Headache Management in General Medicine

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12th September 2024 : RCP Update in Medicine

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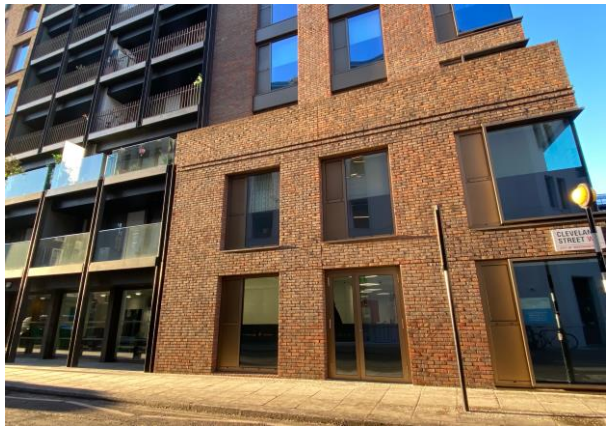

Cephalalgia
An International Journal of Headache
International Headache Society

https://ichd-3.org

Cephalalgia
2018, Vol. 38(1) 1–211

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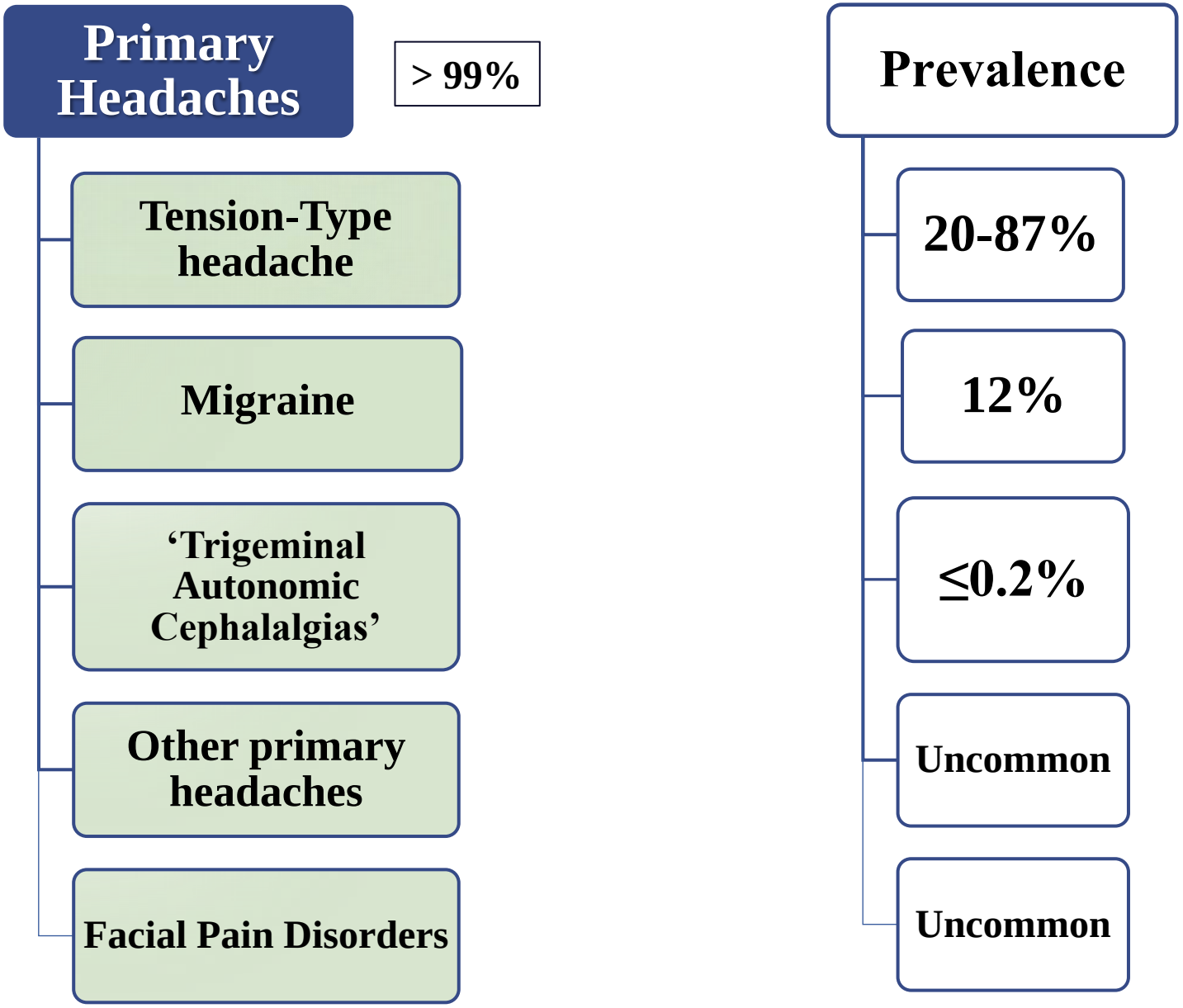
SAGE

