

ED approaches to acute headache



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Disclosures

I have received funding from the following companies for providing educational sessions/medical advisory board contributions, educational grants, and received travel grants to attend conferences:

- Allergan/AbbVie
- Merz Pharmaceuticals
- Ipsen
- Teva UK Limited
- Lilly
- Novartis
- Neurorelief Ltd





1° versus 2°

1° care	>100 ¹	1
ED	5-20 ^x	1

Locker *et al. Headache* 2006; 46:954-961

Prospective observational UK ED -14 mth period

Alert adult patient; f/u 3 month

91509 ED attendances

778 re headache

- 42% 2° *13.4% serious pathology
- 55% 1°

NB secondary >3%

- 15.8% systemic illness
- 6.3% dental causes
- 3.8% cervicogenic headache

- 3.4% SAH

*Kernig *et al. Cephalalgia* 2008; 28:1188–1195.

^xDoretti *et al. J Headache Pain* **20**, 100 (2019); Sahai-Srivastava *et al. Headache*. 2008 Jun;48(6):931-8; Rimmele *et al. Front. Neurol.* 12:706074.

Aims & objectives

✓ Spot the zebras in ED to exclude worrying 2° headaches



✓ Empirically treat for migraine

Index of suspicion...

71 year old female

1st episode 12th January

- Interment of husband's ashes
- Bent over with heavy urn → thunderclap vertex pain
- maximum at onset + emesis, 30 minutes+

2nd episode a couple of days later

- Playing walking netball
- Bent over → abrupt holocranial severe pain +emesis;
- more severe and prolonged cf 1st

Ongoing grumbling headache with GP appt 2wks later

- A&E: CT head NAD and discharged



What would you do?

Reassure the patient

0%

Reassure the patient and treat with indomethacin

0%

Tell GP to refer via C&B to neurology for further input & treat empirically

0%

Arrange to see the patient in a hot clinic slot

0%

Arrange investigations and see in a hot clinic slot

0%



What would you do?

Reassure the patient

###.##%

Reassure the patient and treat with indomethacin

###.##%

Tell GP to refer via C&B to neurology for further input & treat empirically

###.##%

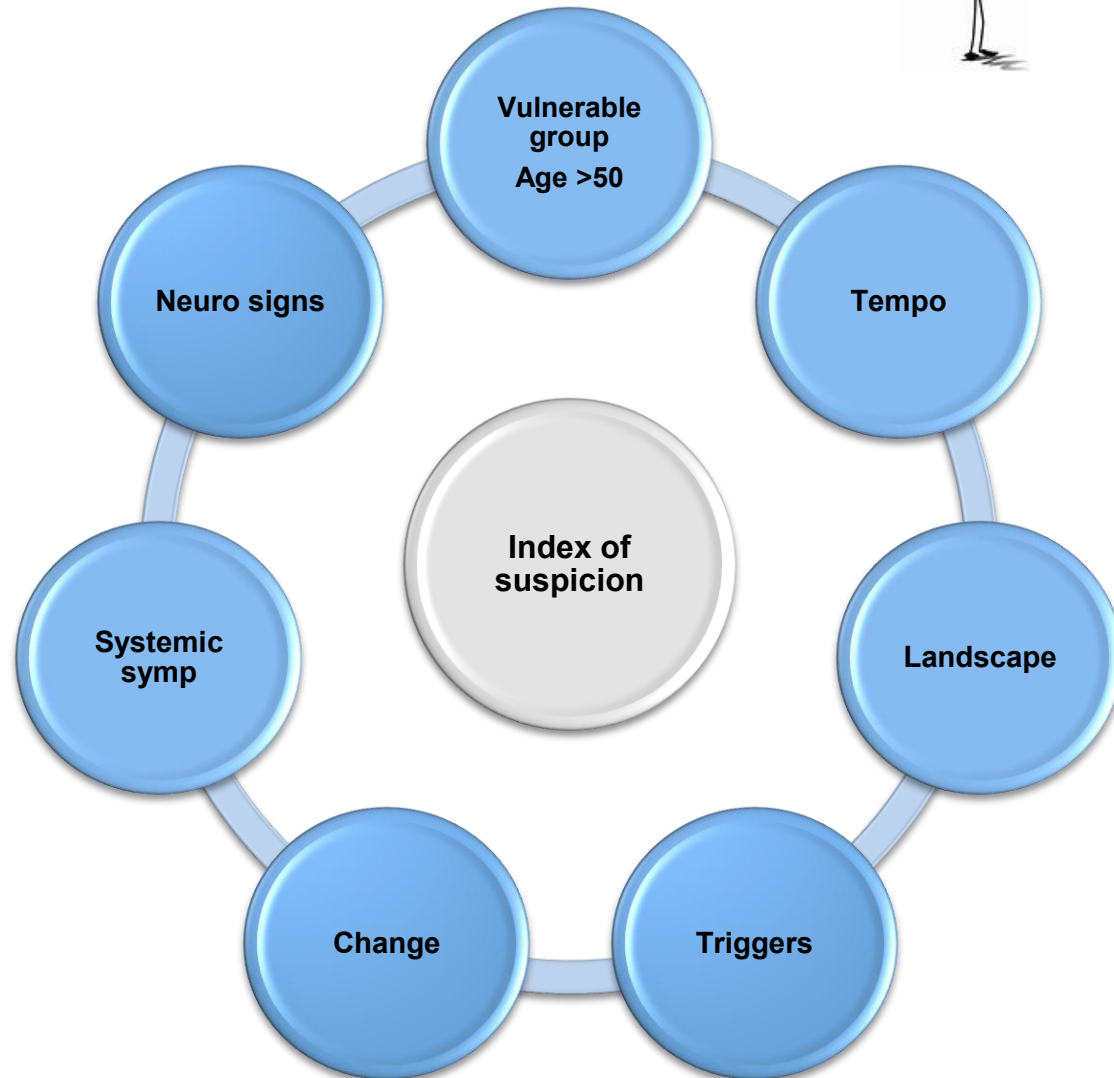
Arrange to see the patient in a hot clinic slot

###.##%

Arrange investigations and see in a hot clinic slot

###.##%

Index of suspicion....



S	Systemic symptoms including fever
N	Neurological symptoms or signs (inc. ↓consciousness)
N	Neoplasm in history
O	Onset of headache is thunderclap / sudden
O	Older age (after 50 years)
P¹⁰	Pattern change or recent onset of headache
	Progressive headache & atypical presentation
	Positional/postural
	Precipitated by Valsalva: sneezing/coughing/exercise/sex
	Papilloedema
	Pregnancy or post-partum
	Painful eye with autonomic features
	Post-traumatic onset
	Pathology of immune system including HIV
	Painkiller overuse or new drug at onset

Index of suspicion....



71 year old female

1st episode 12th January

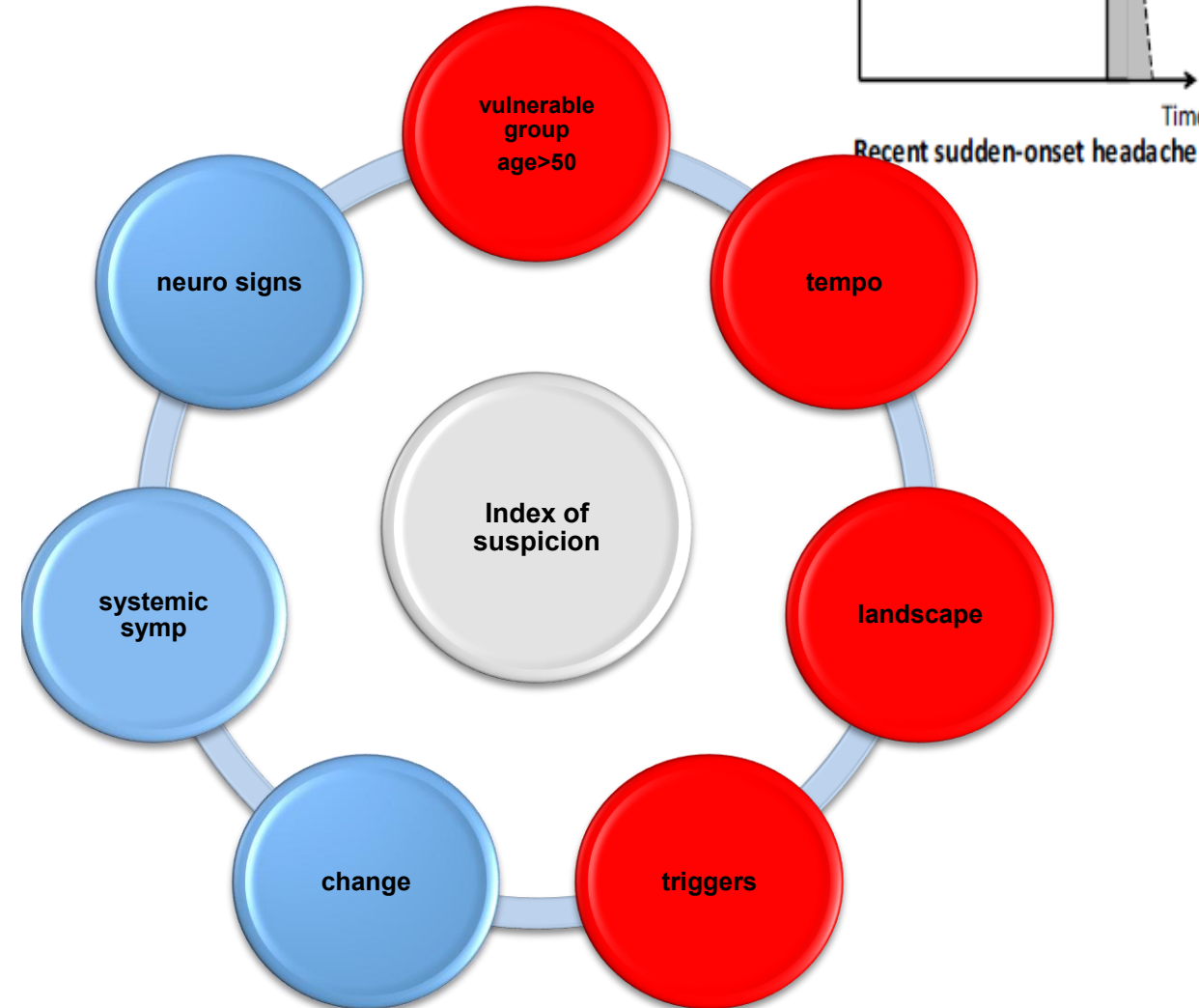
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2nd episode a couple of weeks later

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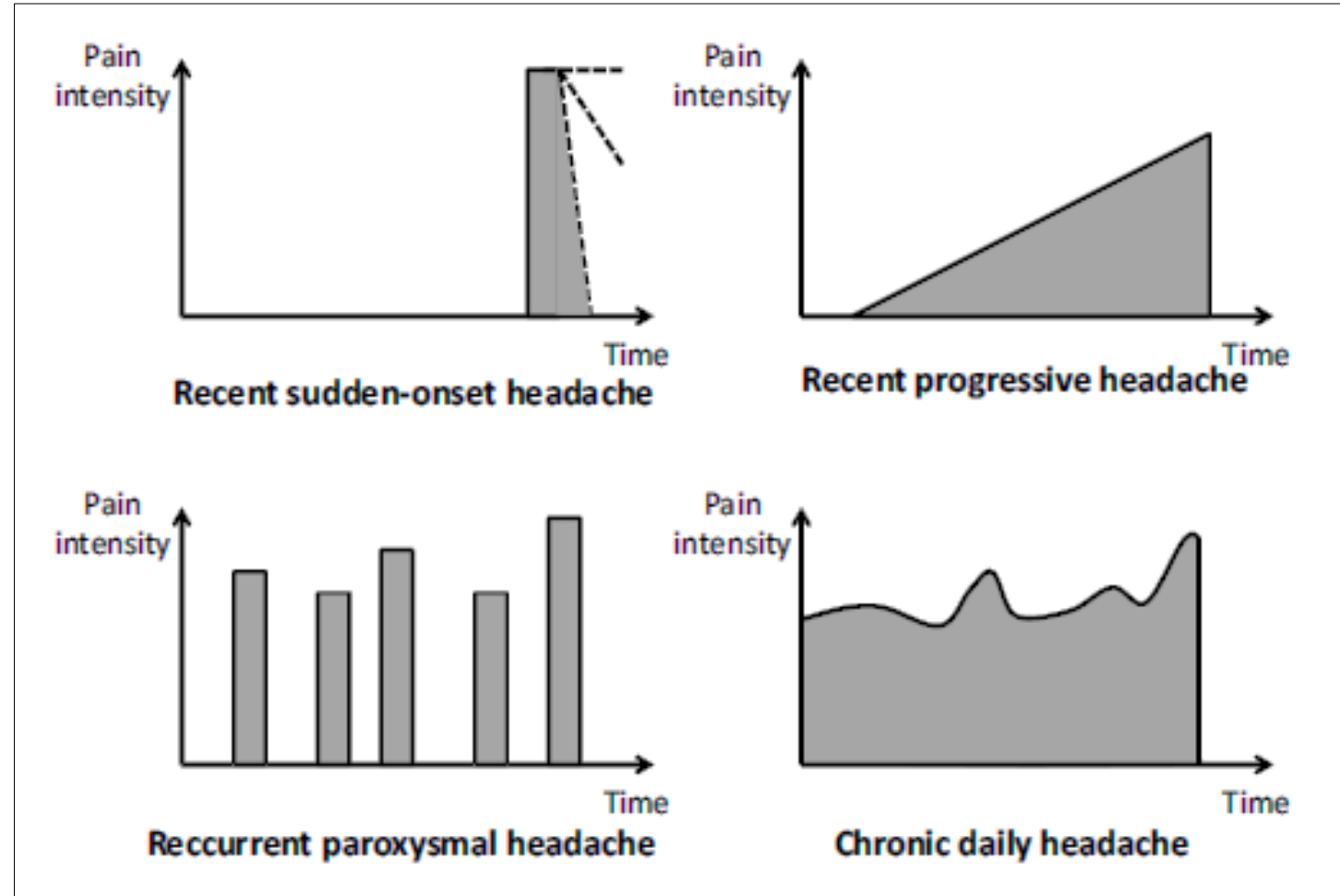
Ongoing grumbling headache with GP appt 2wks later

- A&E: CT head NAD and discharged



Time to be vigilant

- Thunderclap onset
- Headache plus
- Progressive headache
- Recurrent A&E presenter
- Pressure phenotype
- Migraineur -significant change



Index of suspicion...

