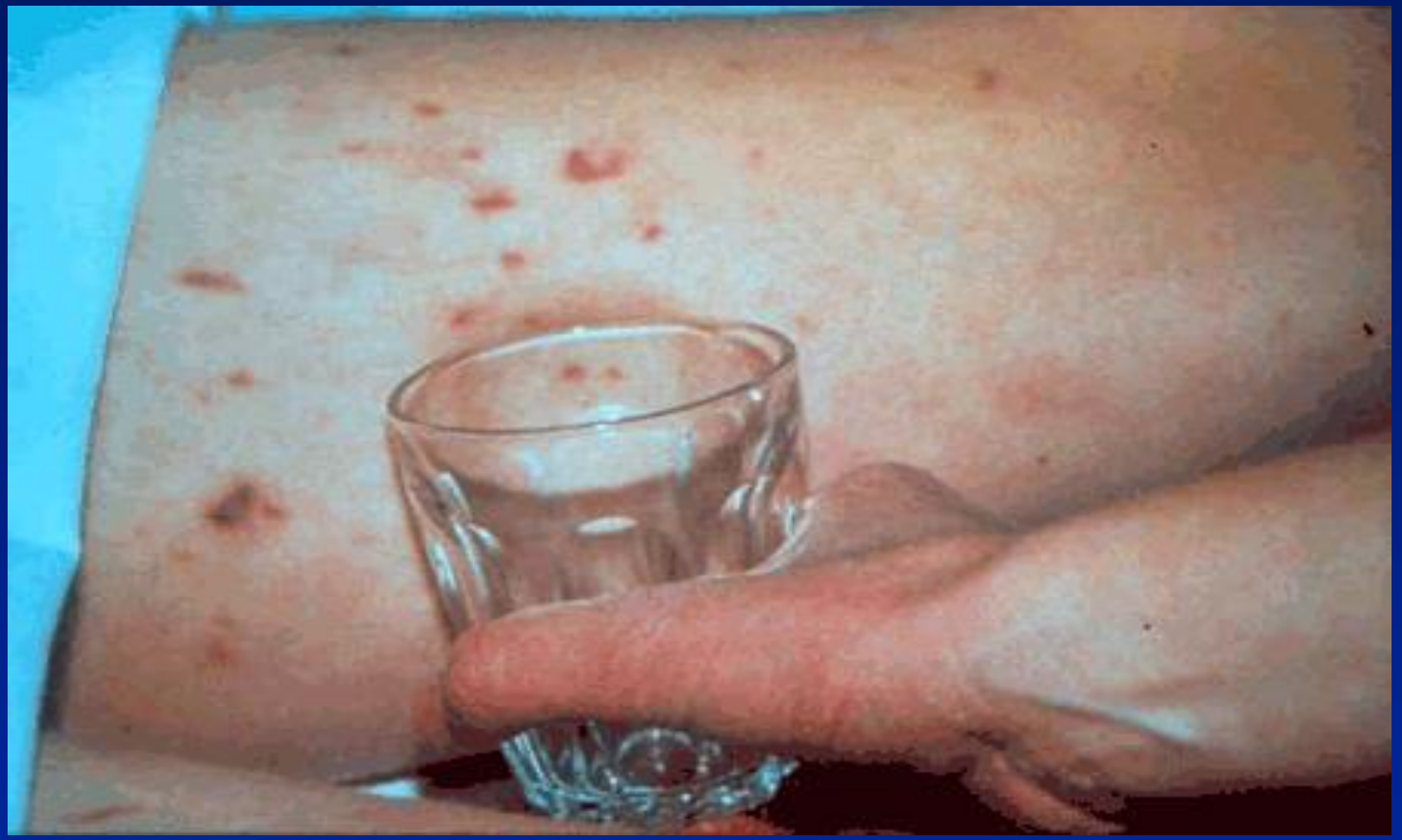


Vasoconstrictor drugs, SSRIs, Cannabis

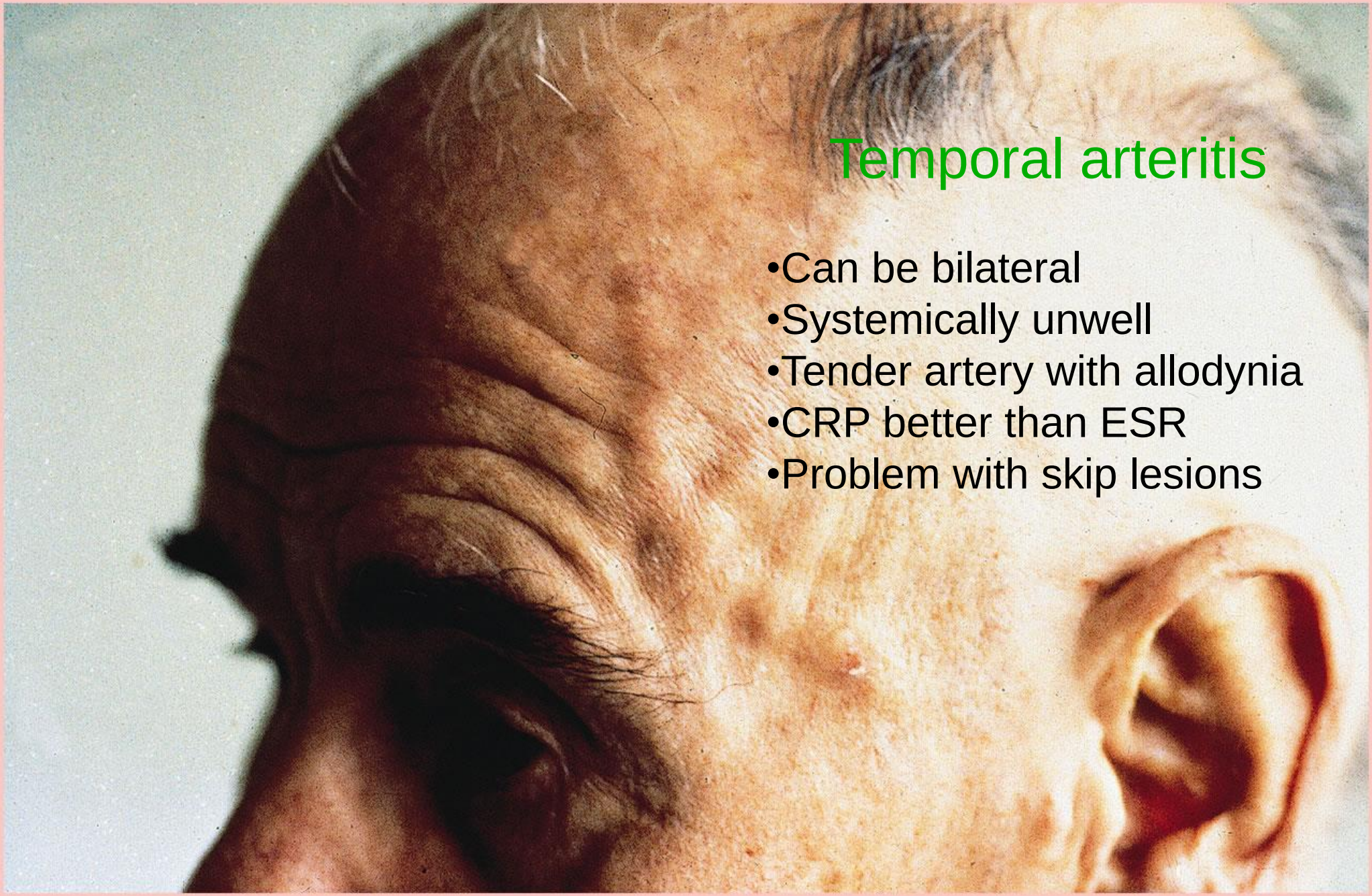


Thrombophilia



Meningitis

Malignant hypertension



Temporal arteritis

- Can be bilateral
- Systemically unwell
- Tender artery with allodynia
- CRP better than ESR
- Problem with skip lesions