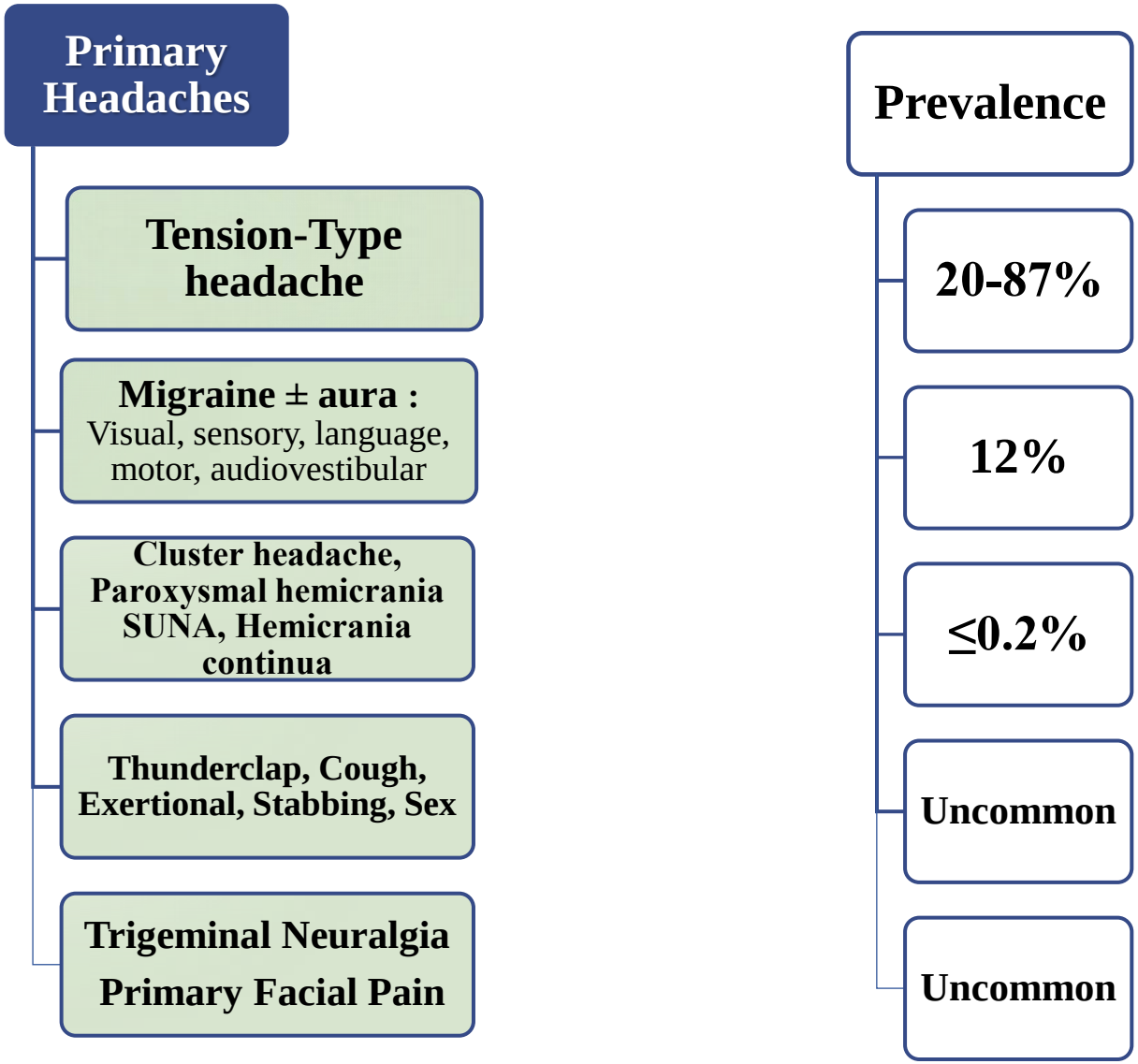
Classification of Headache Disorders

0.2 -0.4 %

Primary Headaches

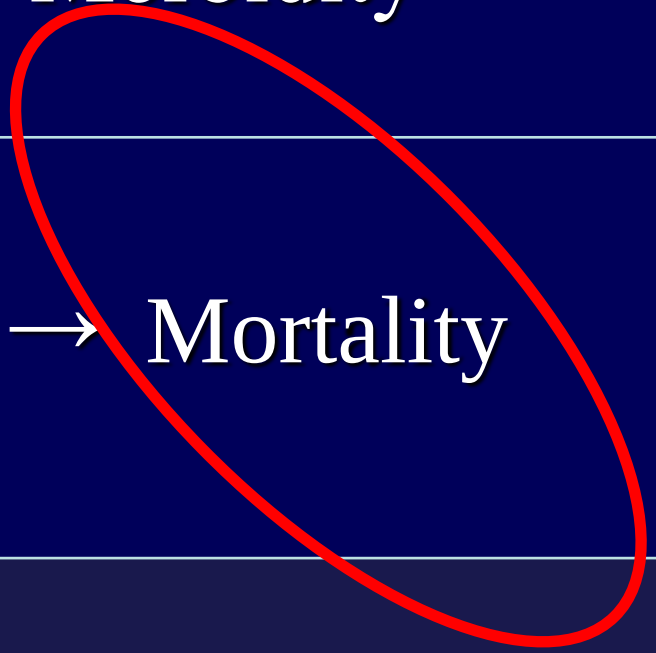
Secondary Headaches


Primary Headaches
> 99%
Prevalence
Tension-Type headache
20-87%
Migraine
12%
'Trigeminal Autonomic Cephalalgias'
≤0.2%
Other primary headaches
Uncommon
Facial Pain Disorders
Uncommon


Primary Headaches
Tension-Type headache
Migraine ± aura : Visual, sensory, language, motor, audiovestibular
Cluster headache, Paroxysmal hemicrania SUNA, Hemicrania continua
Thunderclap, Cough, Exertional, Stabbing, Sex
Trigeminal Neuralgia
Primary Facial Pain
Prevalence
20-87%
12%
≤0.2%
Uncommon
Uncommon

Primary and Secondary Headache

Primary headache	→ Morbidity
Secondary headache	→ Mortality



Headache %	All	Secondary
Primary Care	3[1]	<1
Neurology Clinics	25-40[2]	<1
A&E	2[3]	8

1. Kernick, Br J Gen Pract 2008
2. Axinte, Clin Med 2015, Fletcher, Future Healthc Journal 2019
3. McCaig, Adv Data 2003, Granato Acta Neur Belg 2022, Park, Headache 2023, Kuan Medicina 2023

When to scan Headache ?

Secondary Headache

- Abnormal scans in normals
- Abnormal scans in headache
- How to differentiate ‘true’ 2° vs 1° headache

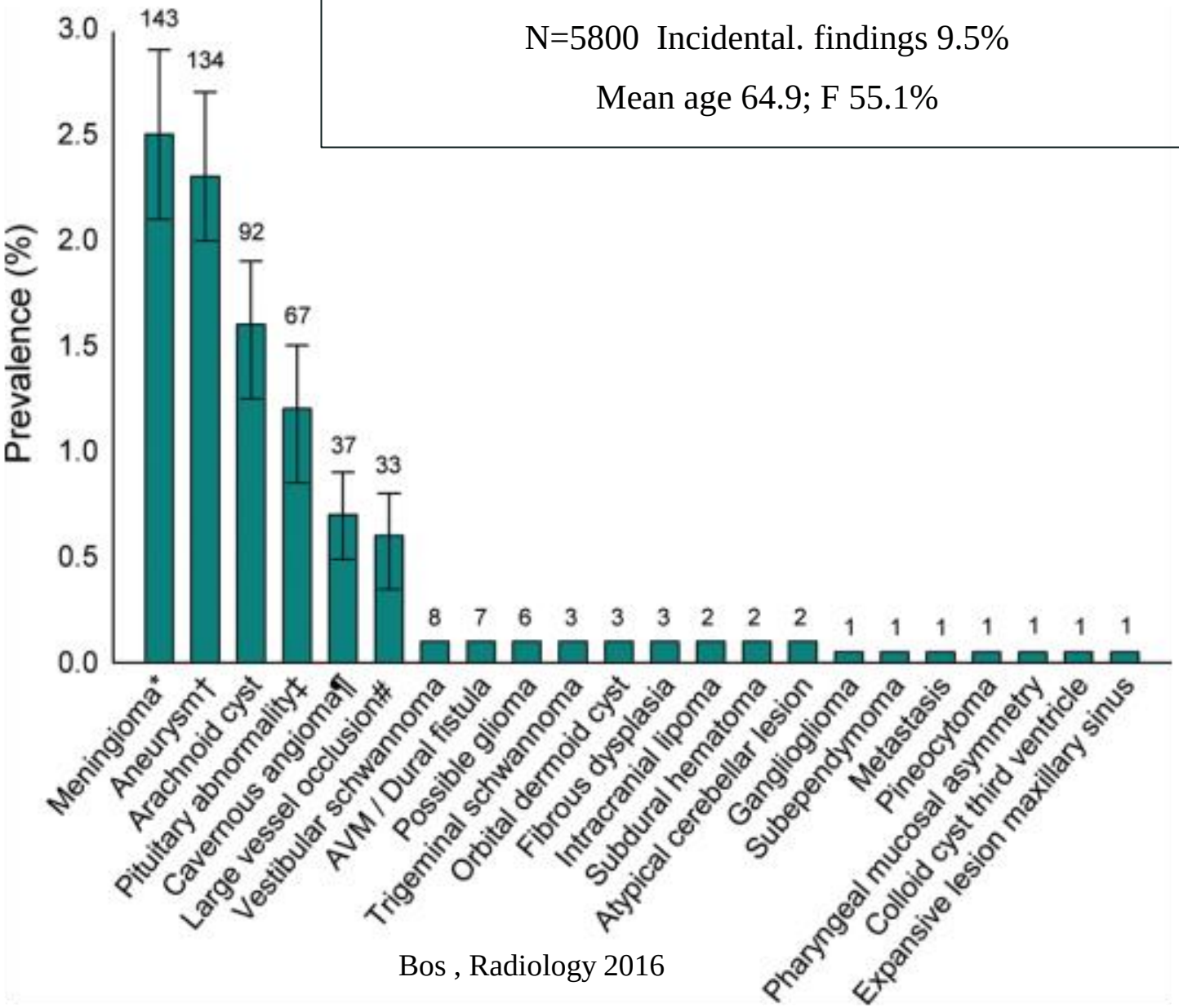
Brain Imaging in 'Normals'