71 year old female

1st episode 12th January

- Interment of husband's ashes
- Bent over with heavy urn → thunderclap vertex pain
- maximum at onset + emesis, lasted about 30 minutes

2nd episode a couple of weeks later

- Playing walking netball
- Bent over → abrupt holocranial severe pain + emesis;
- more severe and prolonged cf 1st

Ongoing grumbling headache with GP appt 2wks later

- A&E: CT head NAD and discharged

?atypical migraine

≠ recurrent thunderclap over 3 wks

Ottawa (adult) SAH rule Perry et al. 2013, JAMA

Alert with non-traumatic severe HA peaking within 1 hour without deficit

Investigate if ≥ 1 high-risk variables present:

1. Age ≥ 40 y
2. Neck pain or stiffness
3. Witnessed loss of consciousness
4. Onset during exertion
5. Thunderclap headache (instantly peaking pain)
6. Limited neck flexion on examination

Not for patients with new neurologic deficits, previous aneurysms, SAH, brain tumors, or history of recurrent headaches (≥ 3 episodes over the course of ≥ 6 mo)

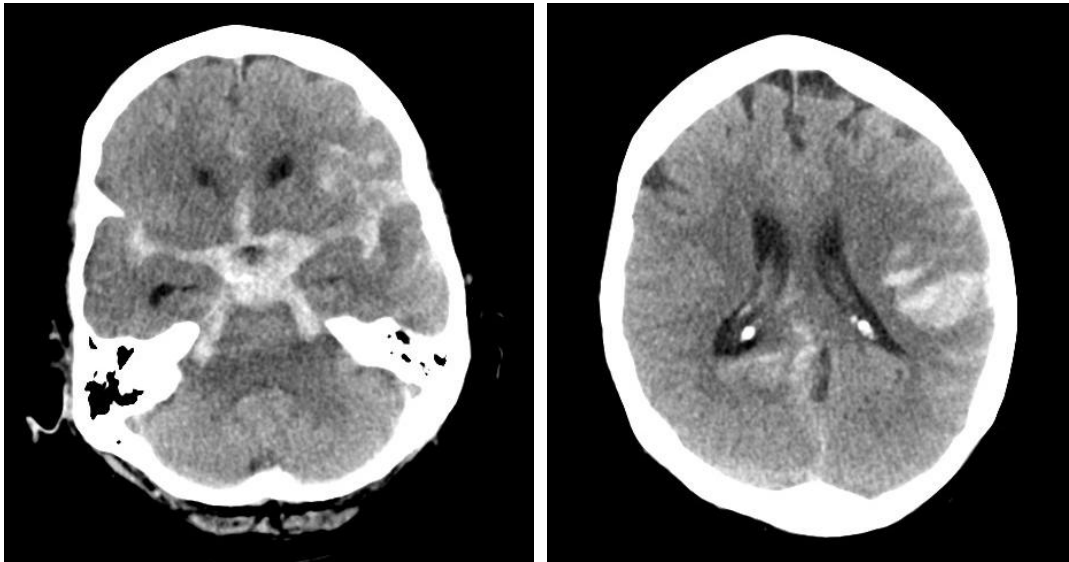
I don't think this patient has a SAH but let me check that the Ottawa rule also predicts they don't

CT vs CSF debate in the diagnosis of SAH

	<6 hrs	<12 hrs
CT	>98%	95%
CSF xanthochromia		100%

Timeline of Xanthochromia in SAH: Vermeulen, Van Gin, *JNNP* 1990; 53; 365-372 & *JNNP* 1989; 52; 826-828

Timeline of CT in SAH: Van Ginjn, Van Dongen, *Neuroradiol* 1982 23: 153-6



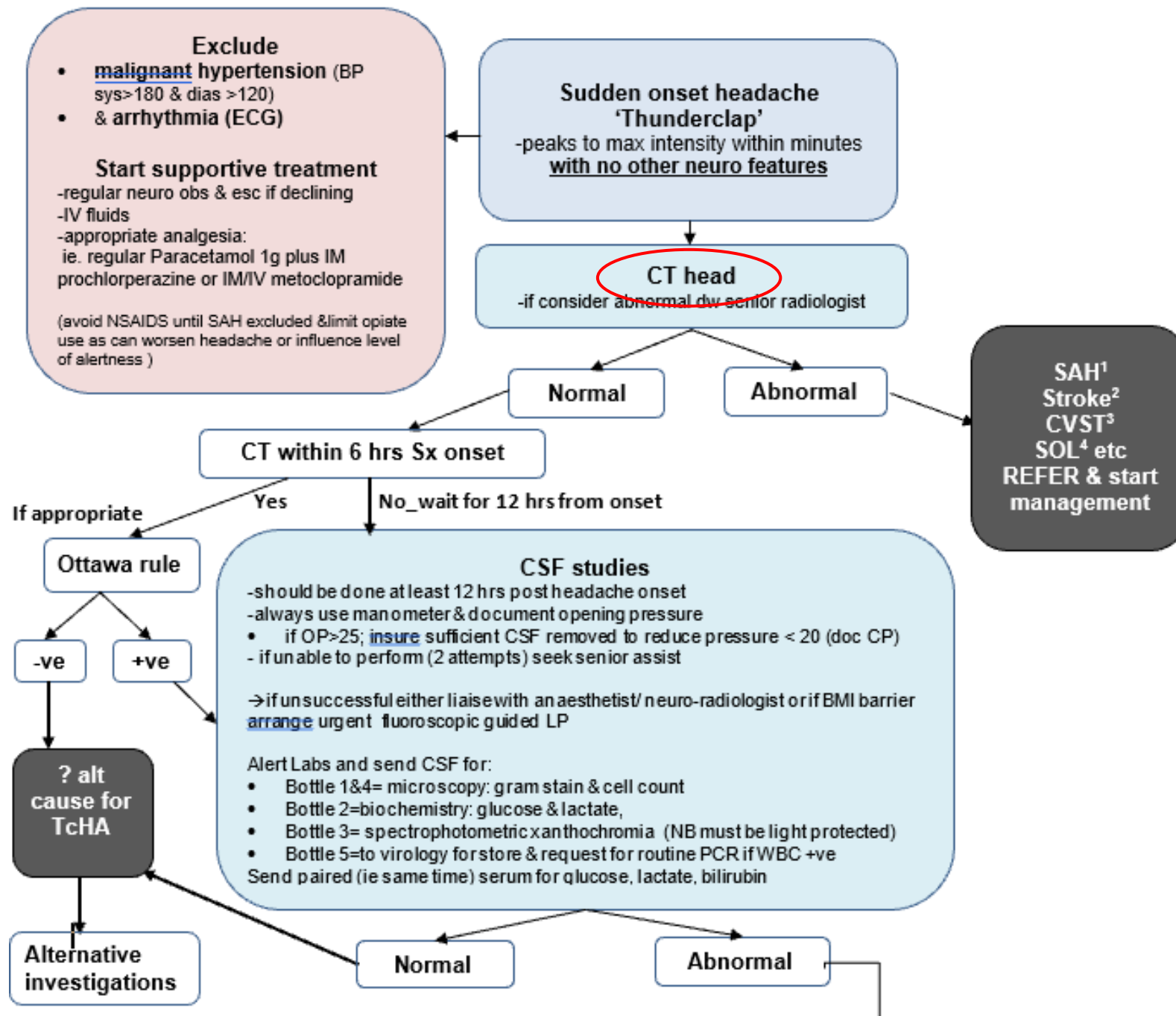
NG228_SAH due to ruptured aneurysm_Nov 2022

Ix:

Offer a non-contrast CT head scan as 1st line diagnostic ix
Diagnose SAH if non-contrast CT head scan shows blood in the subarachnoid space

If a CT head scan done within 6 hours of symptom onset shows no evidence of SAH:

- Do not routinely offer a lumbar puncture
- Think about alternative diagnoses



CT vs CSF debate in the diagnosis of SAH

	<6 hrs	<12 hrs	<24hrs	<1wk	<2wk	3wk	4wk
CT	>98%	95%	90-93%	50%		poor	poor
CSF xanthochromia		100%	100%	~100%	~100%	70%	40%

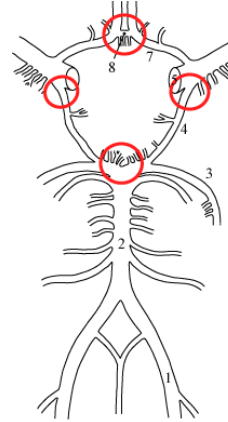
Timeline of Xanthochromia in SAH: Vermeulen, Van Gin, *JNNP* 1990; 53; 365-372 & *JNNP* 1989; 52; 826-828

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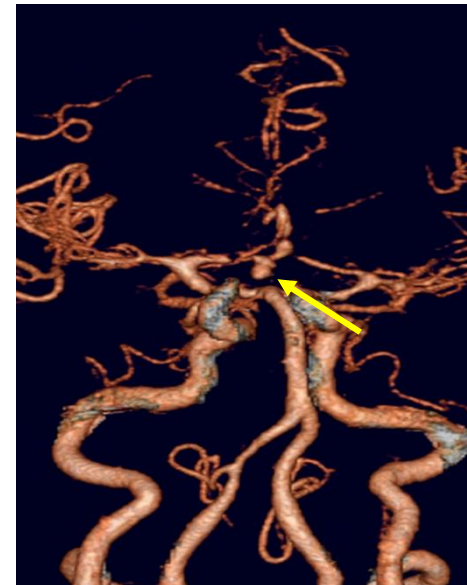
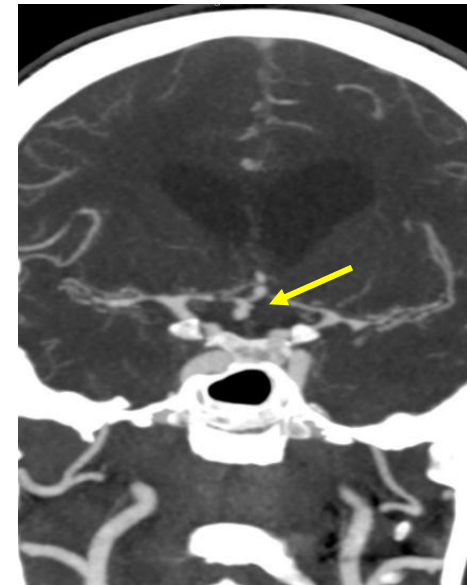
decreasing sensitivity with time

CTa = aneurysm



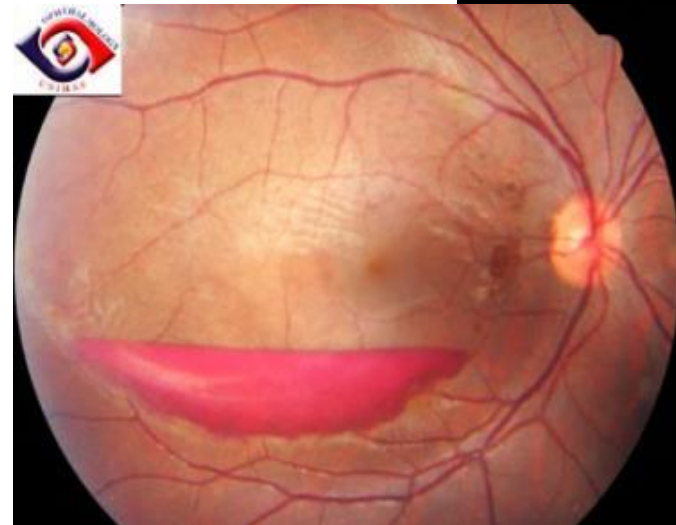
Legende

- 1: A. vertebralis
- 2: A. basilaris
- 3: A. cerebri posterior
- 4: A. communicans posterior
- 5: A. carotis interna
- 6: A. cerebri media
- 7: A. cerebri anterior
- 8: A. communicans anterior