Headache Pathway

EXCLUDE A SECONDARY HEADACHE

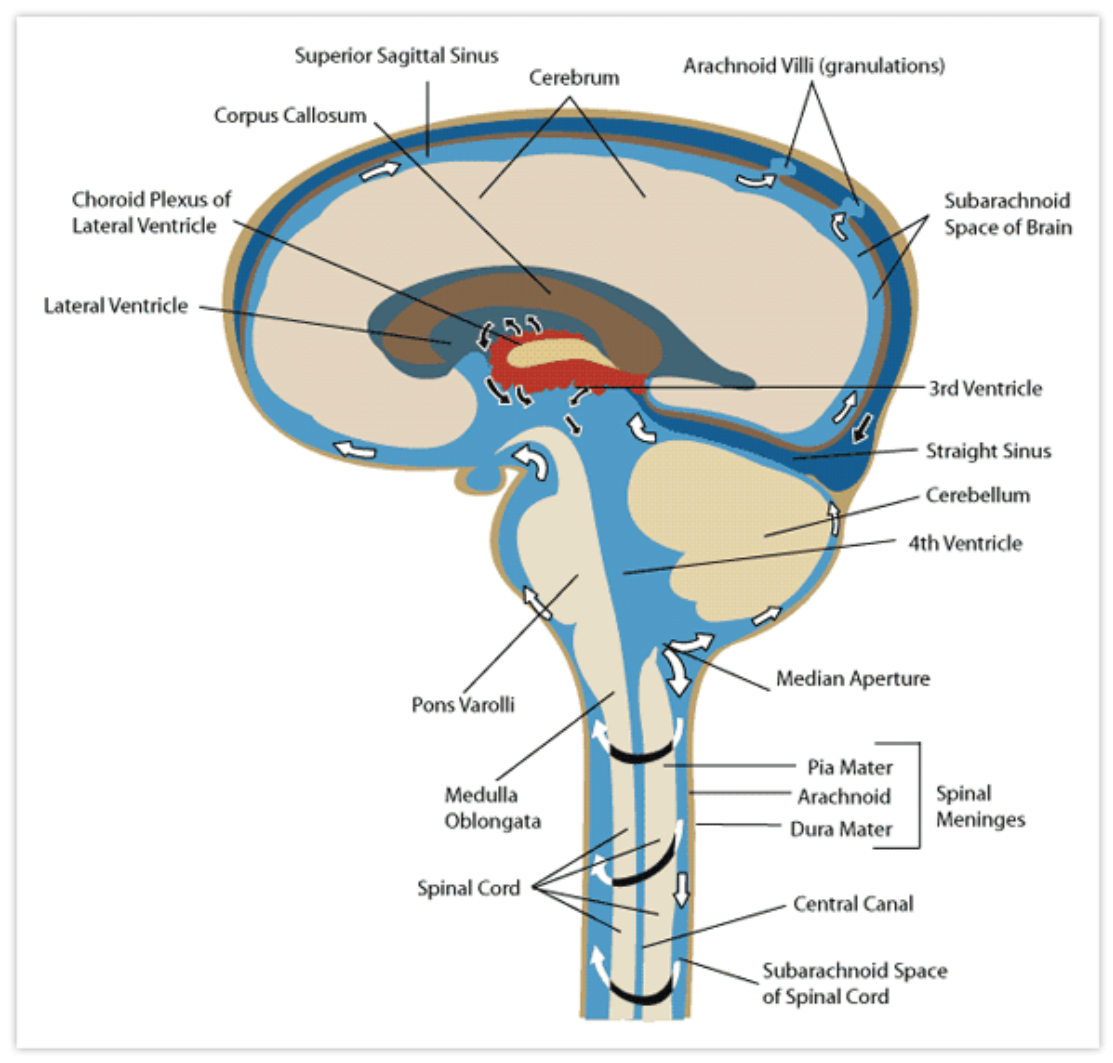
- Do something now
- Do something soon

- DIAGNOSE A PRIMARY HEADACHE
- Exclude medication overuse and manage the primary headache