Study	N	Age yrs	Population	% Abnormal	% Relevant
Jansen 2017	3966	Mean 10.1	Population-based	**25.6**	**0.46**
Weber 2005	2536	Mean 20.5	Army recruits	**6.55**	**0.55**
Morris 2009	19,559	1st-9th decades	Meta-analysis	**2.7**	-
Bos 2016	5800	>45 years	Population-based	**9.5**	**3.2**
Haburg 2016	1006	55-66	Population-based	**32.7**	**15.1**
Boutet 2017	503	Mean 75.3	Retired volunteers	**77.9**	**4.3**
Keuss 2019	502	Mean 70.7	Observational British Birth Cohort	**33**	**4.5**

The Population- based Rotterdam Scan Study

N=5800 Incidental. findings 9.5%

Mean age 64.9; F 55.1%



Bos , Radiology 2016

Prevalence of incidental and non-incidental findings in headache = Non-headache*

Study	N	Age yrs	Population	% Abnormal	% Relevant
Alter 1994 (Evans 2020)	897	Adult	Migraine ± Aura CT/MRI	MO / MA 'Atypical"	**0.4** **2.4**
Dumas 1994	373	Mean 39.3	Chronic headache (CT/MRI)	4.8%	**1**
Akpek 1995	546	Mean 44.3	Isolated headache (CT)	7.8	**0**
Sempere 2006	1876	Mean 38	Neurology Clinic CT/MRI All headache	1.2	**0.4**
Wang 2019	1070 1070	Mean 40	Controls Primary headache MRI	-	**0.73** **0.58**
Jang, 2019	2377	-	Primary headache Meta-analysis	8.86	-
Kim 2020	927	Mean 47.7	1st headache visit Primary headache (CT/MRI)	18.3	**3.6** (> in 40 + yrs)

*Evans, Headache 2020 – AHS Systematic review - 23 relevant studies

Emergency Non-Traumatic Headache

	N	% A&E Visits	% Secondary	% Primary			
				Mig	TTH	Non-specific	Other
Barton 1993	277	1.7	**5**	60	8	25	2
Sahai-Srivastava 2008	100		**8**	42	-	42	8
Locker 2006	558	0.85	**13.4** (42.1 total)	22	11.1	17.6	3.4
				No diagnosis 3.8			
Kelly 2021	4536		**7.1**	24.3	Benign 45.3		
Handschin 2020	1132	10.1	**6.2**	-	-	-	-

Predictors of Secondary Headache * Any one → Sensitivity 98.6% & specificity 34.4%	Likelihood Ratio
Sudden Onset*	1.74
Abnormal neurological examination* *	3.56
Systemic Features	2.27
Age > 50 years*	2.34

Locker at al. Headache. 2006 (n = 558) / Ramirez-Lassepas. Arch Neurol. 1997
Bo, 2008 / Edlow, 2008/ Goldstein 2006 / Detsky 2006 /handschin 2020/ Ozawa 2019/ Ceronie 2021/Gilbert 2012

* Seizure / GCS / confusional state / behavioral change

Study	n	CNS Tumour	CNS Cancer	Guideline Adherence	Other Key Findings **2WW Pathway**
Tengah. (2003)	43		9%	71%	69 (94%) diagnosed via other referral routes
Abernathy (2008)	13	0%		7.7%	6 CNS tumours outside 2WW pathway.
Panicker (2012)	70	11%	7%	18%	Newly diagnosed CNS tumour rate only 4.6%; remainder already known
Hamdan (2013)	85	21.2%		41%	Great yield with **greater guideline adherence**. Most identified by non-urgent pathway.
Webb (2015)	98	9.5%	6.7%	71%	**Seizures or subacute focal symptoms more likely to result in a significant neurological diagnosis. Isolated headache 0%.**
Mohammad (2016)	393		3.1%	100% 2005	**CNS symptoms (PPV 4.1%), progressive, subacute focal deficit or cognitive/behavioural/personality change (3.7%), headaches feature of raised ICP (1.2%)**
Ceronie (2020)	153	15.3%	2.6%	77.7%	No individual /groups of signs or symptoms predicted brain cancer. **Behavioural/ personality change and sub-acute neurological deficit met the PPV 3% referral threshold.** 70 already imaged excluded

2WW Brain Cancer : Commonest cause for referral – Headache

NICE 2005 Referral Criteria
Symptoms related to the CNS
New onset headaches becoming progressively severe with features of raised ICP
Subacute focal or non-focal neurological deficit
Suspected recent onset seizures
Behavioural and cognitive symptoms
NICE 2015 Referral Criteria
Progressive subacute loss of central neurological function

Not predictors of Secondary Headache
Severity
Chronic daily headache
Response to treatment (Rosenberg 2005, Levy 2005, Cremer 1995
Any history of malignancy/immunosuppression
‘Early morning headache’

Possible predictors of Secondary Headache
Vomiting
Other headache syndromes ?
± Change in headache pattern ?

Forsyth 1993, Valentis 2009, Vázquez-Barquero 2009, Friedman 2017

Early Morning Headache

- IIH -20% early morning headache - Hanne Cephalalgia 2015
- Presence/absence of brain oedema & midline shift - no influence on headache features in brain tumours – Valentinis Cephalalgia 2010
- Brain cancer – no difference in headache with ‘features of raised ICP’ and without - Ceronie, Clin Med 2021
- Chronobiology of migraine (n=4660) – majority attacks occur 0600 – 1200 Poulsen, J Head Pain 2021
- Headache & sleep (n=1283) – ‘Awakening headaches’ in 71% - Kelman, Headache 2005

Thunderclap Headache

- 43/100,000 persons per year- 38/ 100,000 primary[1]
- ICHD (3) definition for PTH: Escalation within 1min
- 2° - SAH 9 /100, 000/ yr; case fatality up to 66% [2]
- SAH – 85% aneurysmal ; 10% perimesencephalic
- Sentinel headache – 14 %[3,4]

1. Landtblom, 2009 (Sudden = 10s). 2. Lovelock, 2010. 3. Viarasilpa, 2020, 4. Lebedeva 2020

Secondary and Primary Thunderclap Headache

%	ASAH	PMH	PTH
‘Burst’	12	4	14
Instantaneous	15	35	68
2-60 seconds	24	26	5
1-5 minutes	19	35	19
> 5 minutes	0	4	3

Linn et al. JNNP 1998;65:791-793

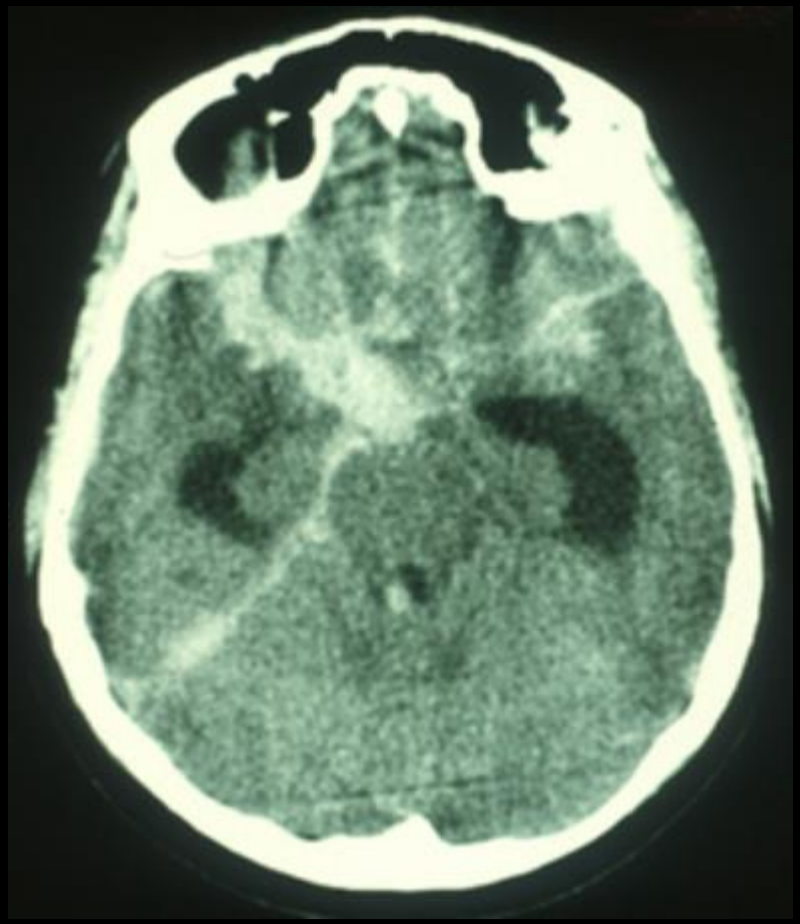
Secondary and Primary Thunderclap Headache