Subarachnoid haemorrhage (SAH)

- Leakage of blood into CSF space with meningeal irritation:
85% Saccular Aneurysm, 10% perimesencephalic, 5% other
- Headache in isolation in up to 50-70%
- Thunderclap typical (peaks within mins & lasts at least 1hr)
- 'Worst Ever' with:
 - Vomiting in 70% (vs 42% in benign)
 - Meningism; photophobia
 - LOC: typically transient at onset (26-50%)
 - Transient focal neurology (33%)
 - Subhyaloid haemorrhage (17%)
 - Delirium (16%)
 - Epileptic seizures (6-9%)
 - Sudden death (10%)



Treatment: neurosurgical (coiling/embolization); IV fluids & 60mg nimodipine 4 hrly

SAH: a missed diagnosis

NCEPOD 2013= care unsatisfactory in 42% [177/427]; 30% requiring improvement in clinical approach

- 43% of cases [32/75] in 1° care diagnosis overlooked [sig impact on outcome in 23]
- 18% no formal neuro exam on initial presentation in 2° care

1 in 20 missed in A&E [Vermeulen et al 2007] as diagnosis not considered

Beware of distractors

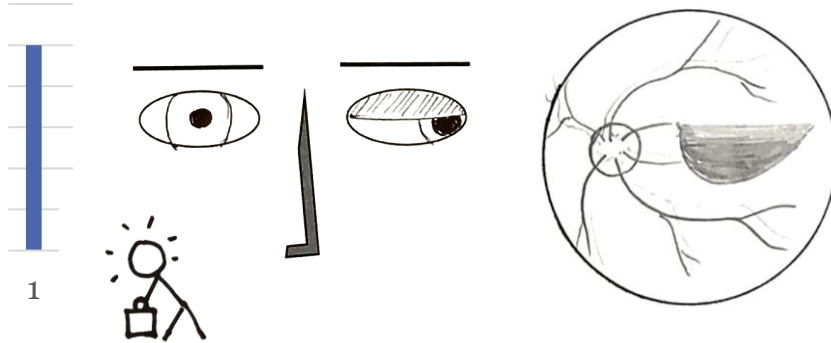
- Instantaneous headache only in 50%
- 10% present with a fit
- 1-2% present with isolated acute confusion
- Focusing on hypertension & arrhythmia
- LP is traumatic

With delay in diagnosis:

- 25% die before reaching hospital
- 25% die within hospital

Most likely diagnosis? Q1

Thunderclap
Valsalva
subhyaloid h



- A. Subarachnoid haemorrhage
- B. Venous sinus thrombosis
- C. Spontaneous intracranial hypotension
- D. Reversible cerebrovascular vasoconstriction syn
- E. Cervical arterial dissection
- F. Idiopathic intracranial hypertension
- G. Giant cell arteritis
- H. Acute intermittent angle closure glaucoma





Most likely diagnosis? Q1

Subarachnoid haemorrhage

0%

Venous sinus thrombosis

0%

Spontaneous intracranial hypotension

0%

Reversible cerebrovascular vasoconstriction syn

0%

Cervical arterial dissection

0%

Idiopathic intracranial hypertension

0%

Giant cell arteritis

0%

Acute intermittent angle closure glaucoma

0%



Most likely diagnosis? Q1

Subarachnoid haemorrhage

###.##%

Venous sinus thrombosis

###.##%

Spontaneous intracranial hypotension

###.##%

Reversible cerebrovascular vasoconstriction syn

###.##%

Cervical arterial dissection

###.##%

Idiopathic intracranial hypertension

###.##%

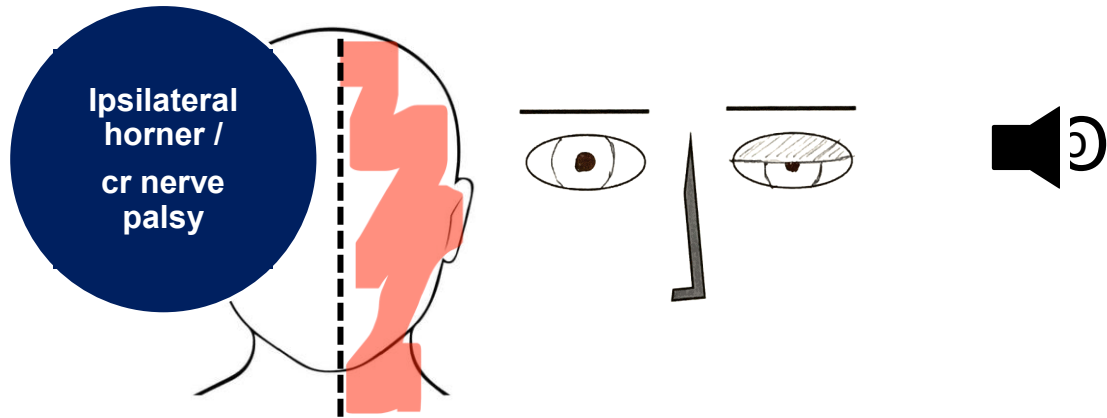
Giant cell arteritis

###.##%

Acute intermittent angle closure glaucoma

###.##%

Most likely diagnosis? Q2



- A. Subarachnoid haemorrhage
- B. Venous sinus thrombosis
- C. Spontaneous intracranial hypotension
- D. Reversible cerebrovascular vasoconstriction syn
- E. Cervical arterial dissection
- F. Idiopathic intracranial hypertension
- G. Giant cell arteritis
- H. Acute intermittent angle closure glaucoma





Most likely diagnosis? Q2

Subarachnoid haemorrhage

0%

Venous sinus thrombosis

0%

Spontaneous intracranial hypotension

0%

Reversible cerebrovascular vasoconstriction syn

0%

Cervical arterial dissection

0%

Idiopathic intracranial hypertension

0%

Giant cell arteritis

0%

Acute intermittent angle closure glaucoma

0%



Most likely diagnosis? Q2

Subarachnoid haemorrhage

###.##%

Venous sinus thrombosis

###.##%

Spontaneous intracranial hypotension

###.##%

Reversible cerebrovascular vasoconstriction syn

###.##%

Cervical arterial dissection

###.##%

Idiopathic intracranial hypertension

###.##%

Giant cell arteritis

###.##%

Acute intermittent angle closure glaucoma

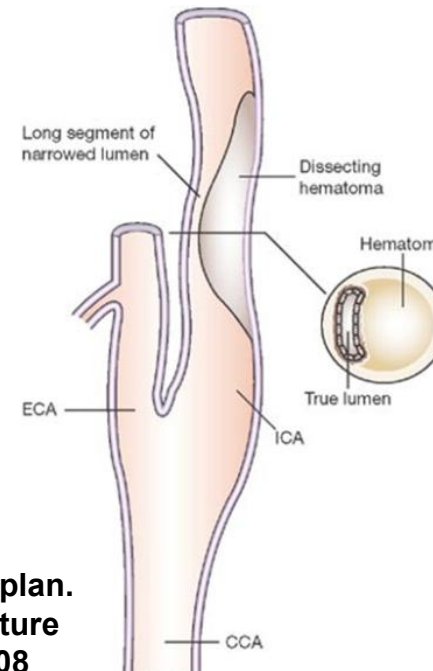
###.##%

Cervical arterial dissection

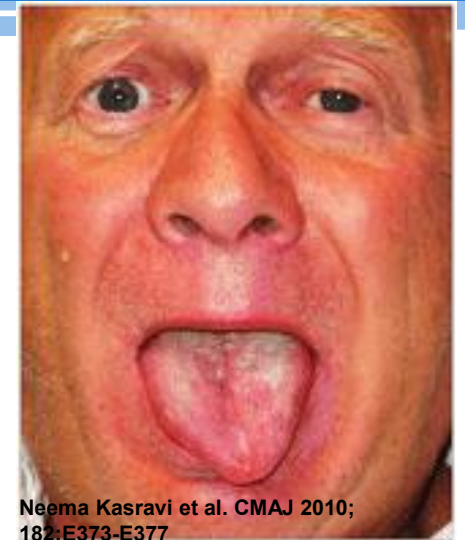
- headache in 60-95% & thunderclap in 1/5
- ipsilateral
- usually headache/ cranio-cervical pain plus [Silbert et al 1995]
 - Horner's
 - pulsatile tinnitus,
 - amaurosis fugax
 - cerebral ischaemic symptoms
 - ipsilateral cranial palsies in 12% [Mokri et al 1996]
 - 5% lower cranial nerve involvement- usually XII
 - 4% palsy of cranial nerve V
 - 3% ocular motor palsies

Treatment: anticoagulant v antiplatelet

anti-C superior to anti-P in reducing ischaemic stroke but carries higher risk of major bleeding



Caplan.
Nature
2008



Neema Kasravi et al. CMAJ 2010;
182:E373-E377

MR – T1 fat suppression



Stroke

CURRENT ISSUE

RESEARCH ARTICLE | Originally Published 7 June 2024 |

Check for updates

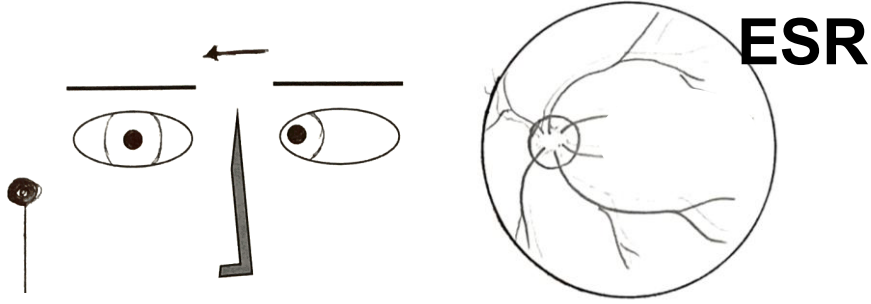
Anticoagulation Versus Antiplatelets in Spontaneous Cervical Artery Dissection: A Systematic Review and Meta-Analysis

Shadi Yaghi, MD , Liqi Shu, MD , Lauren Fletcher, MLIS , Fayez H. Fayad, BA, Asghar Shah, BA , Ana Herning, BS, Noail Isho, BS, ... [SHOW ALL](#) ... , and Hugh S. Markus, DM | [AUTHOR INFO & AFFILIATIONS](#)

Stroke • Volume 55, Number 7 • <https://doi.org/10.1161/STROKEAHA.124.047310>

Most likely diagnosis? Q3

Visual
obscuration-
Diplopia
ESR



- A. Subarachnoid haemorrhage
- B. Venous sinus thrombosis
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- D. Reversible cerebrovascular vasoconstriction syn
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- H. Acute intermittent angle closure glaucoma





Most likely diagnosis? Q3

Subarachnoid haemorrhage

0%

Venous sinus thrombosis

0%

Spontaneous intracranial hypotension

0%

Reversible cerebrovascular vasoconstriction syn

0%

Cervical arterial dissection

0%

Idiopathic intracranial hypertension

0%

Giant cell arteritis

0%

Acute intermittent angle closure glaucoma

0%



Most likely diagnosis? Q3

Subarachnoid haemorrhage

###.##%

Venous sinus thrombosis

###.##%

Spontaneous intracranial hypotension

###.##%

Reversible cerebrovascular vasoconstriction syn

###.##%

Cervical arterial dissection

###.##%

Idiopathic intracranial hypertension

###.##%

Giant cell arteritis

###.##%

Acute intermittent angle closure glaucoma

###.##%

Temporal arteritis

Critical to identify as 13% permanent visual loss

Ha characteristics unhelpful other than allodynia:

Headache, scalp tenderness, jaw claudication, weight loss, low grade fever, non-specifically unwell

Clinical suspicion high

- ❖ Consider in >50yrs; mean age 71yrs
- ❖ Most helpful clinical symptoms/signs are:

Diplopia

Jaw claudication

Temporal artery beading/ Palpable enlarged temporal artery

Temporal artery tenderness

Absent temporal artery pulse

Excess of vertebrobasilar territory ischaemic events: 7% vestibular symptoms [Caselli 1998]

ESR/Plt and CRP Normal < 1%

Temporal Artery Biopsy as soon as possible– but can be patchy; (?role of US)