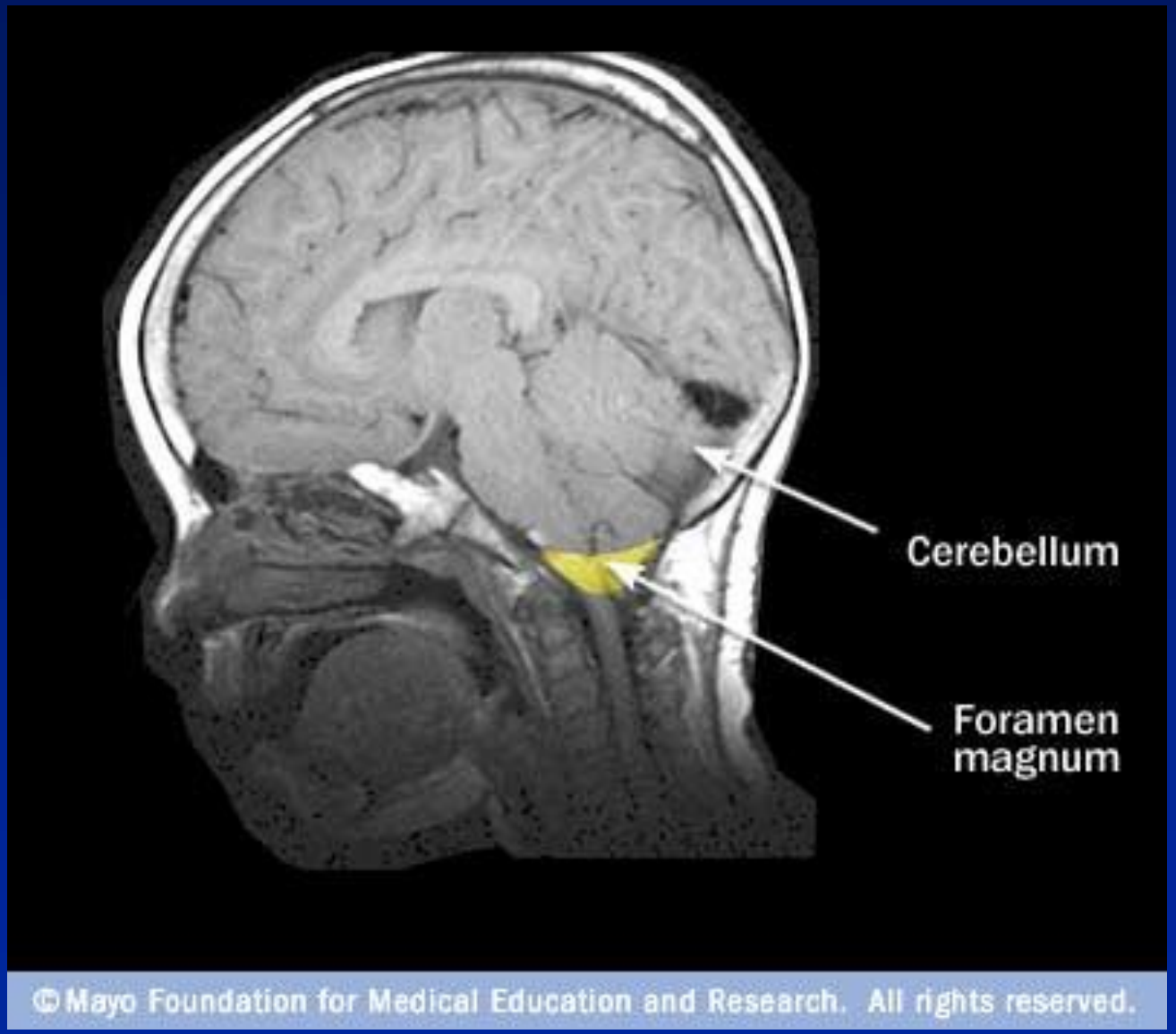
Exercise headache

Pressure – too high.
Idiopathic intracranial hypertension

- Non specific headache
- Tinnitus
- Visual field/acuity defect
- Papilloedema



CSF – 20 mls/hr, 150 mls capacity

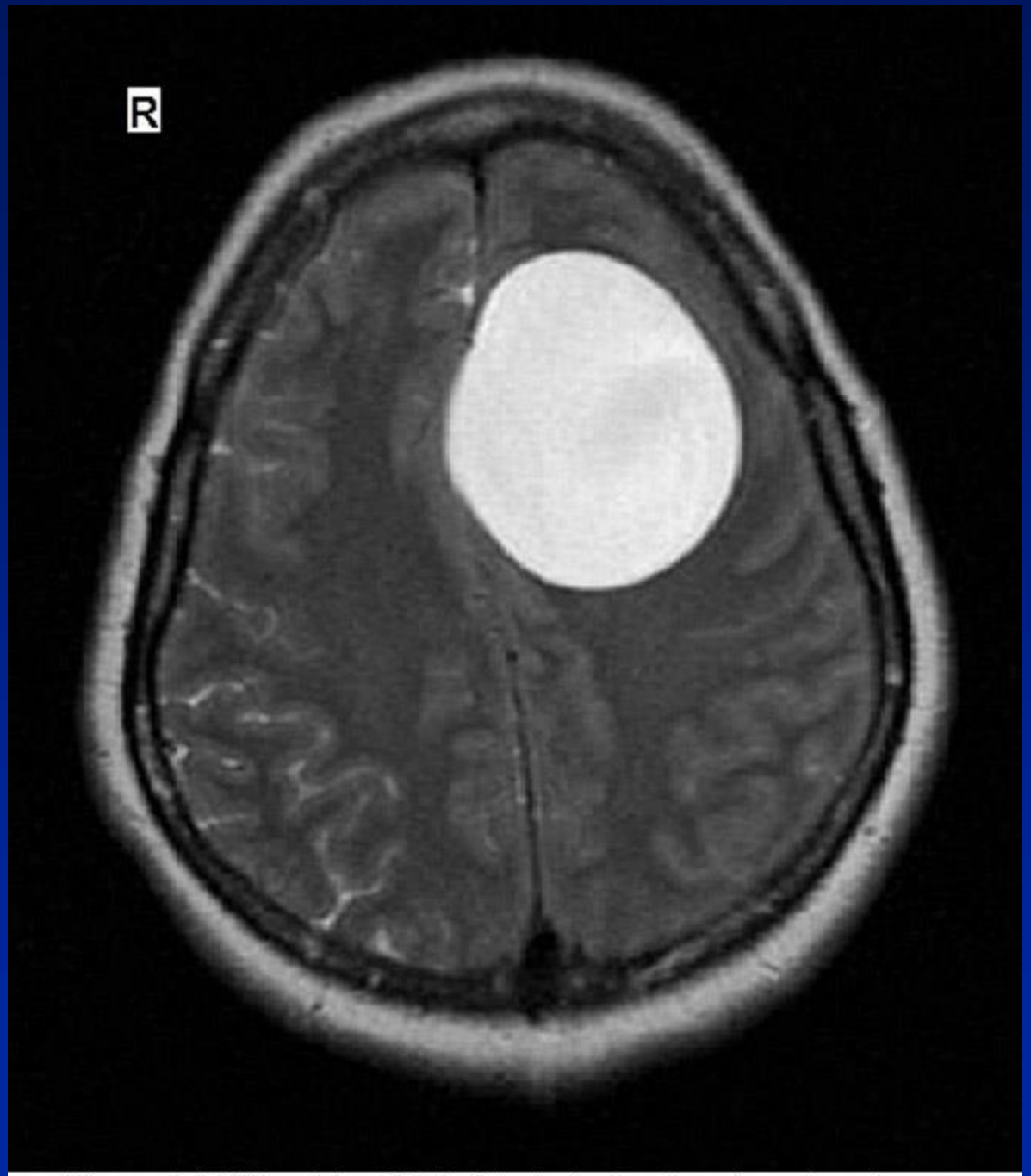


Pressure too low

Space occupying lesions

Stretch, compression, blockage

- Benign – cysts, A-V malformations
- Malignant – primary secondary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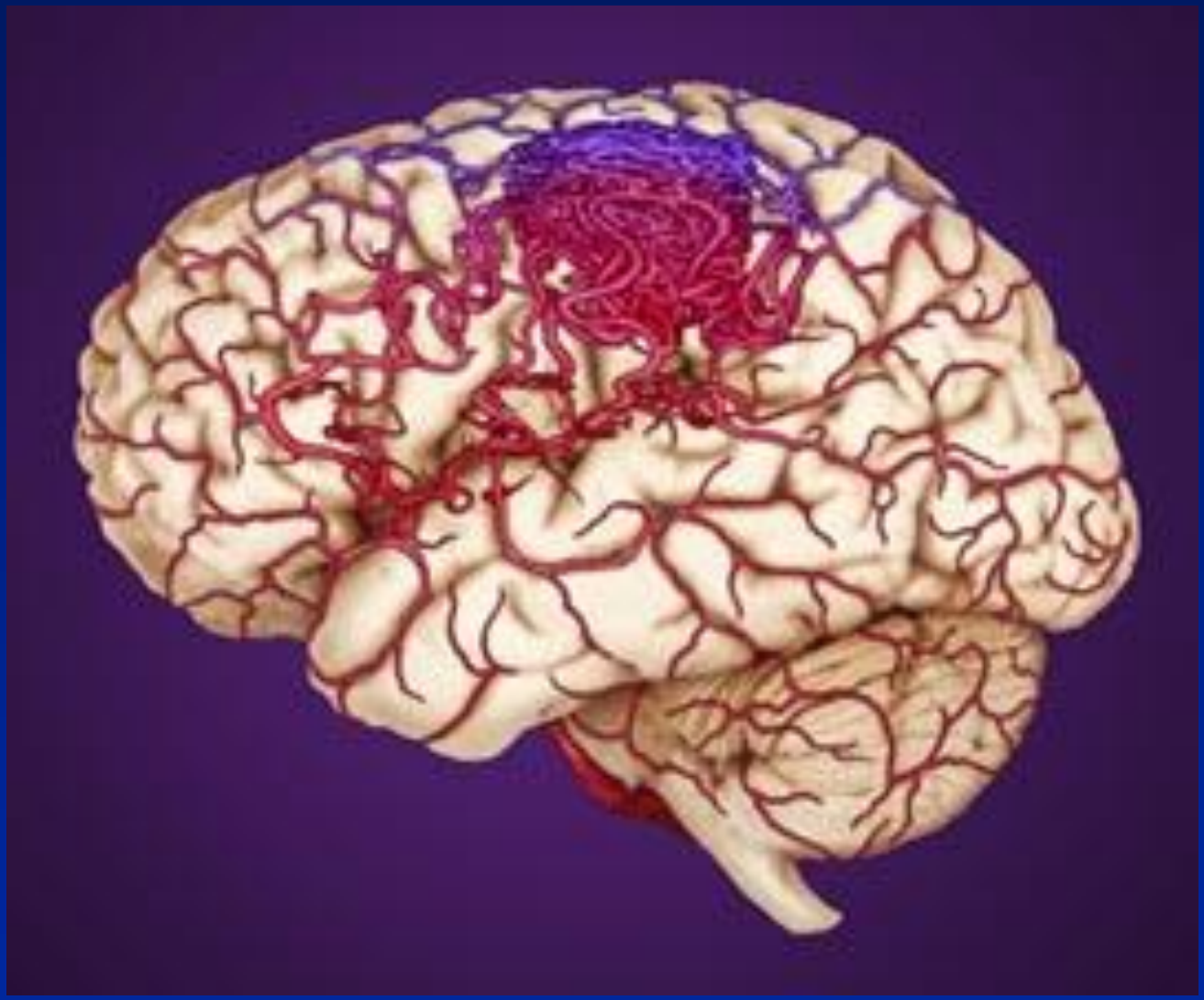


Red Flags

- Abnormal neurological symptoms or signs
- History of cancer elsewhere

Orange Flags

- Aggregated by Valsalva manoeuvre
- Headache with significant change in character
- Awakes from sleep
- New headache over 50 years
- Memory loss
- Personality change

Headache Pathway

EXCLUDE A SECONDARY HEADACHE

- Do something now
- Do something soon

- DIAGNOSE A PRIMARY HEADACHE
- Exclude medication overuse and manage the primary headache

Drug review

- 1. Paracetamol, co codeine or Ibuprofen on 17 days of month
- 2. Sumatriptan 8 days of month

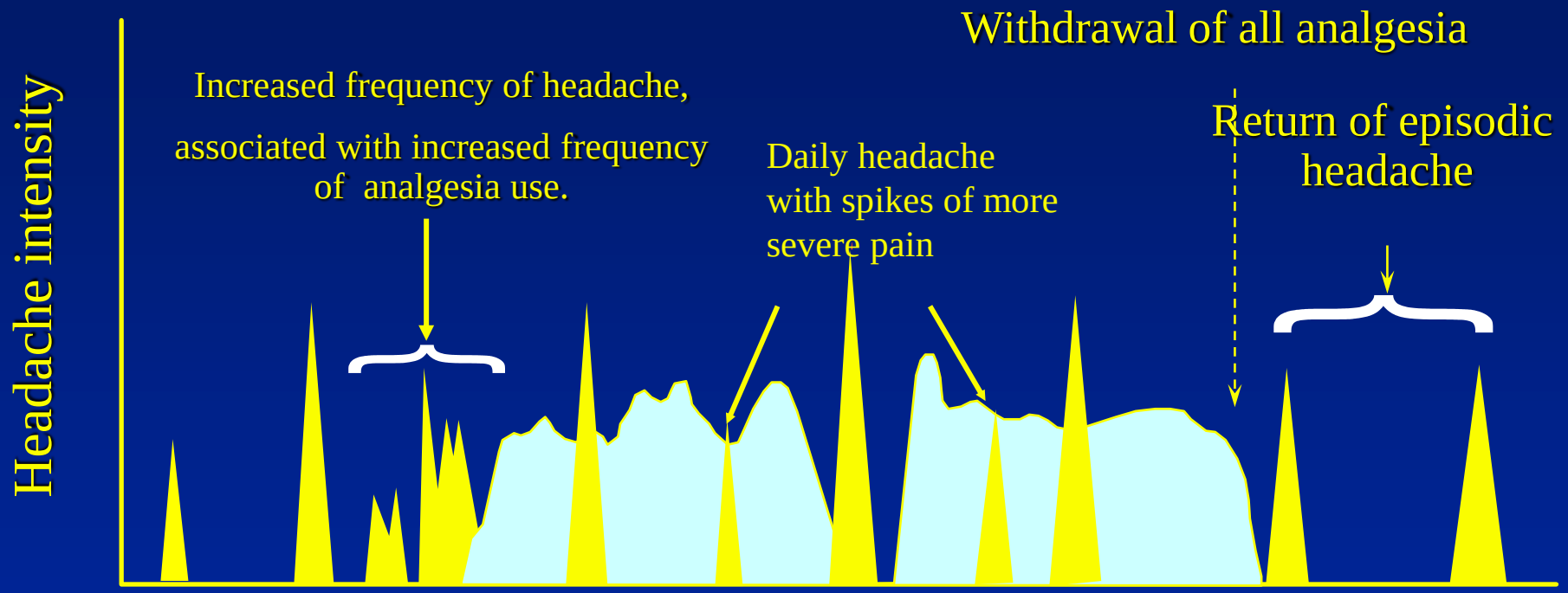
- Is he likely to have MOH, from 1 or 2?