	ASAH	PMH	BTH
Age (mean)	49	56	36
Past similar headache %	19	4	14
Severity score (1-10)	7-10	10	7-10
Precipitating event %	50	39	22

- Coitus
- Straining on toilet
- Lifting
- Diving/swimming
- Exertion

Linn et al. JNNP 1998;65:791-793

Management of Thunderclap Headache



MSCT head within 6 hours

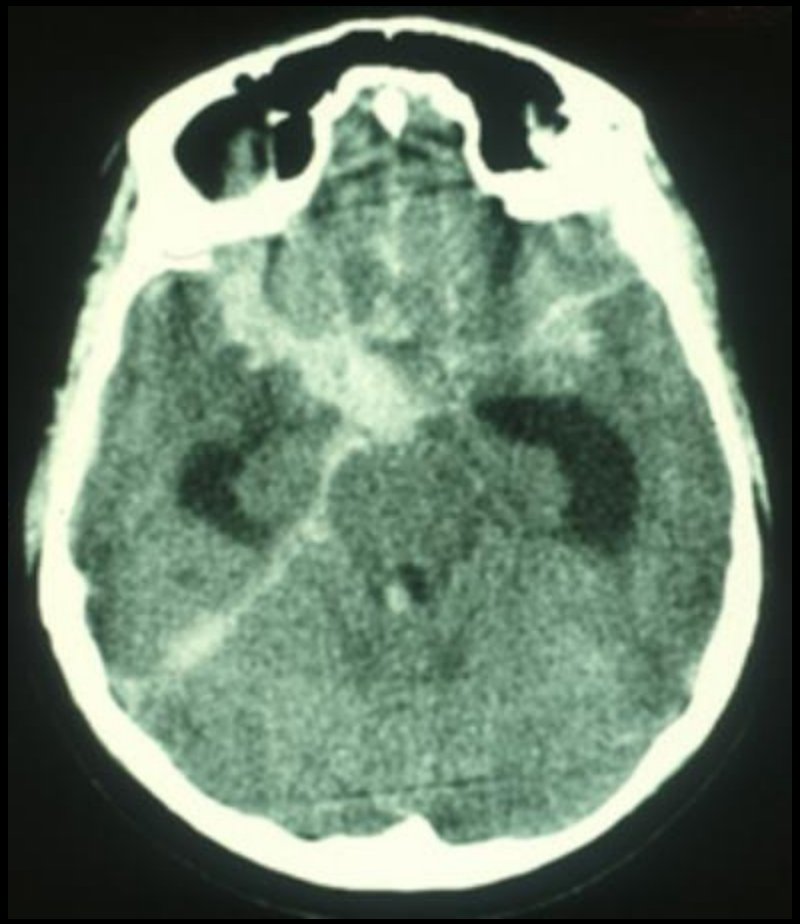
* Sensitive in 100% in 24h ; 99.6% ASAH, 99% for all SAH in 48h

CSF Xanthochromia - 100% sensitive 12h – 2 weeks

Xanthochromia in CT negatives 0.4-7%

Vincent 2022*, Dubosh 2016, Backes 2012, Perry 2011, Blok 2015

Management of Thunderclap Headache



What if ictus was > 2 weeks ago

Role of MRI

Role of angio – CTA

Recurrent thunderclap headache

Thunderclap Headache

Subarachnoid heamorrhage	Can be isolated headache
Cerebral venous sinus thrombosis	Focal Neurology / Raised ICP
Arterial dissection	Focal Neurology
IC haemorrhage	Focal Neurology
Pituitary apoplexy	Systemic features
Primary thunderclap headache	Normal CT/CSF/Exam

Primary Thunderclap Headache

Retrospective /Prospective (R/P)	Wijdicks 1988 (R)	Harling 1989 (P)	Markus 1991 (P)	Linn 1999 (R)	Landtblom 2002 (P)
N	71	14	16	93	103
F:M	1.2	-	1	0.35	1.3
Mean follow-up	3.3 yrs (1-7)	(1.5-2.5 yrs)	1.7 yrs (1.2-2)	5 yrs (1-10)	1 yr
Recurrent TH	17	-	25	9	24
Previous TH	10	-	19	15	29
Subsequent Headache %	44	93	50	14	-
Previous headache	-	-	38	46	50

Reversible Vasoconstriction Syndrome

Gender / Mean age	Female / 42 years
Presentation	Thunderclap Headache
PH Migraine	20-40%
Clinical Course	Remission
CSF	Normal
Imaging	Normal / Related to secondary precipitant
Vascular imaging	Vasoconstriction
Histology	Normal
Prognosis	Resolve within one month, monophasic

Characteristics of the Secondary Headache Syndrome

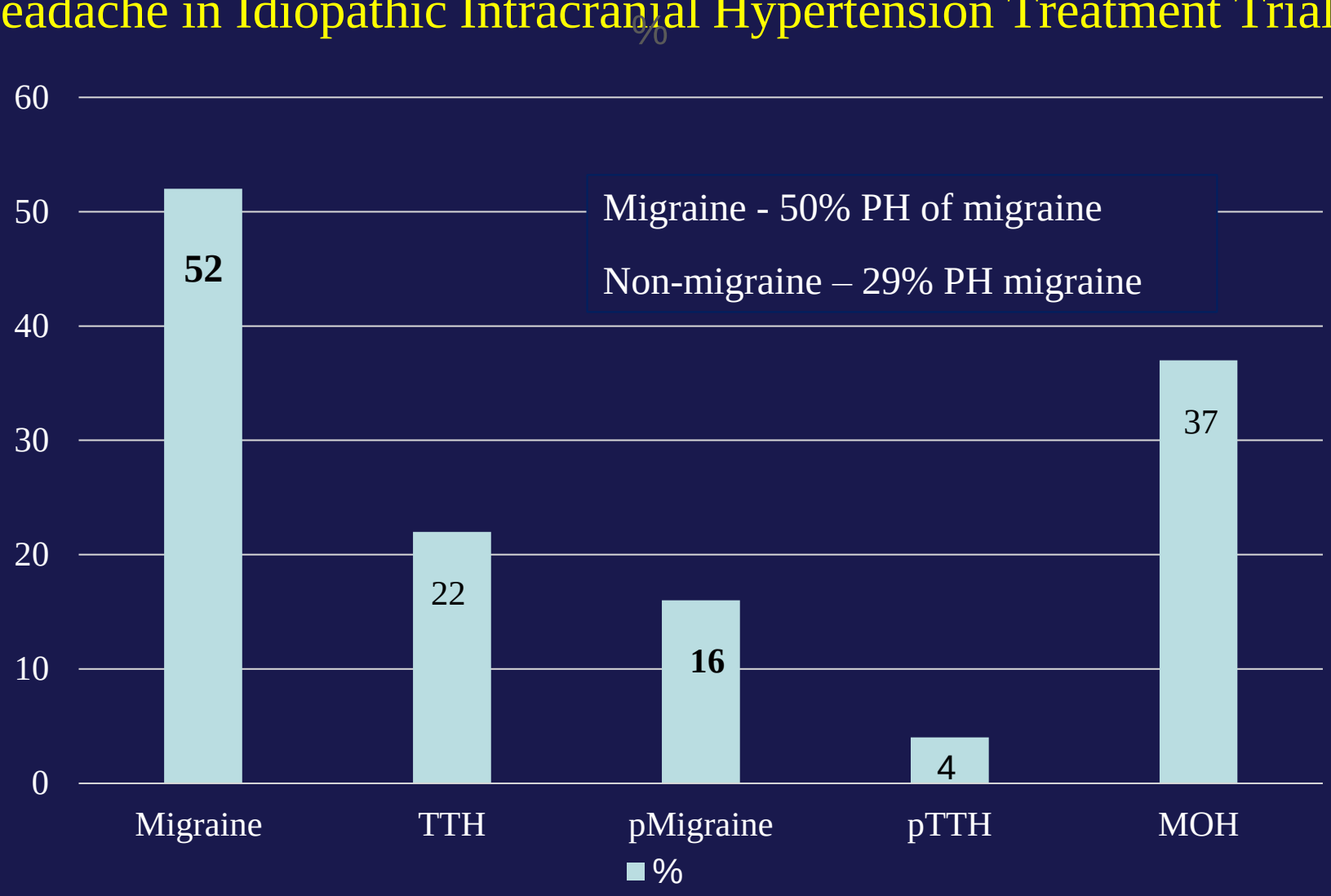
Headache in CNS tumour	**N Total 98 (of 209)**	**%**
Migraine	13	13.3
Chronic migraine	2	2
Episodic TTH	23	23.5
Chronic TTH	6	6.1
Not classifiable	54	55.1
Response to analgesics		
Not relieved	12	12.2
Partially relieved	**32**	**32.7**
Totally relieved	**24**	**24.5**
No analgesics	30	30.6