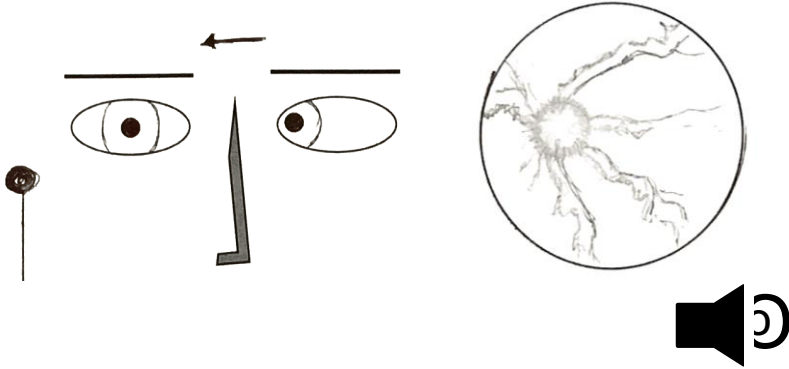
Treatment: High dose oral steroids 1mg/kg then 40-60mg- initial improvement of PMR by 48hrs & ESR by 72 hrs

NB steroids → non-specific improvement in many types headaches & this does NOT confirm the diagnosis



Most likely diagnosis? Q4

Visual loss/
obscuration-
papilloedema
diplopia
seizure



- A. Subarachnoid haemorrhage
- B. Venous sinus thrombosis
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- D. Reversible cerebrovascular vasoconstriction syn
- E. Cervical arterial dissection
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- G. Giant cell arteritis
- H. Acute intermittent angle closure glaucoma





Most likely diagnosis? Q4

Subarachnoid haemorrhage

0%

Venous sinus thrombosis

0%

Spontaneous intracranial hypotension

0%

Reversible cerebrovascular vasoconstriction syn

0%

Cervical arterial dissection

0%

Idiopathic intracranial hypertension

0%

Giant cell arteritis

0%

Acute intermittent angle closure glaucoma

0%



Most likely diagnosis? Q4

Subarachnoid haemorrhage

###.##%

Venous sinus thrombosis

###.##%

Spontaneous intracranial hypotension

###.##%

Reversible cerebrovascular vasoconstriction syn

###.##%

Cervical arterial dissection

###.##%

Idiopathic intracranial hypertension

###.##%

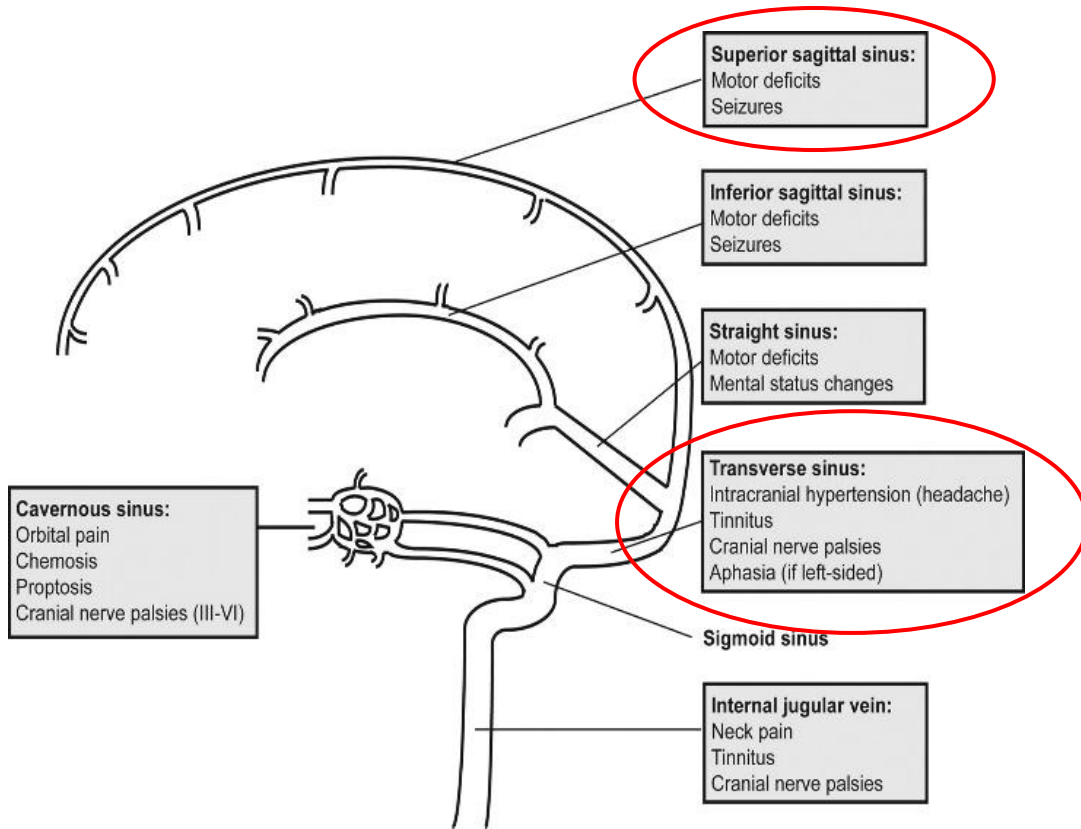
Giant cell arteritis

###.##%

Acute intermittent angle closure glaucoma

###.##%

Cerebral venous sinus thrombosis

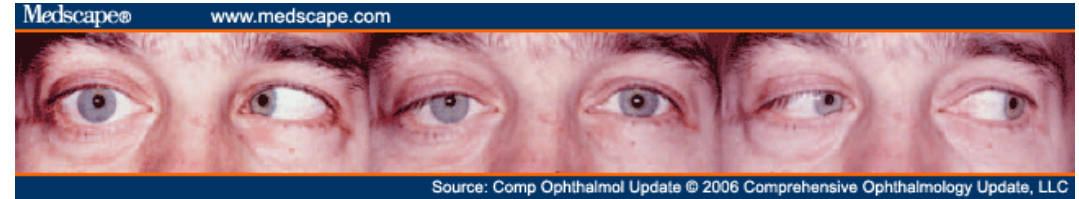


Gregory Piazza Circulation. 2012;125:1704-1709

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6th Cranial nerve palsy

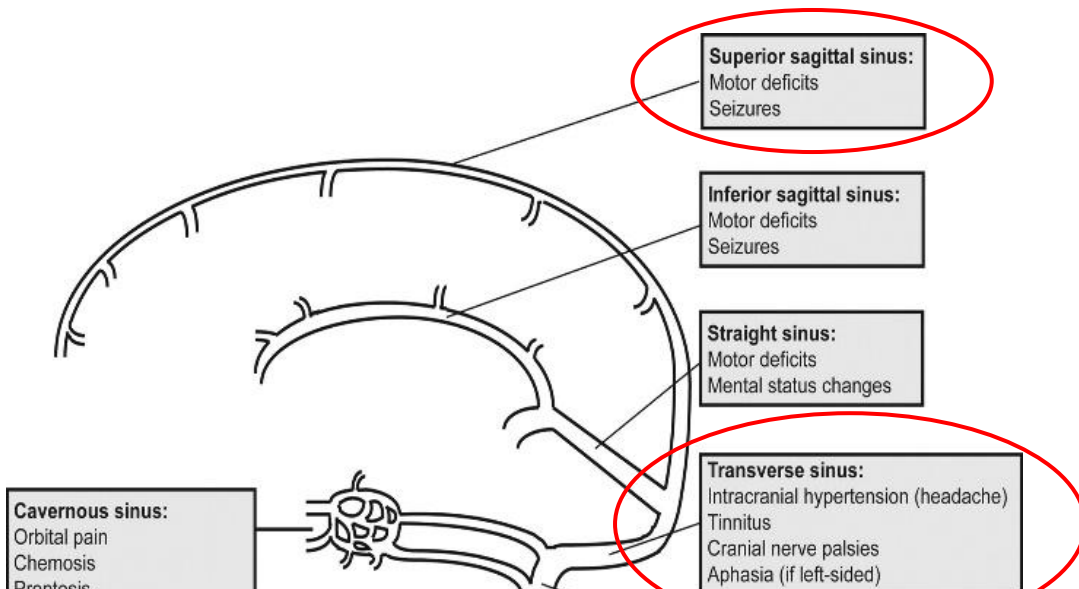


Papilloedema

- headache in 90%
 - typically progressive high pressure but can be thunderclap
- seizures in 40%
- bilateral brain involvement
- location: transverse sinus (62%) > sup sagittal sinus (45%) >>
- risk factors:
 - smoker
 - COCP & pregnancy/postpartum
 - cancer or other pro-coagulable state
 - dehydration & hyperviscosity

➤ **Treatment: anticoagulation ± endovascular clot retrieval**

Cerebral venous sinus thrombosis



Stroke

CURRENT ISSUE

REVIEW ARTICLE | Originally Published 29 January 2024 |

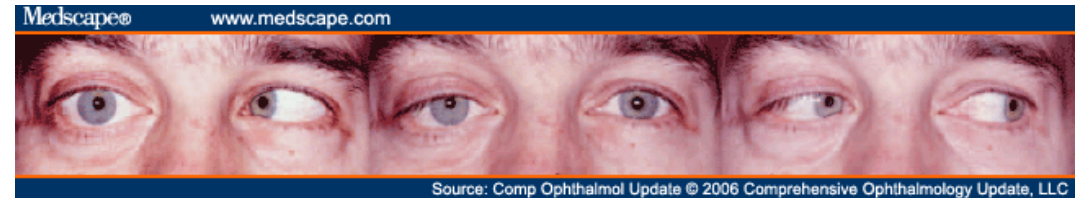
Check for updates

Diagnosis and Management of Cerebral Venous Thrombosis: A Scientific Statement From the American Heart Association

Gustavo Saposnik, MD, MPH, PhD, FAHA, Chair, Cheryl Bushnell, MD, MHS, FAHA, Vice Chair, Jonathan M. Coutinho, MD, PhD, Thalia S. Field, MD, MHSc, Karen L. Furie, MD, MPH, FAHA, Najibah Galadanci, MBBS, MPH, PhD, Wayneho Kam, MD, ... [SHOW ALL](#) ... on behalf of the American Heart Association Stroke Council; Council on Cardiopulmonary, Critical Care, Perioperative and Resuscitation; Council on Cardiovascular and Stroke Nursing; and Council on Hypertension | [AUTHOR INFO & AFFILIATIONS](#)

Stroke • Volume 55, Number 3 • <https://doi.org/10.1161/STR.0000000000000456>

6th Cranial nerve palsy



Papilloedema

-high index of suspicion esp. in progressive states /seizures

-direct relevant investigations

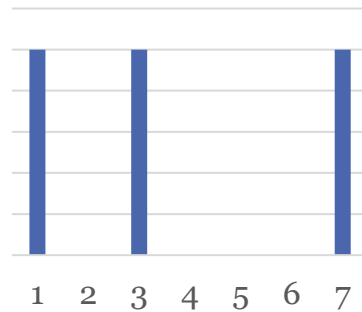
➤ look for papilloedema

- present in up to 25% of CVT [Crassard et al 2005]
- n131 papilloedema/?IIH- 10% CVT [Ferro et al 2004]

➤ >80% will have elevated OP on LP but not always when hyper-acute

→ direct appropriate imaging ie. venography if suspected

Most likely diagnosis? Q5



- A. Subarachnoid haemorrhage
- B. Venous sinus thrombosis
- C. Spontaneous intracranial hypotension
- D. Reversible cerebrovascular vasoconstriction syn
- E. Cervical arterial dissection
- F. Idiopathic intracranial hypertension
- G. Giant cell arteritis
- H. Acute intermittent angle closure glaucoma





Most likely diagnosis? Q5

Subarachnoid haemorrhage

0%

Venous sinus thrombosis

0%

Spontaneous intracranial hypotension

0%

Reversible cerebrovascular vasoconstriction syn

0%

Cervical arterial dissection

0%

Idiopathic intracranial hypertension

0%

Giant cell arteritis

0%

Acute intermittent angle closure glaucoma

0%



Most likely diagnosis? Q5

Subarachnoid haemorrhage

###.##%

Venous sinus thrombosis

###.##%

Spontaneous intracranial hypotension

###.##%

Reversible cerebrovascular vasoconstriction syn

###.##%

Cervical arterial dissection

###.##%

Idiopathic intracranial hypertension

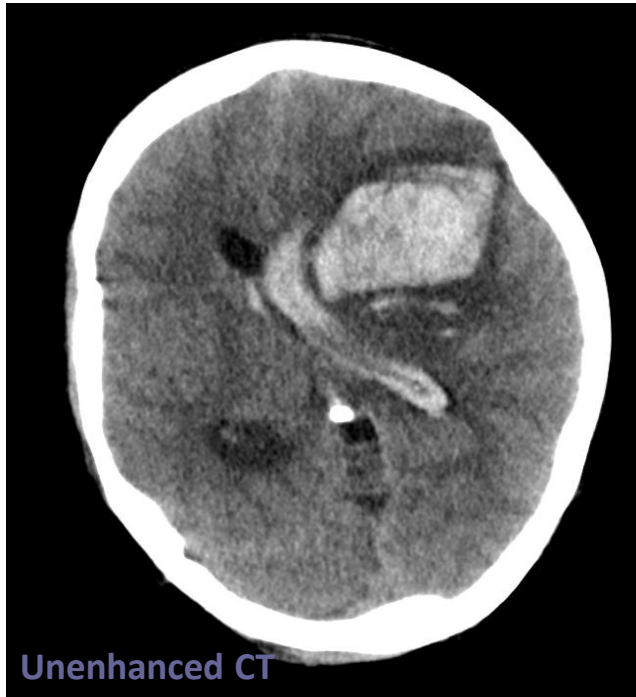
###.##%

Giant cell arteritis

###.##%

Acute intermittent angle closure glaucoma

###.##%



Reversible Cerebral vasoconstriction syndrome (RCVS)