Which drug is most likely to cause a problem?

Medication overuse Headache

- 3% of population
- Analgesics > 15 days of month
- Triptans > 10 days of month

Medication overuse headache



Management?

Headache Pathway

EXCLUDE A SECONDARY HEADACHE

- Do something now
- Do something soon

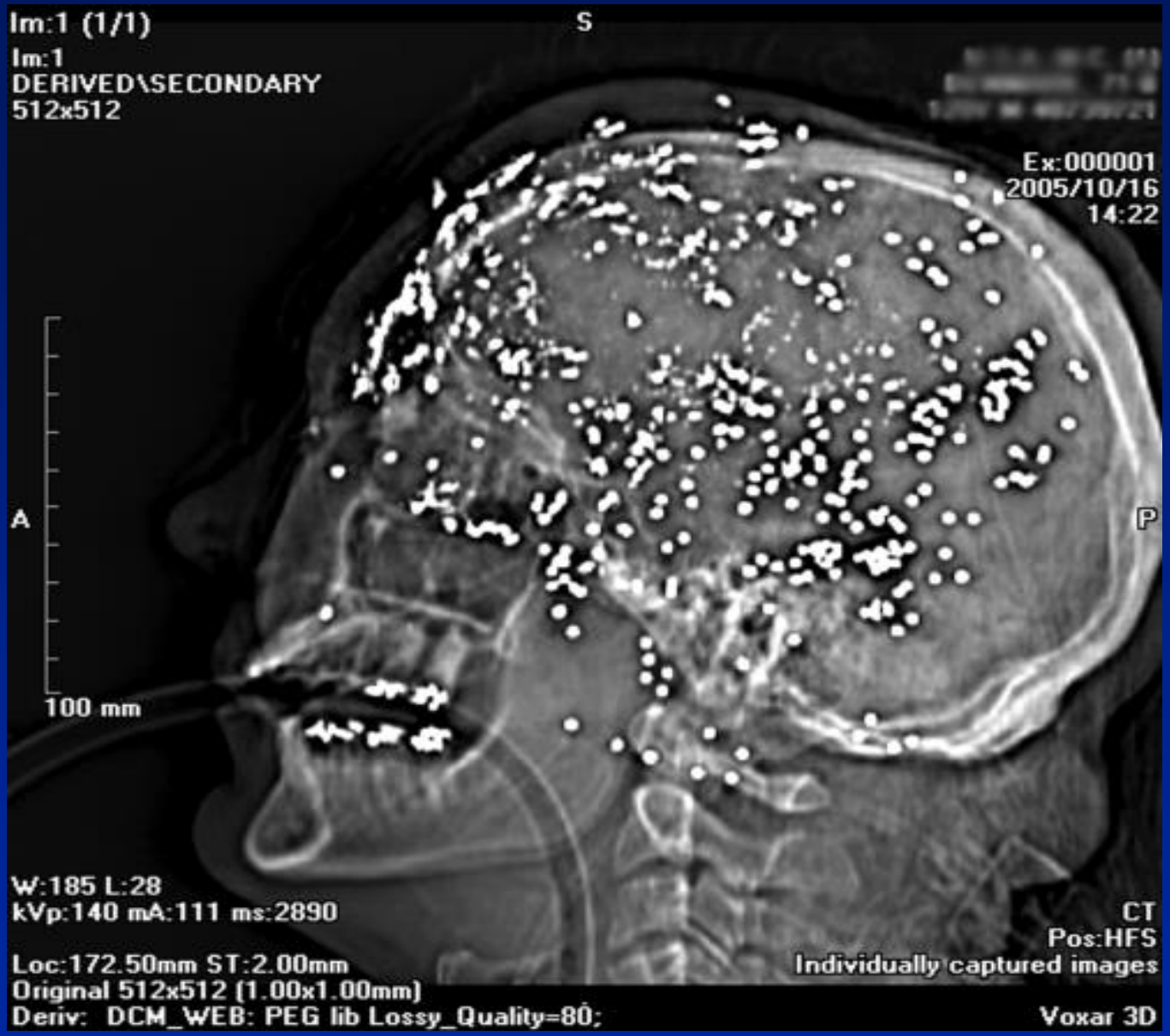
- DIAGNOSE A PRIMARY HEADACHE
- Exclude medication overuse and manage the primary headache

Primary Headaches

- Migraine
- Tension Type
- Cluster
  - Paroxysmal hemicrania
  - Hemicrania continua
  - SUNCT
  - Primary cough headache
  - NPDH ect

A 30 year old male

- Pain in L eye
- Lasts 30 minutes, 5 times a day
- GP diagnosed migraine given oral sumatriptan 100mg and propanolol 160MR but not working?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Cluster - Autonomic Cephalopathy

- High impact ++
- Peri-orbital clusters 15mins - 3 hours
- Cluster attacks and periods
- Unilateral autonomic features
- Acute or chronic

Cluster treatment

- Injectable Sumatriptan
- Nasal Zolmitriptan
- Short term steroids
- Oxygen 100%
- Verapamil

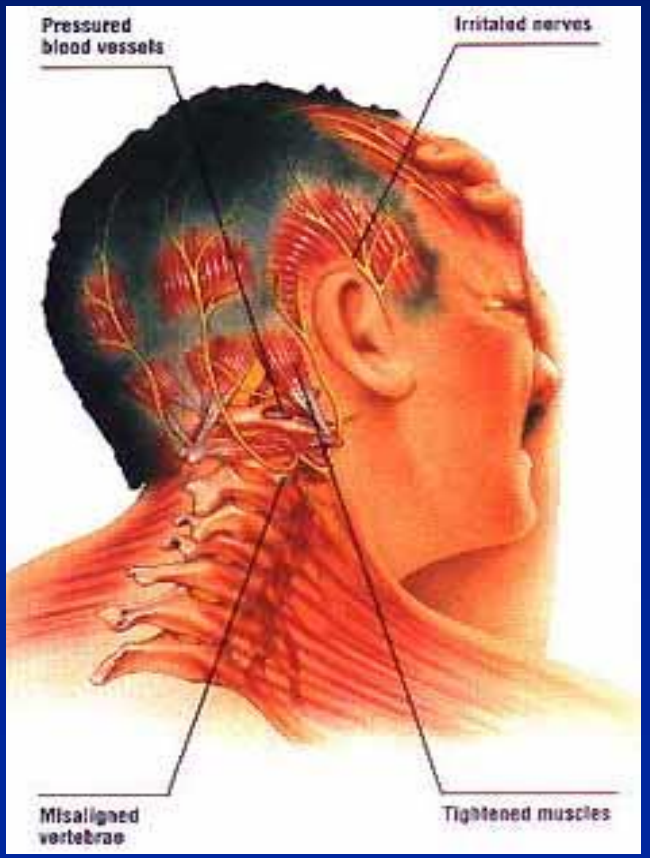
Tension type headache

Cervico-genic (degenerative change, trigger spots)