Valentinis , 2009 – History of primary headache P 0.04

Headache diagnoses after traumatic brain injury	**% (Total n = 378)**
Migraine	38
Probable migraine	25
Tension-type headache	21
Cervicogenic headache	10
Not classifiable	6

Lucas, 2012; Schwedt, 2021

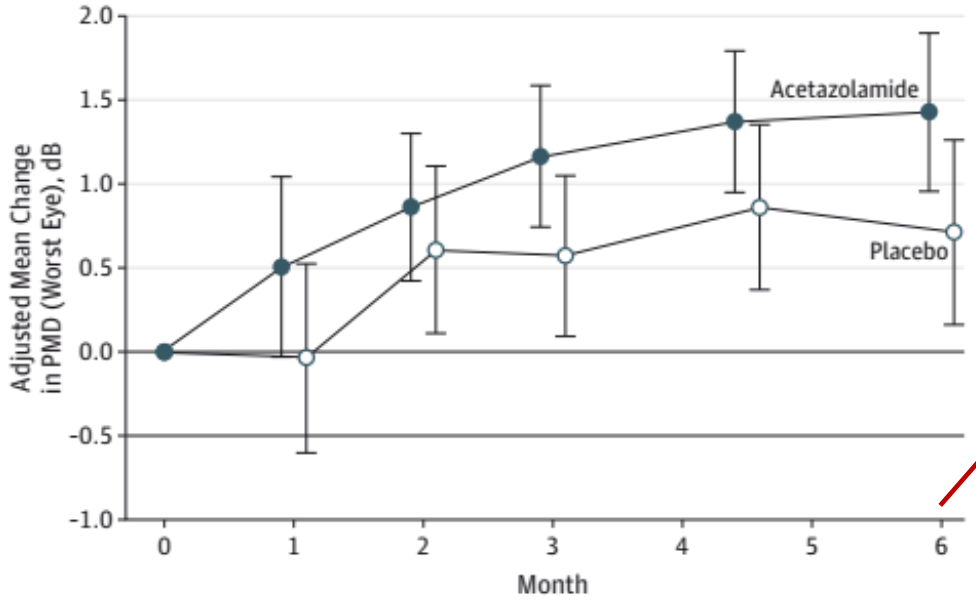
Headache in Idiopathic Intracranial Hypertension Treatment Trial



Quiros, Headadche 2017

Headache as an indicator of ongoing secondary pathology

Figure 2. Adjusted Mean Change in Perimetric Mean Deviation (PMD) Over Time by Treatment Group



No. of patients						
Acetazolamide	86	82	76	76	67	70
Placebo	79	73	67	60	60	59

Outcome of perimetry:

No correlation with HIT-6

HIT-6 – No correlation with ICP

Idiopathic Intracranial Hypertension Treatment Trial, JAMA 2017

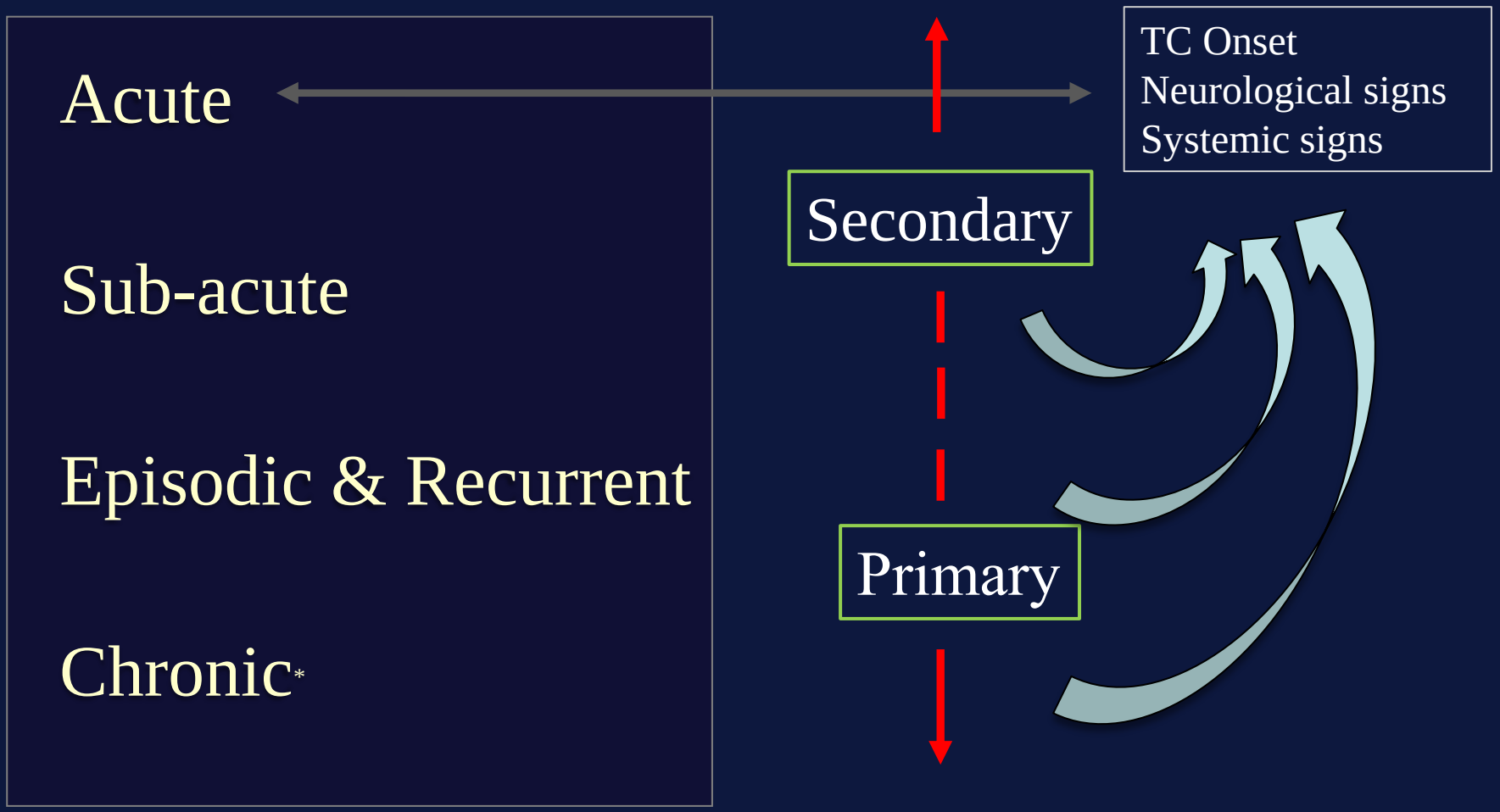
Characteristic of Secondary headache

- Clinical syndrome ≡ Primary headache
- Response to Rx cannot differentiate 1° from 2°
- Rx of pathological precipitant ✖ Headache resolution