- majority spontaneous but can be triggered
 - eg. vasoactive drugs (aka Call Fleming) or post-partum
- monophasic course
- recurrent thunderclap episodes over wks; spontaneously resolves (4-6 wks)
- transient disturbance in the control of cerebral vascular tone
- early complication: cortical SAH, ICH, seizures and PRES
- on cerebral angio 'beading' which fully reverses on f/u

Ducros & Boussier_Practical Neurology 2009

➤ **Treatment:**

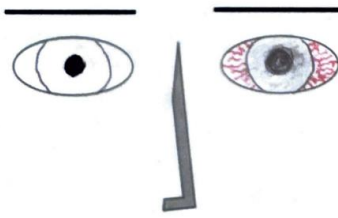
- remove trigger
- manage symptoms
- consider nimodipine (CCB's)



CT Angiogram (3D Reconstruction)

Most likely diagnosis? Q6

Recurrent
thunderclap,
rainbows,
red eye



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Most likely diagnosis? Q6

Subarachnoid haemorrhage

0%

Venous sinus thrombosis

0%

Spontaneous intracranial hypotension

0%

Reversible cerebrovascular vasoconstriction syn

0%

Cervical arterial dissection

0%

Idiopathic intracranial hypertension

0%

Giant cell arteritis

0%

Acute intermittent angle closure glaucoma

0%



Most likely diagnosis? Q6

Subarachnoid haemorrhage

###.##%

Venous sinus thrombosis

###.##%

Spontaneous intracranial hypotension

###.##%

Reversible cerebrovascular vasoconstriction syn

###.##%

Cervical arterial dissection

###.##%

Idiopathic intracranial hypertension

###.##%

Giant cell arteritis

###.##%

Acute intermittent angle closure glaucoma

###.##%

Acute intermittent angle closure glaucoma

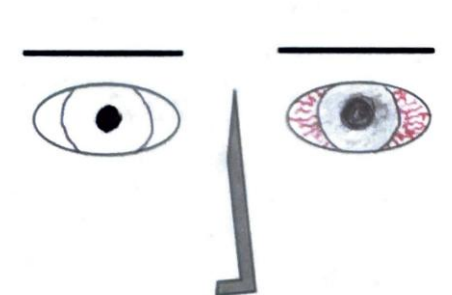
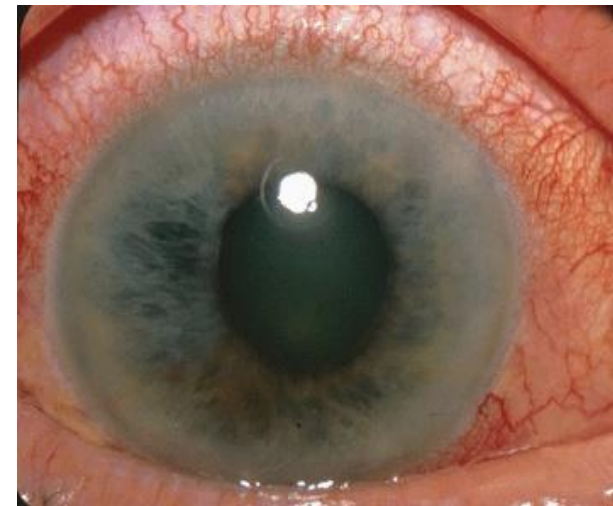
Attacks

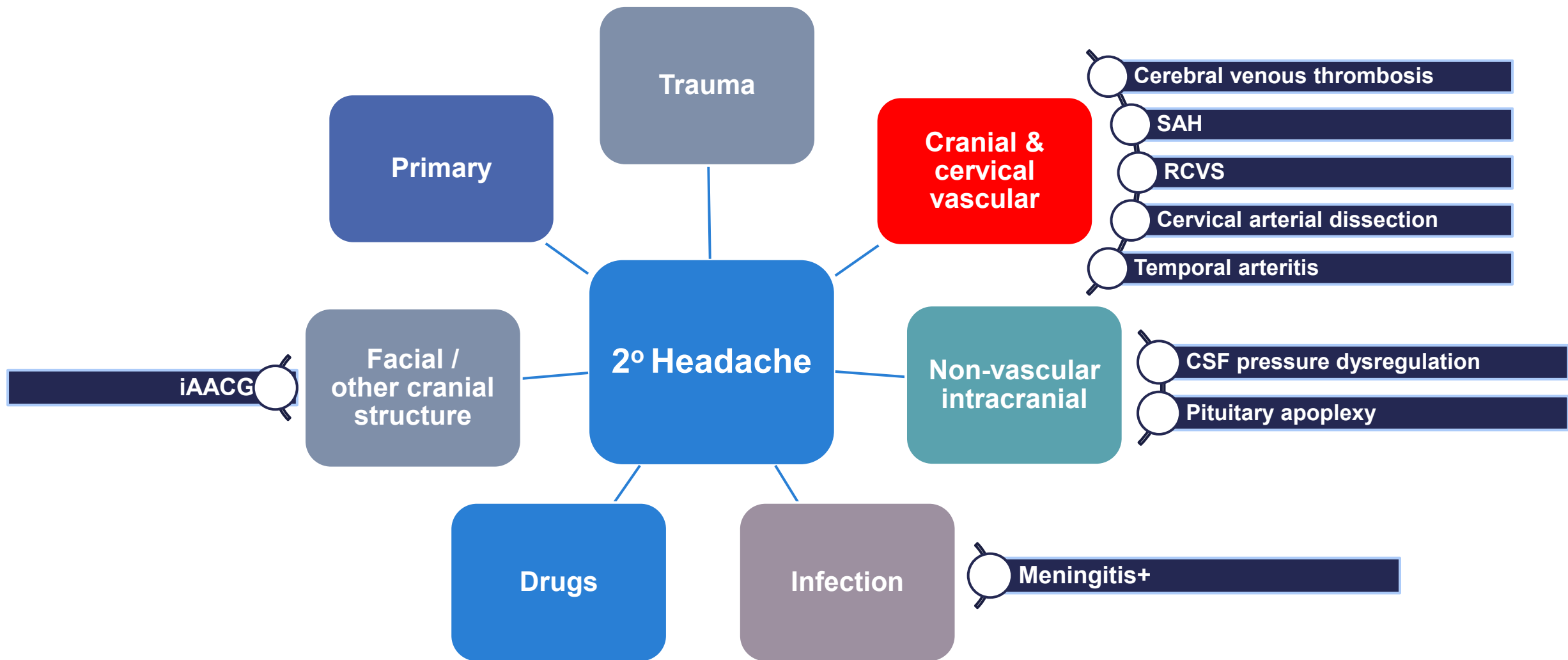
- Typically after dusk
 - dim light, pupil enlarges & iris blocks drainage angle - $\uparrow$ IOP
- Ipsilateral
- Eye pain or headache (relieved by being supine) lasting 1-2hrs +
- Nausea & vomiting
- Blurred vision & Rainbow coloured halos around bright lights



During an attack

- Conjunctival injection aka red eye
- Hazy cornea
- Sluggish midpoint dilated pupil
- $\pm$ papilloedema
- IOP $\uparrow \uparrow$





Presentations...time to be vigilant

Cranial & cervical vascular:

- SAH
- CVST
- CAD

Cranial non-vascular:

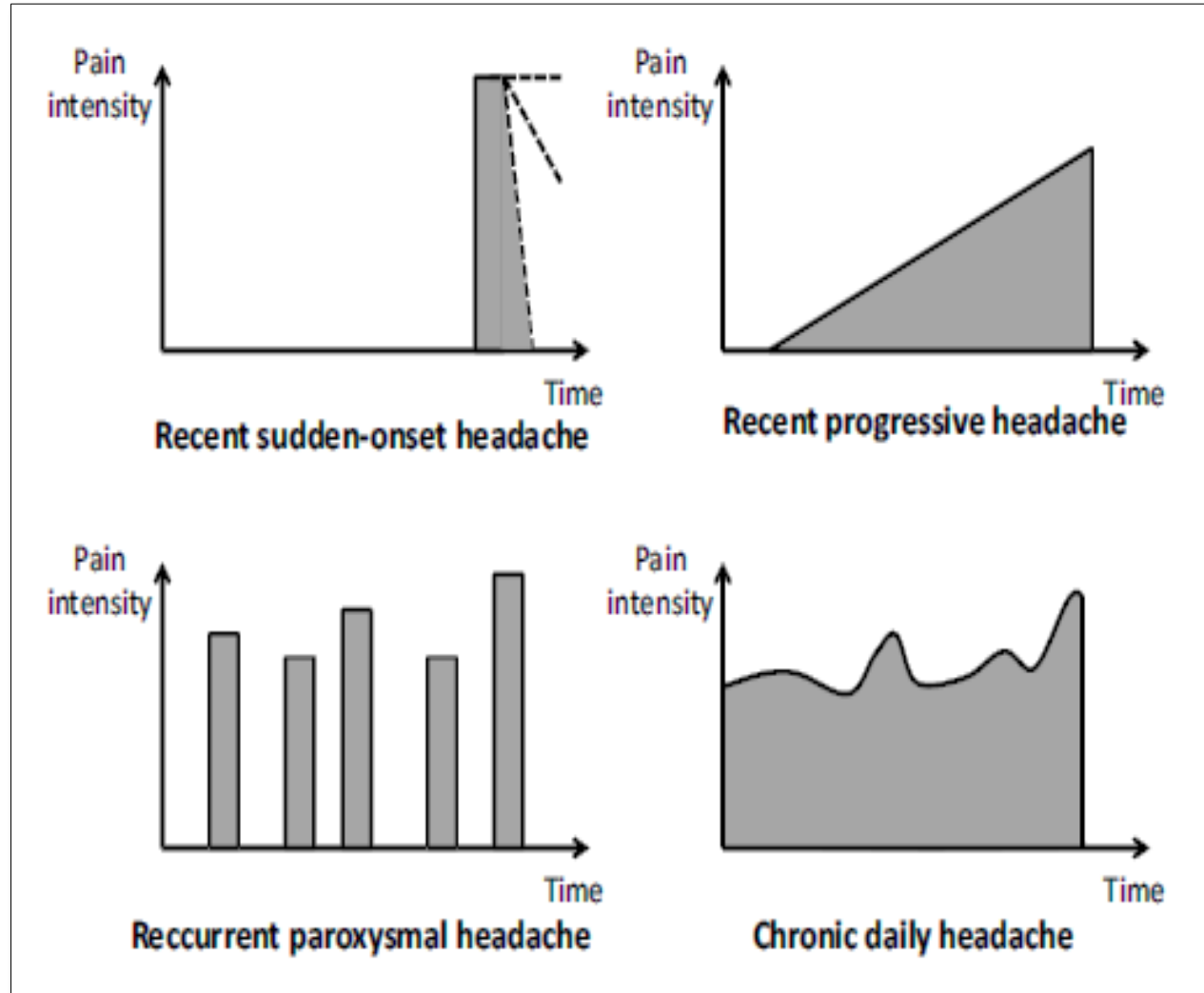
- SIH
- Pituitary apoplexy

Cranial & cervical vascular:

- RCVS

Other:

Acute intermittent angle closure glaucoma



Cranial & cervical vascular:

- CVST
- CAD

Cranial non-vascular:

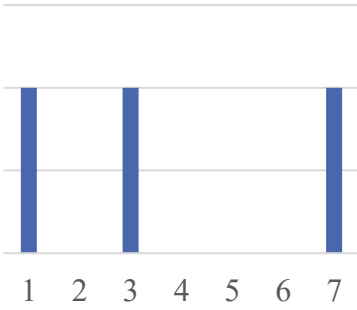
- SIH

Cranial non-vascular/
CSF pressure dysreg:

- SIH
- IIH

RCVS

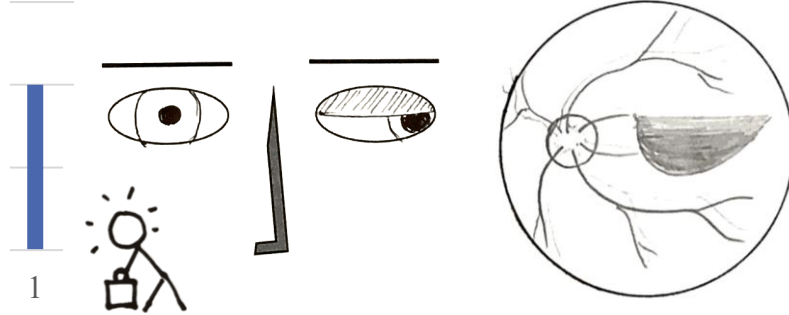
Recurrent
thunderclap
& trigger



Arterial

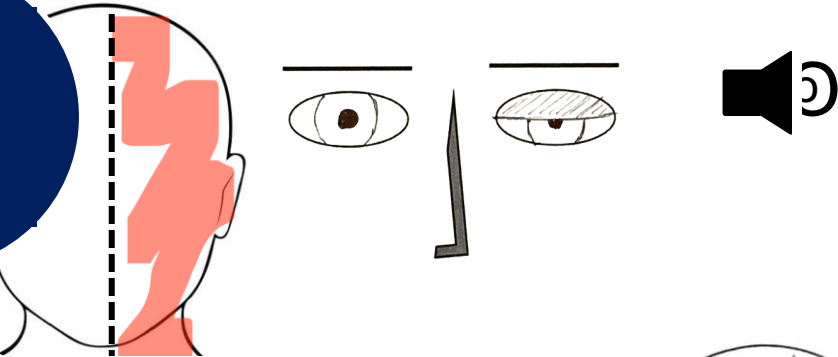
SAH

Thunderclap
Valsalva
subhyaloid h



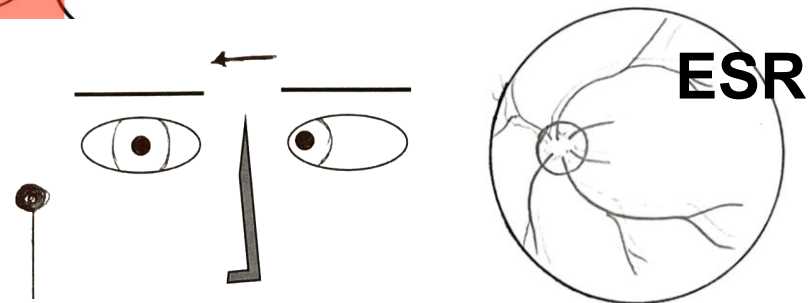
CAD

Ipsilateral
horner /
cr nerve
palsy



TA

Visual
obscuration-
Diplopia
ESR



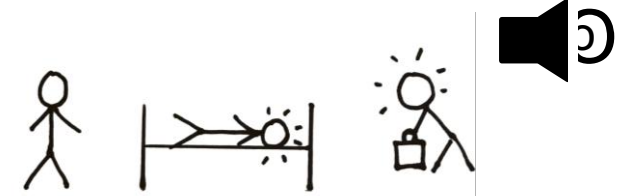
CVT

PP
Visual
obscuration-
papilloedema
seizure



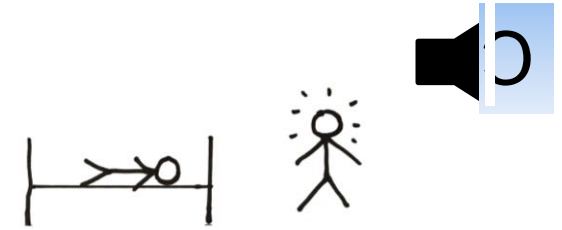
IIH

PP
Visual loss/
obscuration-
papilloedema



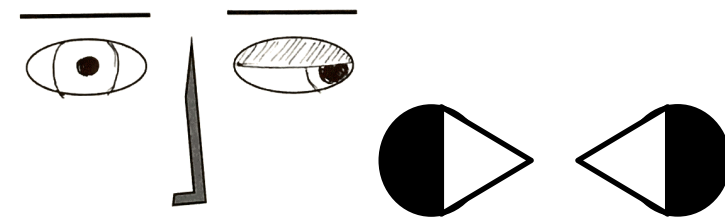
SIH

PP
Orthostatic
Audio-V Sx



Pit Apoplexy

Ophthalmo-
plegia
Bitemporal
heminaopia



Systemic features

Malignant hypertension BP ↑↑↑

Fever

Meningism

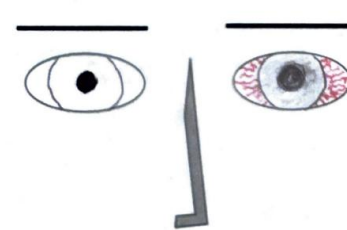
PRES

Visual disturb
Seizures
Confusion
Neuro deficit

Red eye

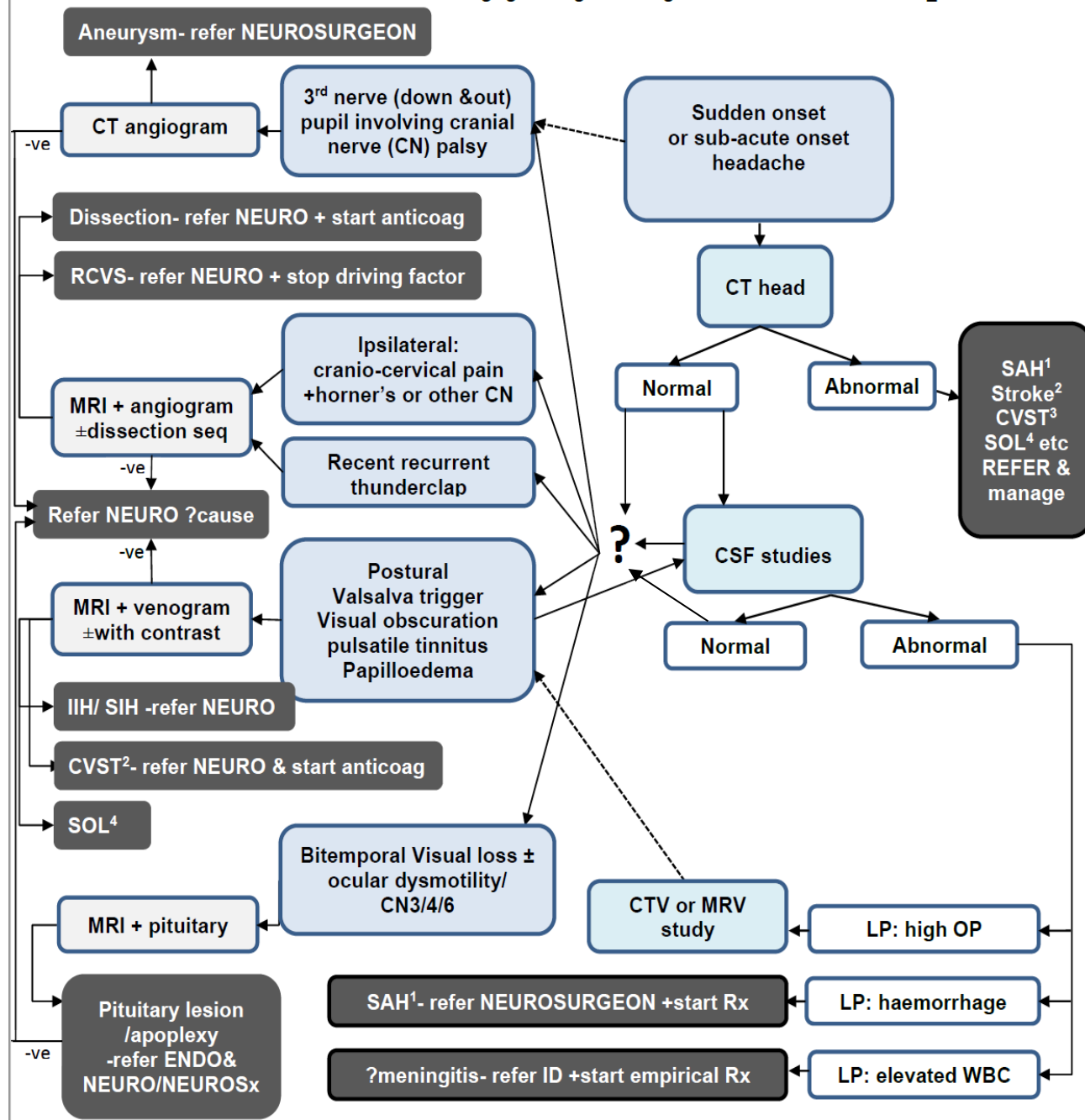
iAACG

Recurrent
thunderclap,
rainbows, &
red eye



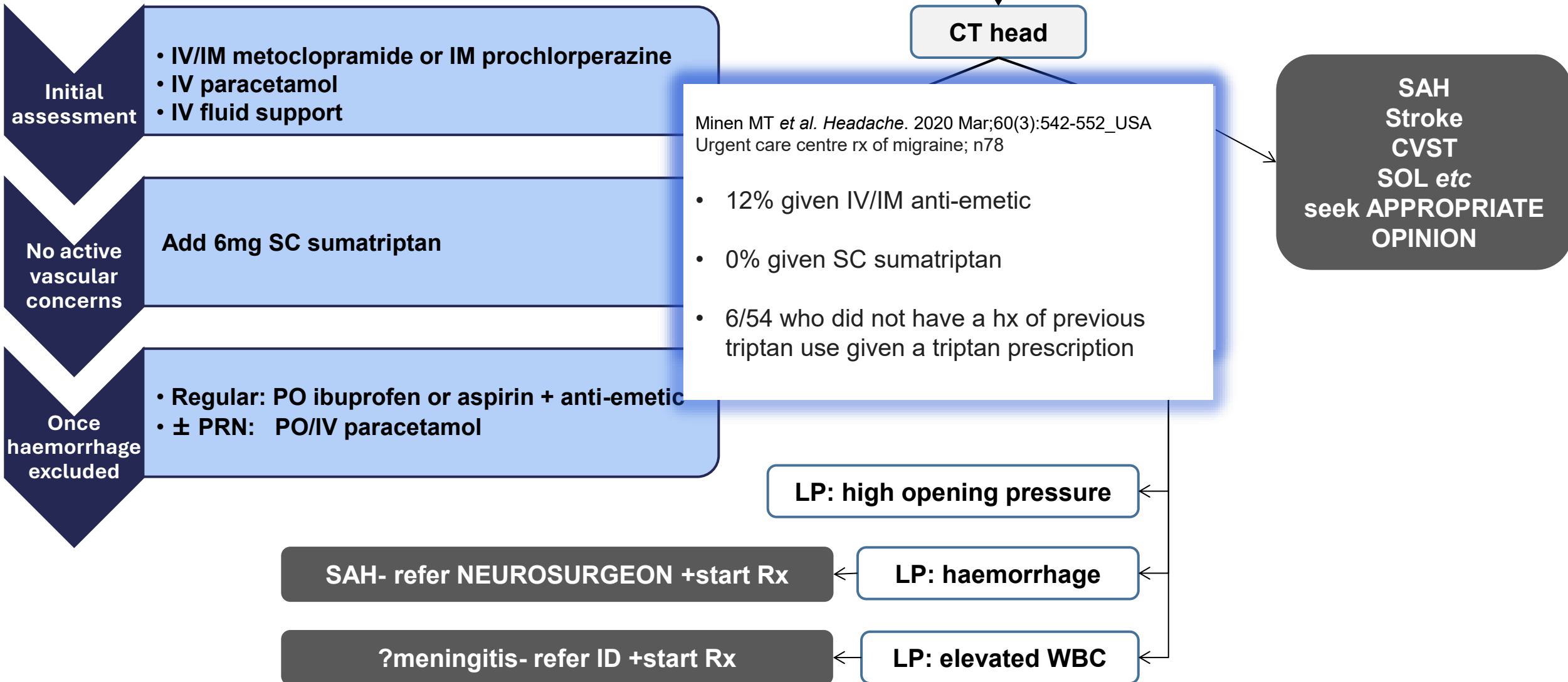
Beyond SAH

Imaging investigation infogram in sudden onset headache_Dr Jane M Anderson



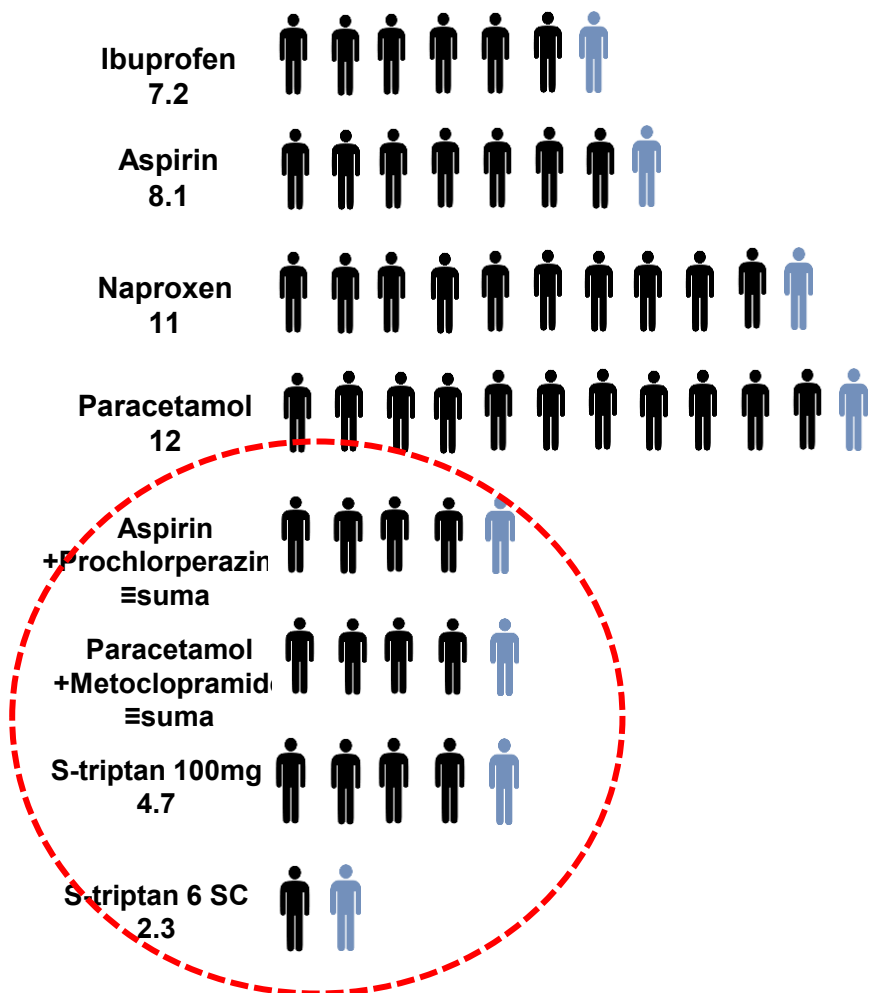
SAH: Subarachnoid haemorrhage,
LP: lumbar puncture