Muscle tension

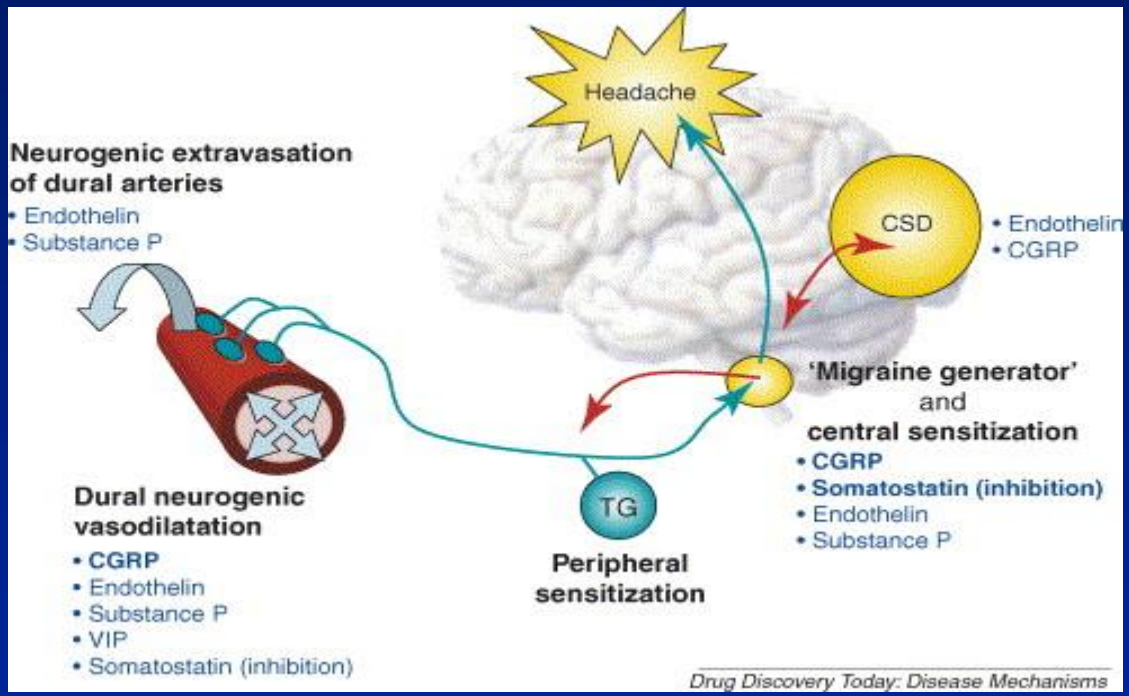
Mandibular

Anxiety-depression

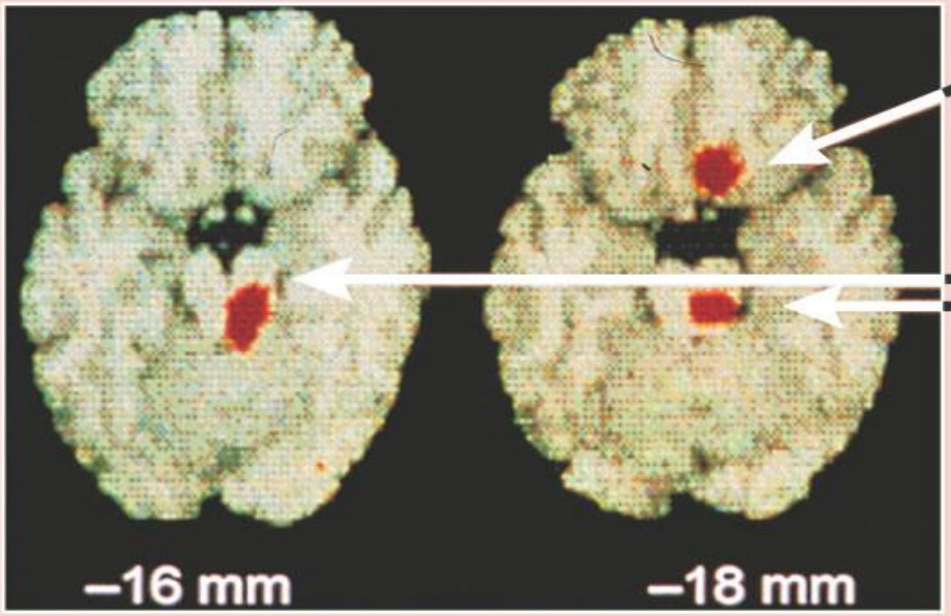


Migraine – the default diagnosis

1. Migraine generator – gastric and cervical implications
2. Central and peripheral sensitisation
3. Activation trigeminal nerve
4. Peripheral inflammation
5. Cortical depolarisation and vasoconstriction



Dysfunction of brain stem pain and vascular control centers



Pain perception*

- Anterior cingulate cortex

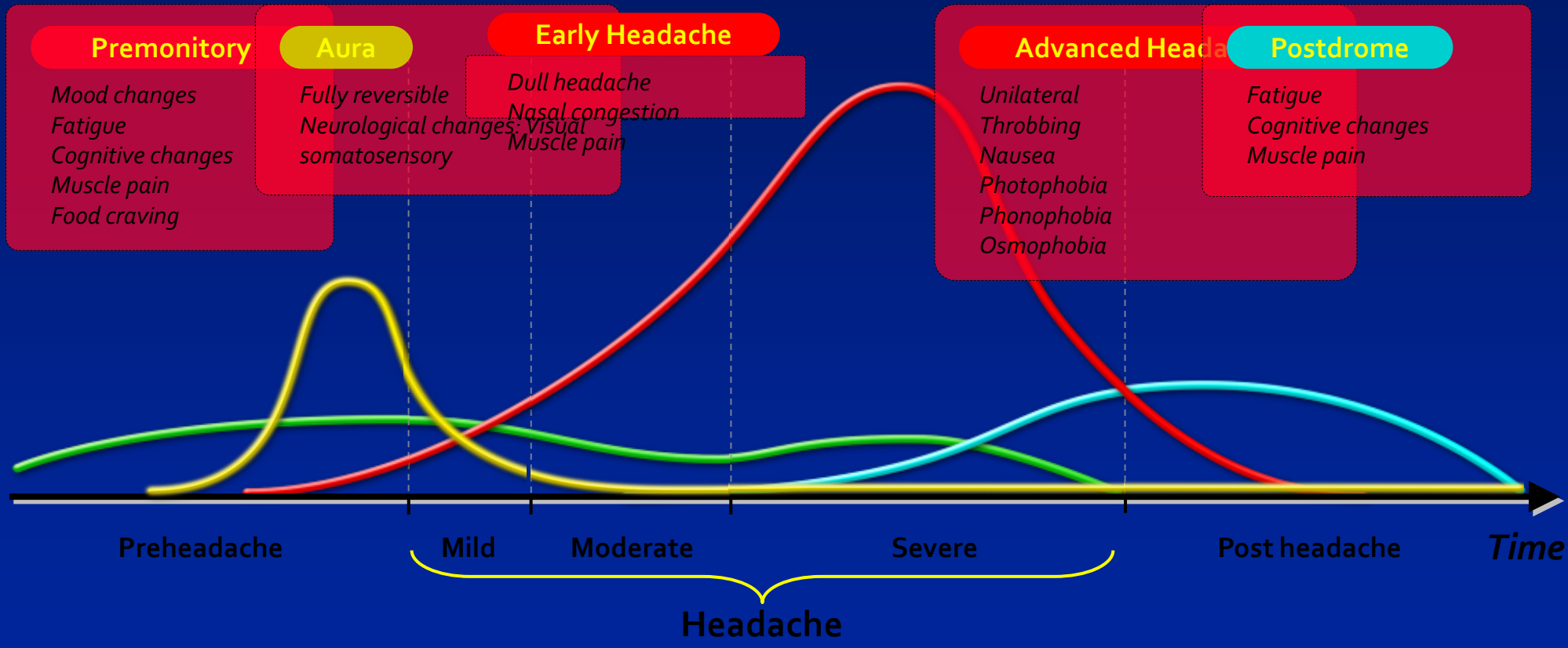
'Migraine generator'*

- Raphe nuclei
- Locus coeruleus
- Periaqueductal gray

*Areas of red indicate cerebral blood flow increases ($p < 0.001$)

Implications for gastric stasis and neck pain

Migraine: A Featureful Headache



In practice

- Recurrent headache that bothers
- Nausea with headache
- Light or sound bothers
- Invariably a family history