When to scan Secondary headache

- Syndrome migraine/TTH + Normal exam – No imaging warranted
- Thunderclap headache in isolation – Investigate
- Other primary headache syndromes – ? - Suggest if new onset

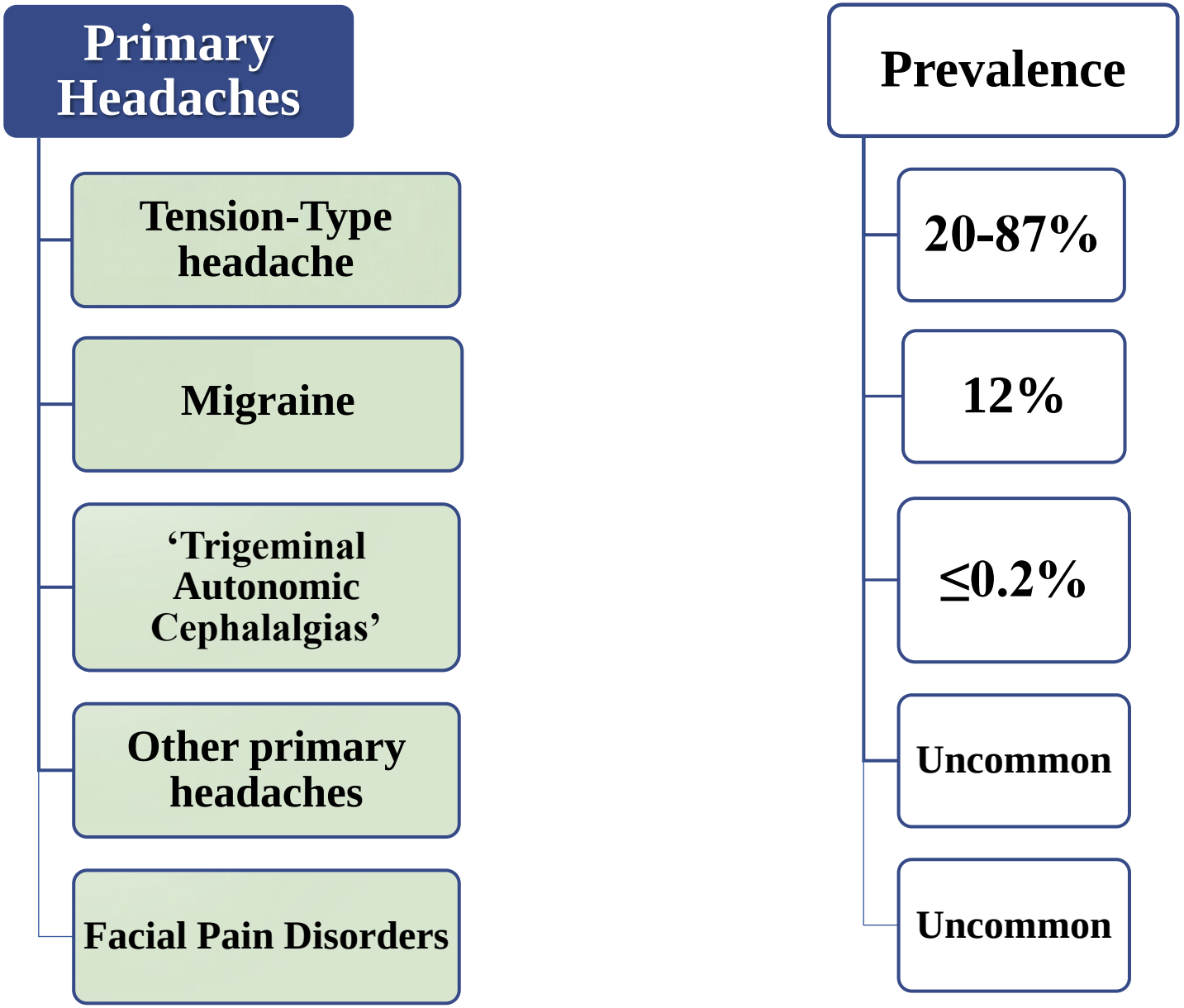
Management of Isolated Headache



Weingarten Arch Neurology 1992, Vazquez-Barquero Cephalalgia 1994, *Aaseth, Cephalalgia 2008

Sub-acute Onset Headache

Meningitis	Sytemically unwell (Fever)
Subdural haemorrhage	Focal Neurology
Intracranial tumour	Focal Neurology / Seizures
Giant cell arteritis	Sytemically unwell
Idiopathic intracranial hypertension	Focal Neurology


Primary Headaches
Tension-Type headache
Migraine
'Trigeminal Autonomic Cephalalgias'
Other primary headaches
Facial Pain Disorders
Prevalence
20-87%
12%
≤0.2%
Uncommon
Uncommon

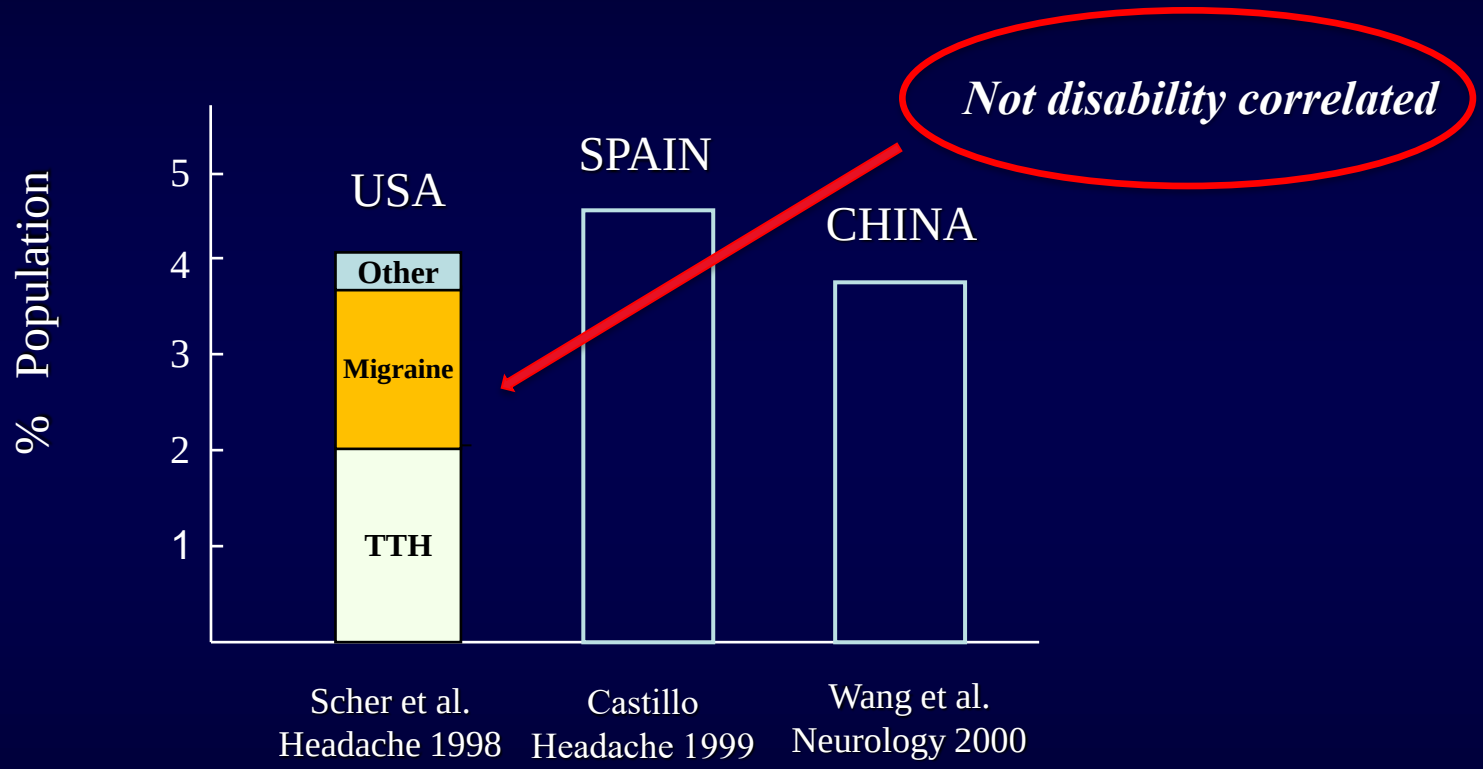
Migraine	**Tension-Type Headache**
• Unilateral (often bilateral) • Pulsating • Moderate or severe • Aggravation by physical activity • Nausea and / or vomiting • Photophobia ± phonophobia	Bilateral Non-pulsating Non-Disabling Featureless
Usually 4-72h	Attacks last < an hour to days
Chronic > 15 headache days / month for > 3 months	