Treatment for acute headache in ER = Migraine Rx



The utility of anti-emetics

NNT for headache freedom at 2hrs



NNT from Cochrane Database/ SIGN 155

Class 1 evidence

Randomized study of IV prochlorperazine plus diphenhydramine vs IV hydromorphone for migraine

Friedman et al Neurology 2017

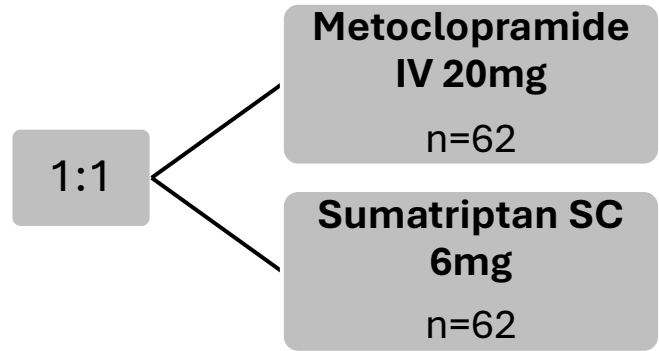
- n127 patients enrolled & trial halted by data monitoring committee
 - 1mg IV hydromorphone vs 10mg IV prochlorperazine
 - 1° outcome: patients with mild or no headache at 2 hours
 - Significant superiority established for prochlorperazine: achieved in 37 of 62 (60%) vs 20 of 64 (31%)
- **IV hydromorphone is less effective cf IV prochlorperazine for Rx acute migraine in the ED;**
opioids should not be used as 1st line Rx
- **RCT of IV prochlorperazine v sc sumatriptan = superiority of prochlorperazine in pain reduction**

Kostic et al. Ann Em med. 2010

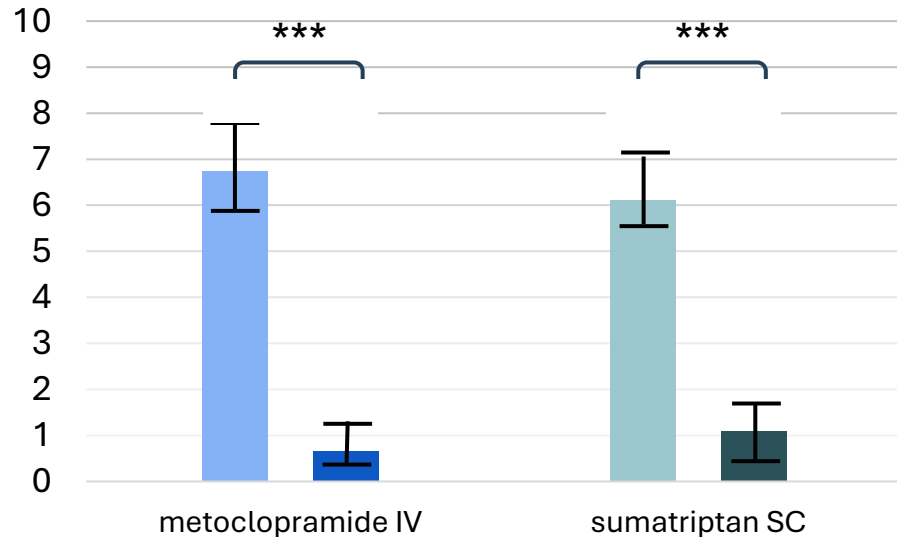
The utility of anti-emetics

➤ RCT Metoclopramide v sumatriptan for Rx of migraine

Talabi S et al. J Res Med Sci. 2013 Aug;18(8):695-8.



PAIN (VAS) IMPROVEMENT AT 1 HR



➤ RCT of IV prochlorperazine v sc sumatriptan = superiority of prochlorperazine in pain reduction

Kostic et al. Ann Em med. 2010

Canadian & American Headache Society position statement on emergency Rx of migraine

Drug	Canadian		American		German
	Recommendation strength	Level of Evidence	Recommendation strength	Level of Evidence	
Prochlorperazine IV	offer -strong	high	should offer	Level B	
Metoclopramide IV	offer -strong	moderate	should offer	Level B	+
ASA IV	offer -strong	moderate	may offer	Level C	+
Ketorolac IM and IV	offer -strong	low	may offer	Level C	
Sumatriptan SC	offer -strong	moderate	should offer	Level B	+

re. opioids

	Canadian		American	
	Recommendation strength	Level of Evidence	Recommendation strength	Level of Evidence
Morphine IV	against- weak	low	avoid	Level C
Tramadol IM	against- weak	low	none	Level U

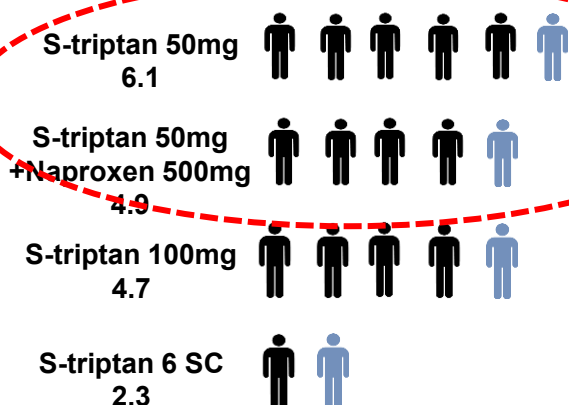
SM & hospitalisation
 Predictors of prolonged LOS
 >6 days:

- opioid use/abuse
- CCF
- chronic renal failure

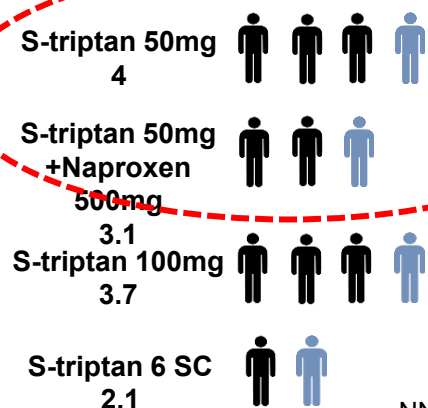
_Modi *et al.* 2006

Canadian & American Headache Society position statement on emergency Rx of migraine

NNT for headache freedom at 2hrs



NNT for headache relief at 2hrs



Drug	Canadian		American		German
	Recommendation strength	Level of Evidence	Recommendation strength	Level of Evidence	
Prochlorperazine IV	offer -strong	high	should offer	Level B	
Metoclopramide IV	offer -strong	moderate	should offer	Level B	+
ASA IV	offer -strong	moderate	may offer	Level C	+
Ketorolac IM and IV	offer -strong	low	may offer	Level C	
Sumatriptan SC	offer -strong	moderate	should offer	Level B	+

Drug	Canadian		American		German
	Recommendation strength	Level of Evidence	Recommendation strength	Level of Evidence	
Diclofenac IM & IV	offer -weak	low	may offer	Level C	-

Drug	Canadian		American		German
	Recommendation strength	Level of Evidence	Recommendation strength	Level of Evidence	
Acetaminophen	avoid -weak	low	may offer	Level C	-

FRONT DOOR

- IV/IM metoclopramide or prochlorperazine
- IV paracetamol
- IV fluid support
- Environment

Real concern of a vasospastic aetiology

active vascular concerns

- limited opioids or alternative

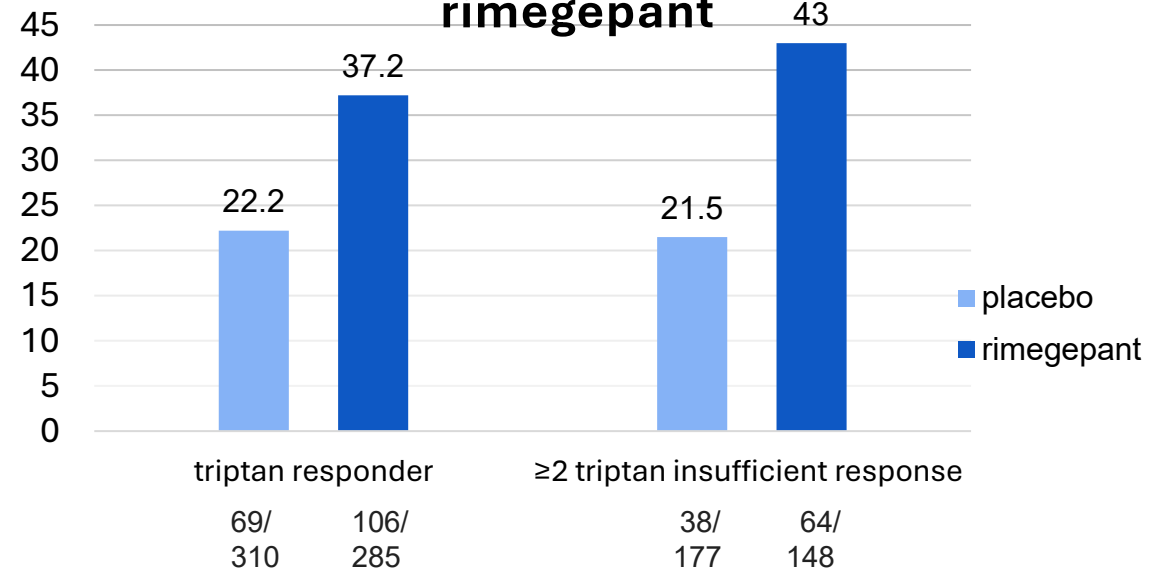
Once vasospastic excluded

- Add 6mg SC sumatriptan
- Regular: PO-IV ASA/ diclofenac +anti-emetic
- $\pm$ PRN: PO-IV paracetamol

Failed/ intolerant triptan

- Rimegepant 75mg ODT

% freedom from MBS at 2hrs on rimegepant



FRONT DOOR

- IV/IM metoclopramide or prochlorperazine
- IV paracetamol
- IV fluid support
- Environment

Real concern of a vasospastic aetiology

No concern of a vasospastic aetiology

active vascular concerns

- limited opioids or alternative

Once vasospastic excluded

- Add 6mg SC sumatriptan
- Regular: PO/IV ASA/ diclofenac +anti-emetic
- ± PRN: PO/ IV paracetamol

Failed/ intol triptan

- Rimegepant 75mg ODT

No past/ active vascular concerns

- Add 6mg SC sumatriptan

Failed/ intol triptan

- Rimegepant 75mg ODT

Maintenance

- Regular: PO-IV ASA/ diclofenac +anti-emetic
- ± PRN: PO-IV paracetamol

Old vascular concern

- Rimegepant 75mg ODT

Maintenance

- Regular: PO-IV ASA/ diclofenac +anti-emetic
- ± PRN: PO-IV paracetamol

The migraine challenge in ED

Headache attack:

- a) Occurring in patient with migraine- typical attack except its duration & severity
- b) Unremitting for >72 hours
- c) Pain and/or assoc. symptoms are debilitating

Remissions ≤ 12 hours (medication/sleep)