Migraine co-morbidities

- Anxiety
- Depression

- IBS
- Asthma
- Epilepsy

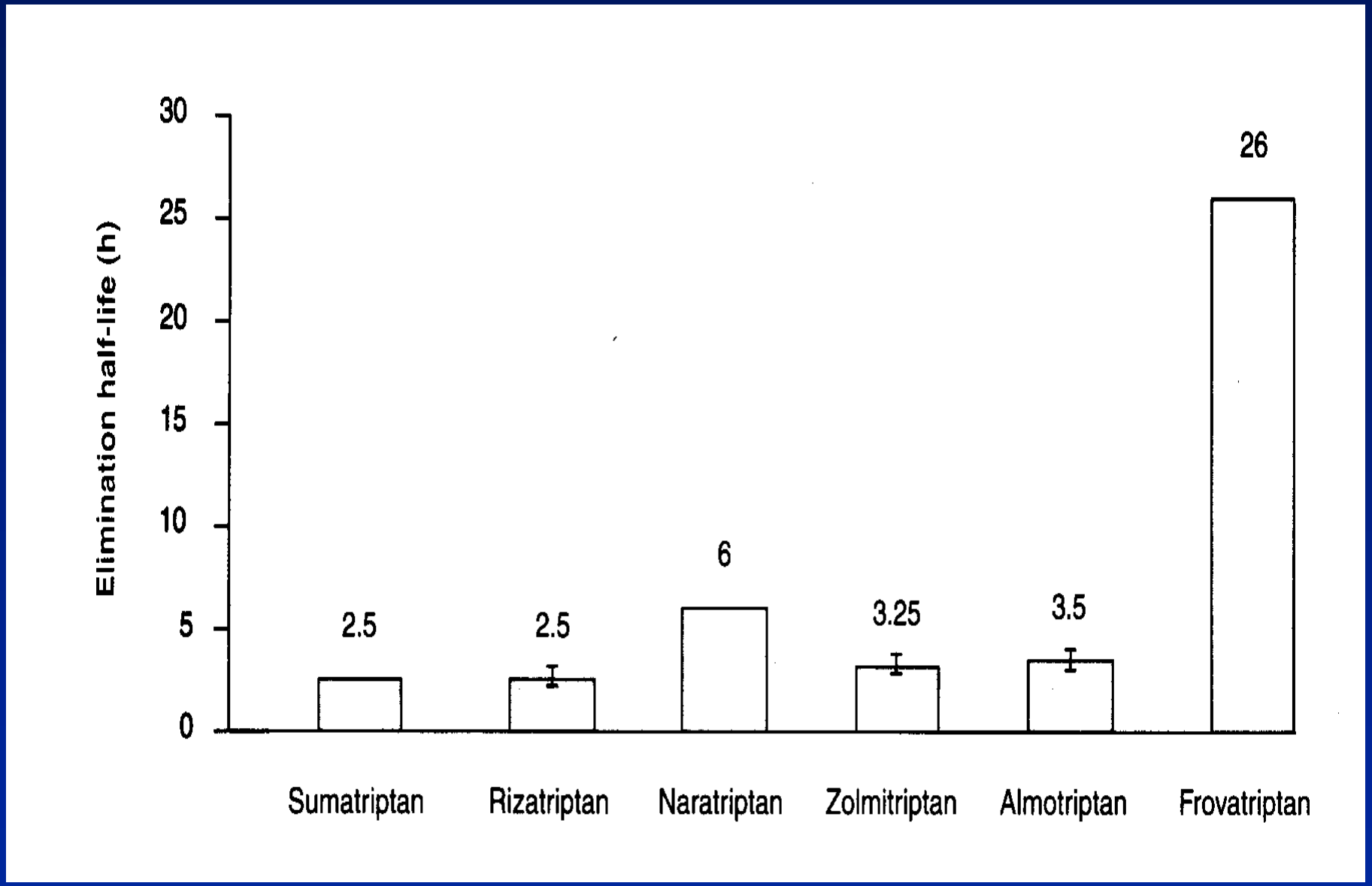
Migraine
Acute treatment

- Paracetamol, Aspirin, Prokinetic (Domperidone/metochlorpropramide).
- Triptan
- Not opiates

Triptans

Sumatriptan 100mg
Sumatriptan 50mg
Rizatriptan 10mg
Zolmitriptan 2.5mg
Eletriptan 20mg/40mg
Almotriptan 12.5mg

Naratriptan 2.5mg
Frovatriptan



Triptan Half Life

- Severe nausea, often vomits
- Sumatriptan 50mg only partially effective

Options

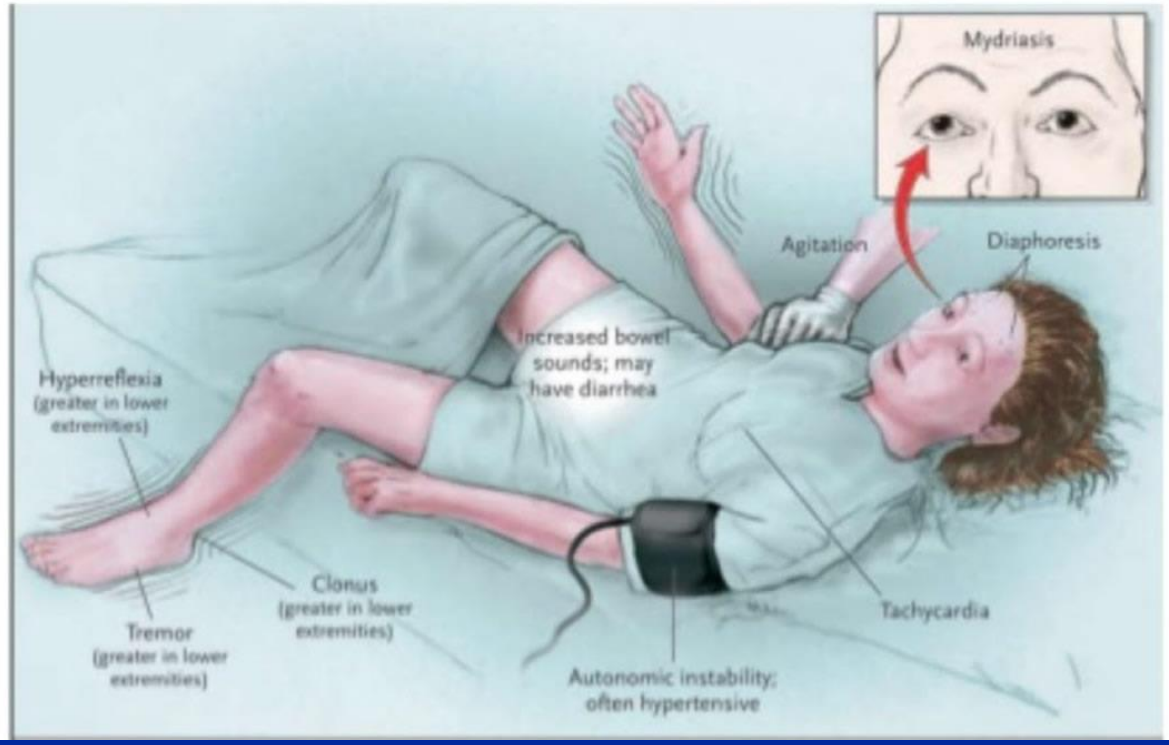
- Anti emetic
- Take early
- Change the dose
- Change formulation (nasal, wafer, inj)
- Change the Triptan (failure not a class effect)

Taking Sumatriptan 100mg Which cause you concern?

- On COC pill
- Age 69
- Past history TIA
- Started SSRI

Serotonin Syndrome

- Cluster of autonomic, motor & mental status changes resulting from excess 5-HT (5-HT_{2A})



<u>Agents</u>
MAO-Is
TCA
SSRIs
opiate analgesics
cough medicines (OTC)
antibiotics
triptans
anti-nausea
herbal products
abused drugs

Triptans – some practical points

- Treat early
- Formulation?
- Failure not class effect
- Not in CVD
- SSRIs
- Over 65 years

Migraine treatment Preventative

- When to instigate?
- How long for to assess an effect?
- What rate dose increase?
- How long on preventative medication?
- What to use?