Migraine	Tension-Type Headache
• Disability* • Nausea* • Photophobia*	Bilateral Non-pulsating Non-Disabling Featureless
Usually 4-72h	Attacks last < an hour to days
Chronic > 15 headache days / month for > 3 months	

* ID Migraine Study, Lipton 2003

Chronic Daily Headache

Headache > 15 days / month > 3 month

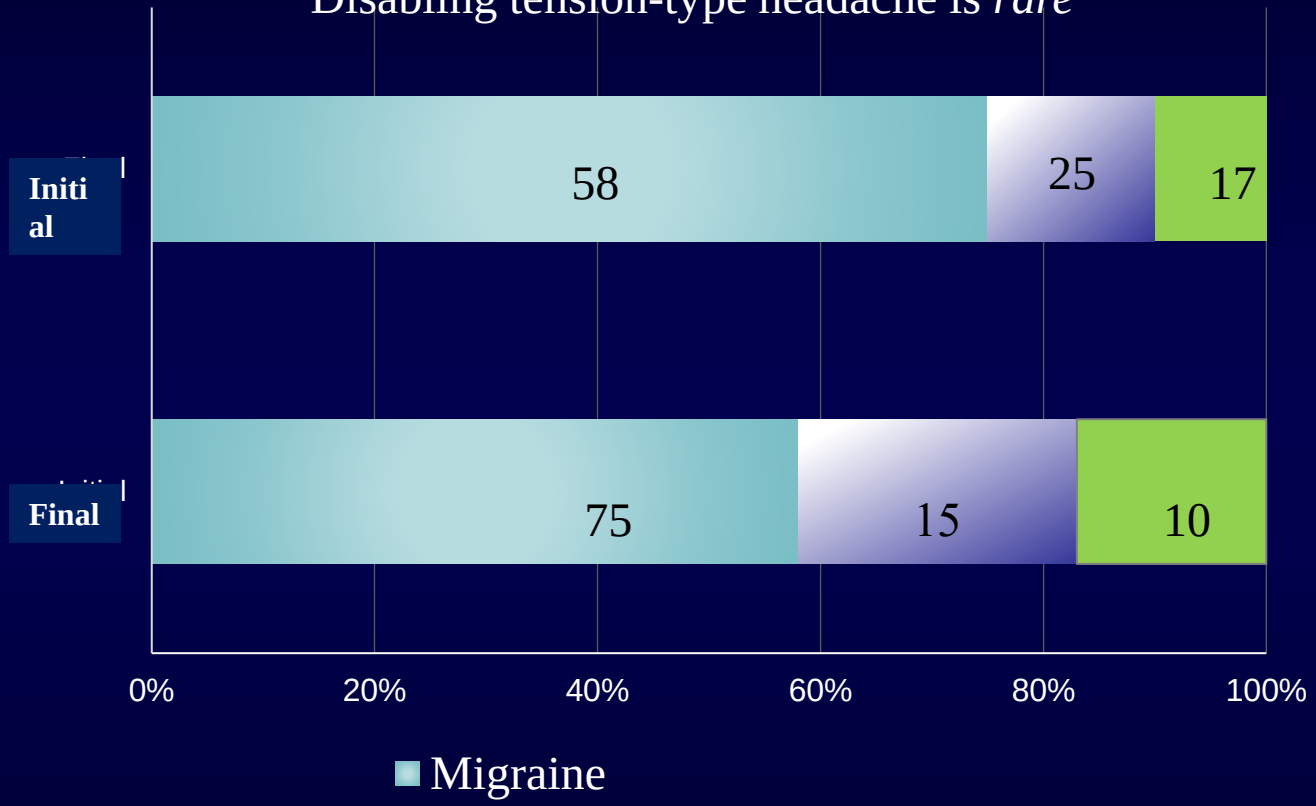


The Spectrum Study

- IHS Δ → Migraine / migrainous headache / TTH
- Disability rating
- n = 432
- Headache diagnosis → Headache specialist
- After 10 diary-detailed attacks → Re-diagnosis by 2nd specialist

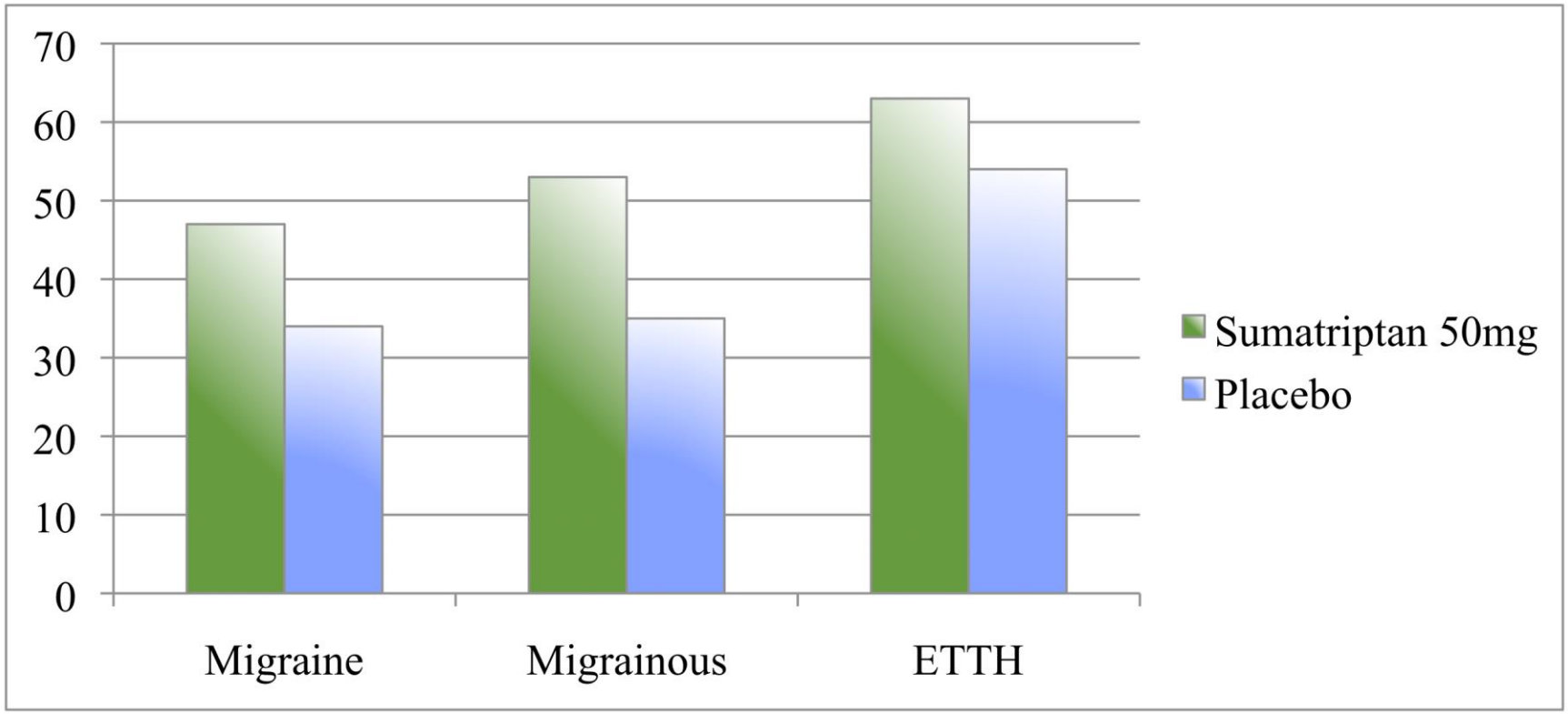
Lipton RB, Stewart WF, Cady RK. Headache 2000;40:783