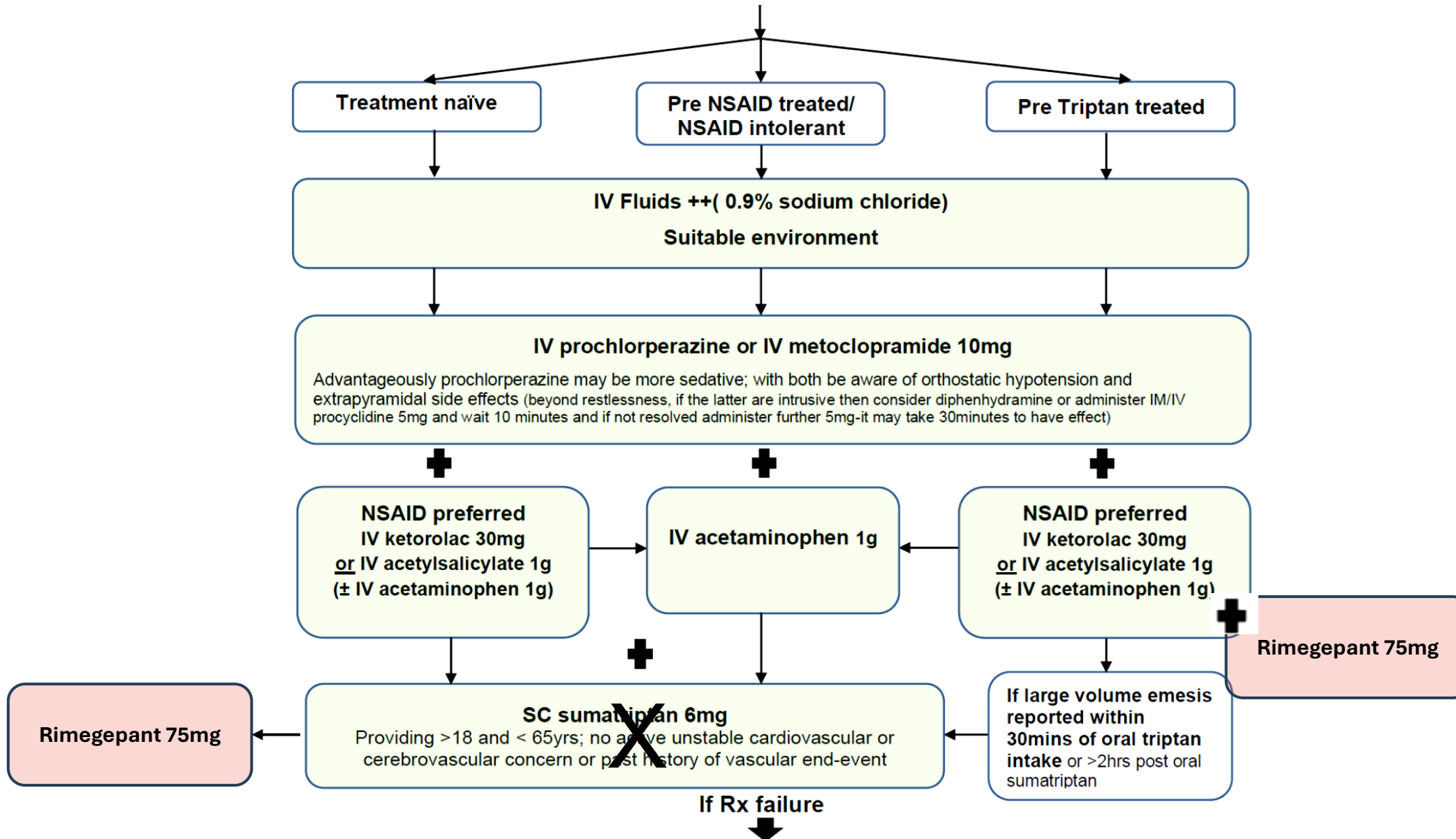
**Established
migraine**

**Status
migrainosus**

*not better accounted for by alt ICHD-3 diagnosis.

72
hours

Acute treatment of migraine/status in the ED based on the evidence



Rx options in status

	Canadian		American	
	Recommendation strength	Level of Evidence	Recommendation strength	Level of Evidence
Magnesium So4 IV	against- weak	low	none MwA may offer	Level U Level C
Chlorpromazine IV	offer -weak	moderate	may offer	Level C
Valproate	against- weak	low	may offer	Level C
DHE SC/IM	offer -weak	low	none	Level U

NO RESPONSE

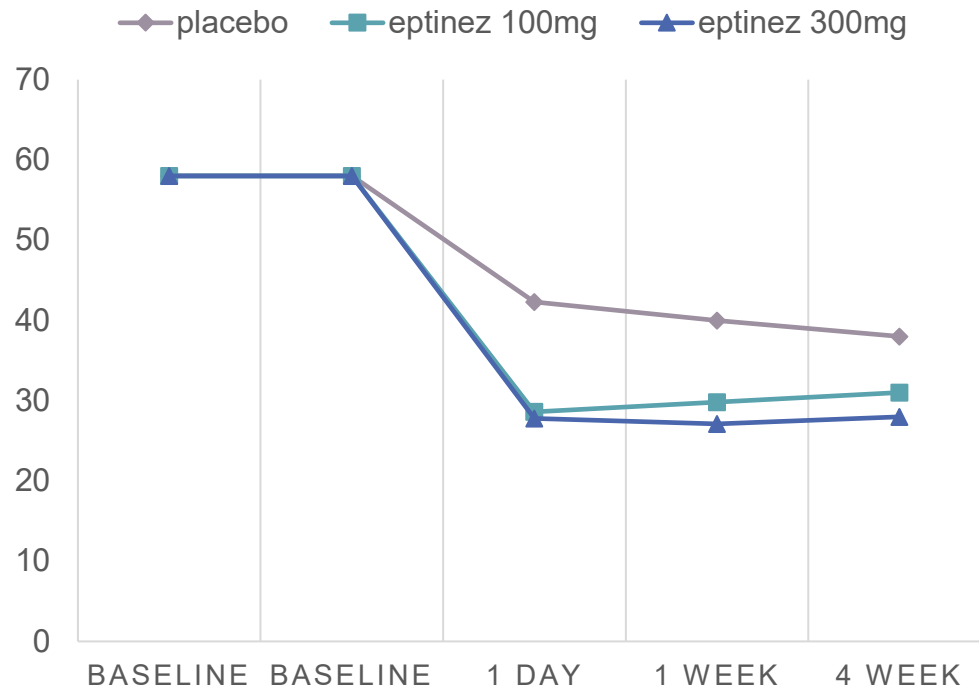
- IV magnesium sulfate 500mg-1g
- IV sodium valproate 500mg
- IV chlorpromazine 10mg*
- IV DHE 0.5-1mg (if no triptan in 24 hrs)

NO RESPONSE

- Regional anaesthetic cranial nerve blocks
- GON B
- SPG B

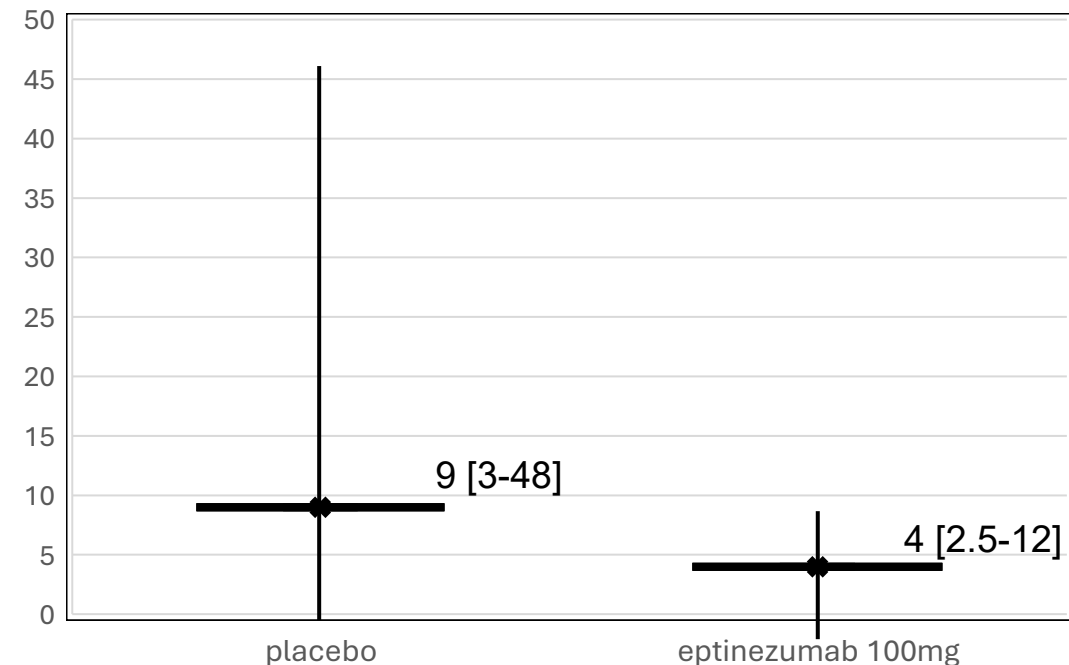
and treatments of future interest: CGRP mAb

PROMISE 2 CM: % of patients with migraine



Adapted from: Lipton RB et al. *Neurology*. 2020;94:e1365-e1377.

RELIEF: Hrs to pain freedom post infusion during attack (eptinezumab 100mg and eptinez n 238, placebo n242)

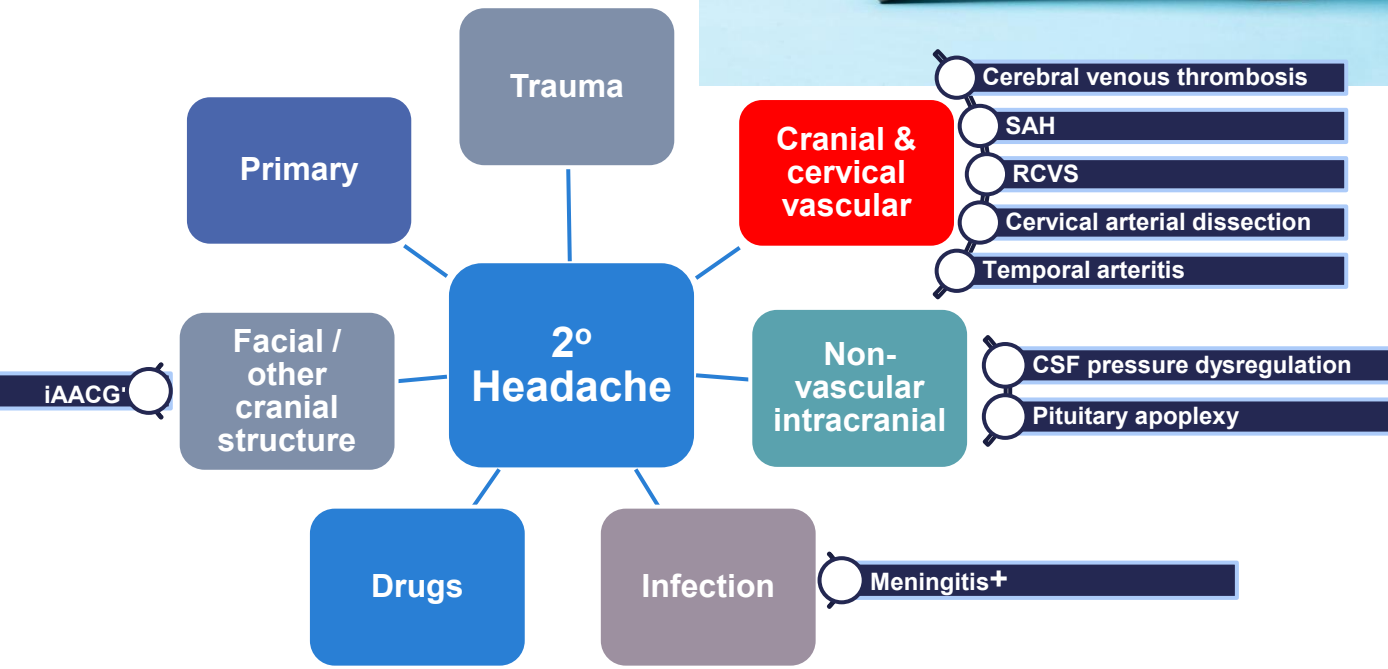


Adapted from: Winner PK et al. *JAMA*. 2021;325(23):2348-2356.

SMITE: status migrainosus inpatient treatment with eptinezumab_ in progress (Australia)

Summary

- ✓ Spot the zebras in ED to exclude worrying 2° headaches



- ✓ Empirically treat for migraine

Initial assessment

- IV/IM metoclopramide or IM prochlorperazine
- IV paracetamol
- IV fluid support

No concern of a vasospastic aetiology

No past/active vascular concerns

- Add 6mg SC sumatriptan

Failed/ intol triptan

- Rimegepant 75mg ODT

Maintenance

- Regular: PO-IV ASA diclofenac +anti-emetic
- ± PRN: PO-IV paracetamol

Thank you for listening