Preventative Medications in Migraine

Cupboard 1

Propranolol

Amitriptyline

Topiramate

Cupboard 2

Gabapentin / Pregabalin

Candesartan

Venlafaxine / Duloxetine

Flunarizine
(requires hospital prescription)

Sodium Valproate
(not in women of childbearing age)

Cupboard 3

Other anti-epileptics

Lisinopril

Pizotifen

Migraineur on verapamil, domperidone, Triptan. Just started on Amitriptyline

Table 2

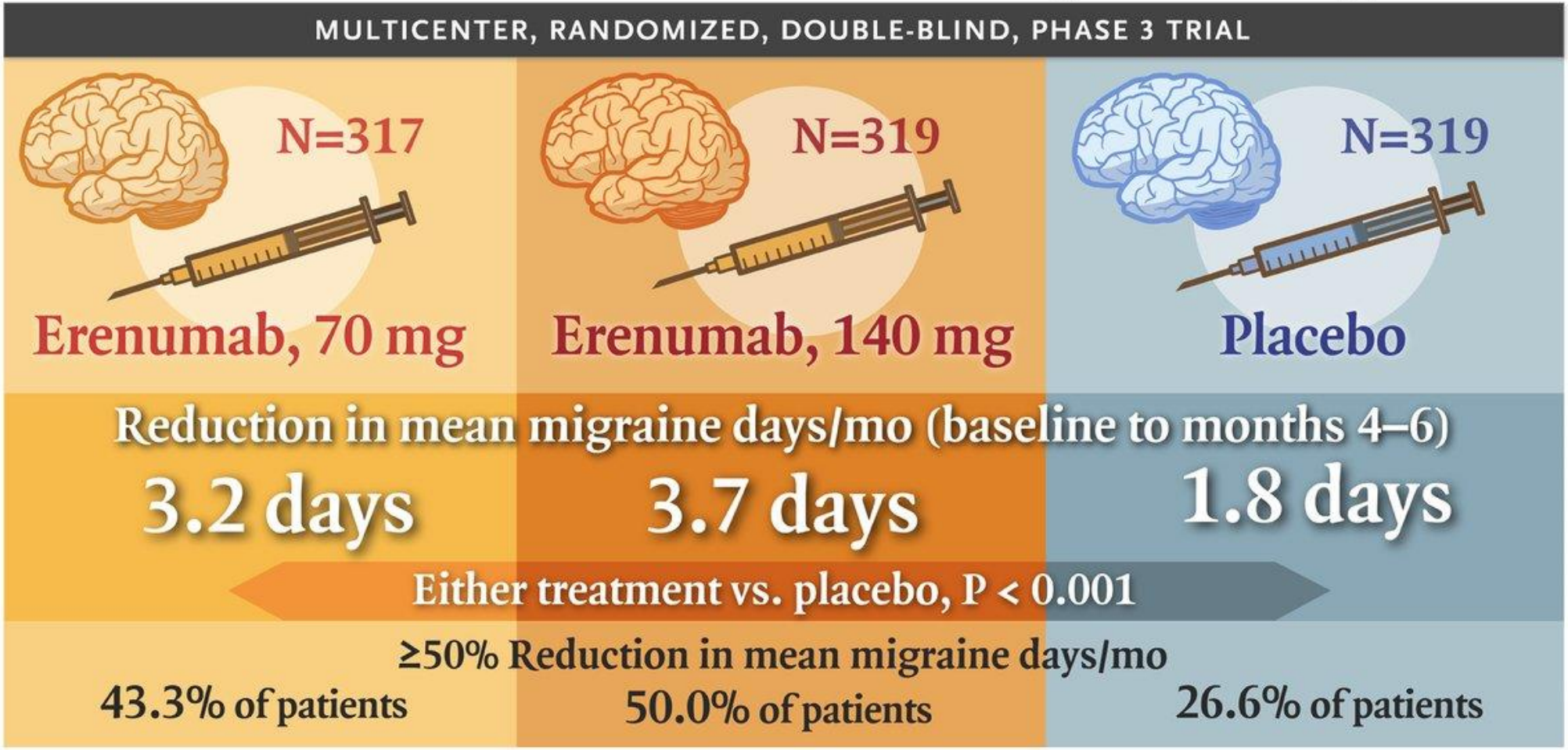
Drugs Associated with QT Prolongation and TdP

Antiarrhythmics	Antimicrobials	Antidepressants	Antipsychotics	Others
Amiodarone	Levofloxacin	Amitriptyline	Haloperidol	Cisapride
Sotalol	Ciprofloxacin	Desipramine	Droperidol	Sumatriptan
Quinidine	Gatifloxacin	Imipramine	Quetiapine	Zolmitriptan
Procainamide	Moxifloxacin	Doxepin	Thioridazine	Arsenic
Dofetilide	Clarithromycin	Fluoxetine	Ziprasidone	Dolasetron
Ibutilide	Erythromycin	Sertraline		Methadone
	Ketoconazole	Venlafaxine		
	Itraconazole			

Source: References 1, 3, 4, 8, 9, 14.

Patient read in Daily Mail about new “breakthrough” drug. How do you advise?

A Controlled Trial of Erenumab for Episodic Migraine



The NEW ENGLAND JOURNAL of MEDICINE

Goadsby et al. 2017

CGRP antagonists

Non – drug options

Triggers/lifestyle

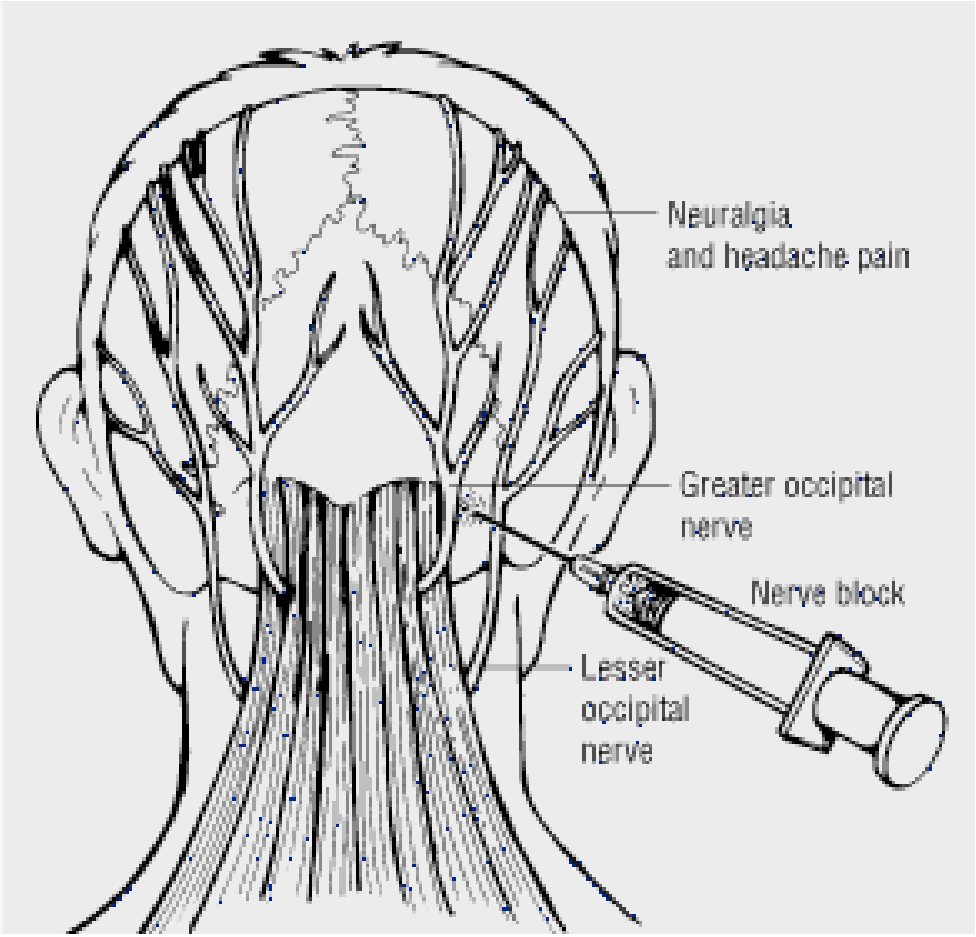
- Triggers – yes
- Lifestyle - yes (including hormones)
  Keep constant
- Food allergy - no

Naturally occurring drugs

- Magnesium – ?yes
- Co Q10 – ?yes
- Feverfew, butterbur, riboflavin – possibly

Needles – occipital nerve injection

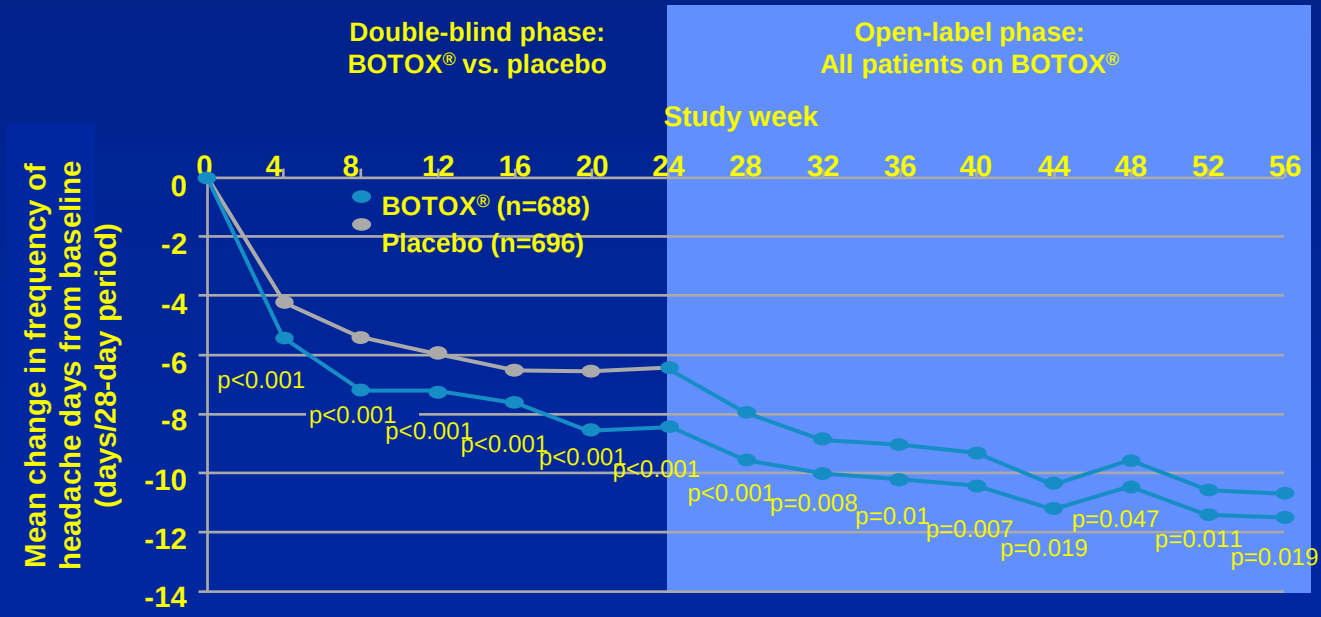
Figure 3. Occipital nerve block. Via a needle inserted at the base of the skull, an anesthetic agent is injected around the origin of the greater occipital nerve.

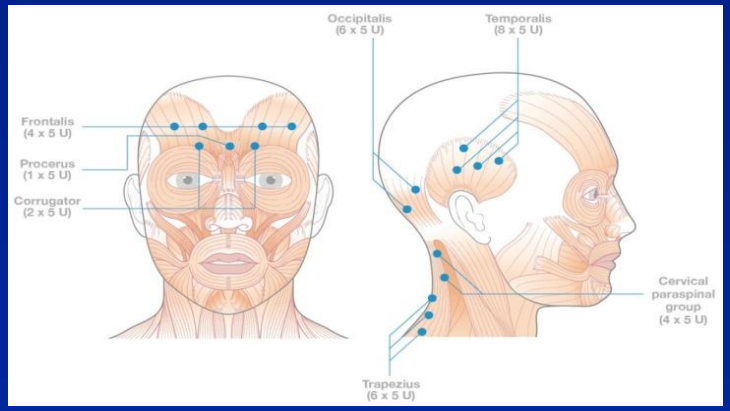


Needles - Botox

BOTOX® for Chronic Migraine

- UK licence for Chronic Migraine, NICE approved
  - ≥15 days headache of which ≥8 days are migraine
- Rejected by SMC (2011 and 2013)
  - Starting to be used in patients where most other treatments have failed



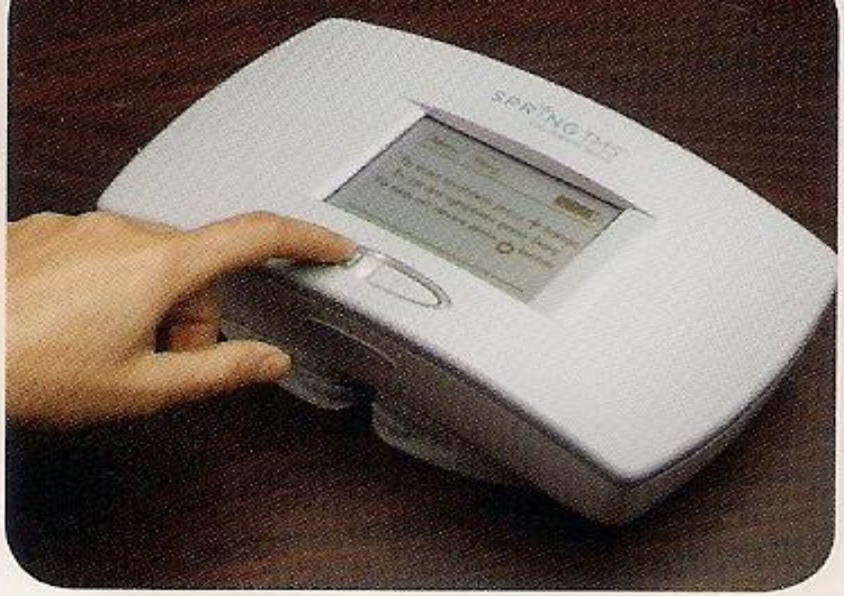


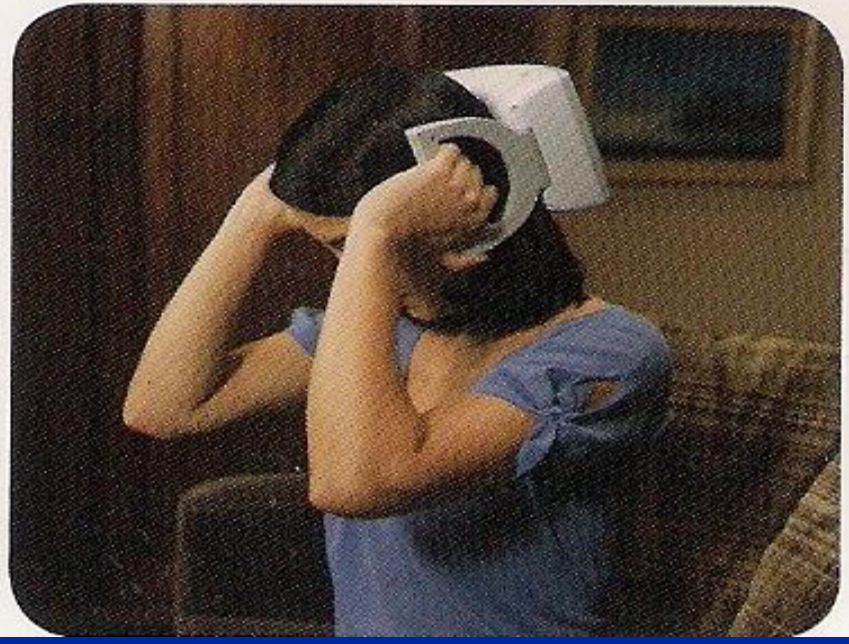
Needles - accupuncture

Psychological approaches

- Cognitive therapy, mindfulness

Electrics


SPRINGFIELD



Transcutaneous vagal nerve stimulation

Supra-orbital nerve stimulator

In summary

- Lot of it out there
- Significant impact
- Needs unmet

EXETER HEADACHE CLINic

Exeter Headache Clinic

- Home
- Educational Video Links for Doctors and Patients
- Patient Information Sheets
- Management Guidelines
- Research Activity and Publications
- Education
- Reducing the Impact of Migraine in the Workplace
- Support for NHS Commissioners
- School Policy Guidance
- BASH GPwSI Meeting Presentations
- Proposed NHS Devon Headache Referral Guidelines
- Headache Support Groups
- Contact us
- How to find us
- Statement on Transcranial Magnetic Stimulation

St Thomas Medical Group in conjunction with the NHS South West Headache Network

Clinic personnel

Dr David Kernick is a GP with a special interest in headache. He has a research interest in the area and has written a number of publications including the Oxford University Press Manual of Headache. He was formally the Chair of the British Association for the Study of Headache and currently leads the Royal College of General Practitioner's initiative on headache. He chairs the International Headache Society Primary Care Interest Group.

Dr Peter Miller is a GP with a special interest in headache and has an interest in homeopathy.

Mrs Sam Hotton is the Clinic Manager.

Clinic times

Regular clinics are held on a Thursday afternoon at St Thomas Health Centre between 1530 and 1830 and Tuesday mornings between 0930 and 1230.

Referral criteria

We have a contract to take referrals from practices within the new Devon CCG area (North, East and West Devon). This should be done through the Devon Access Referral Team (Choose & Book) - specify Neurology and choose Headache Clinic (Dr David Kernick). Any referrals outside this area are extra contractual referrals and must be accompanied by a letter of funding agreement from the relevant CCG. We can also accept self funded referrals by arrangement but this must be done through a GP referral. Our current waiting list is 2-3 months. We are happy to see adults over 18 years but we ask that headache should have been present for at least 6 months. This is because we are not set up to deal with headaches that may have a serious underlying pathology and we do not have direct access to imaging. We are happy to discuss cases with GPs either by email sam.hotton@nhs.net or telephone 01392 676635.