90% with disabling headache have a Migraine disorder
Disabling tension-type headache is *rare*

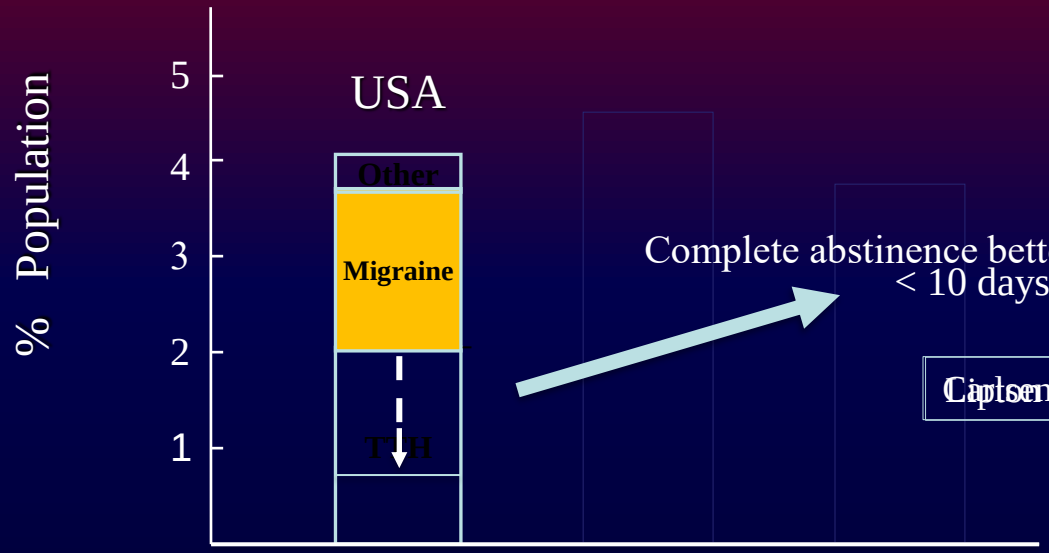


Cady RK, Cephalalgia 1997; Lipton RB, Headache 2000; Lipton RB, Headache 2000; Migraine and tension-type headache to sumatriptan N=432

Spectrum Study: Sumatriptan Response



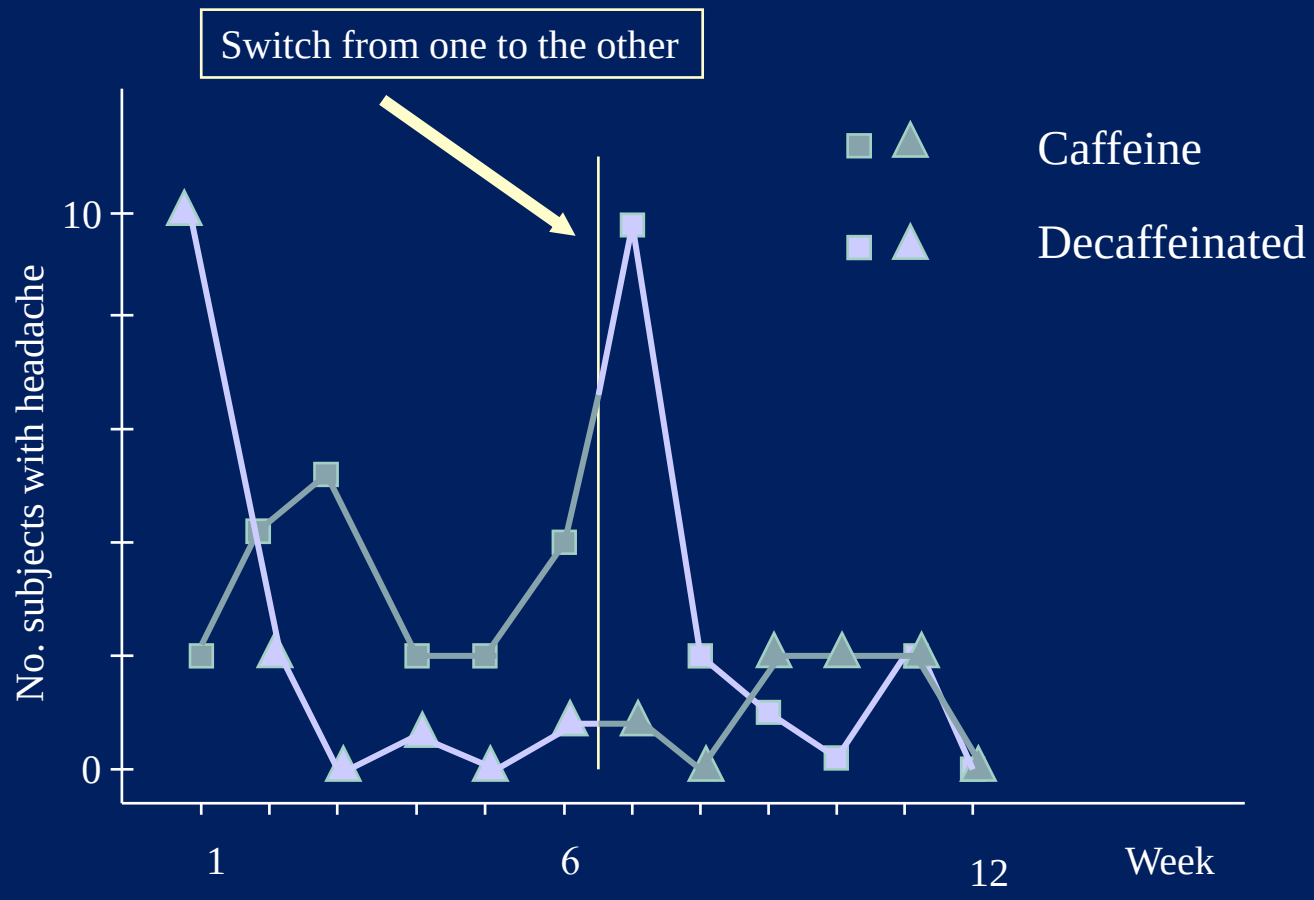
Medication-Overuse : 1%



Complete abstinence better outcome than 8 day a month
< 10 days / month NSAIDs *

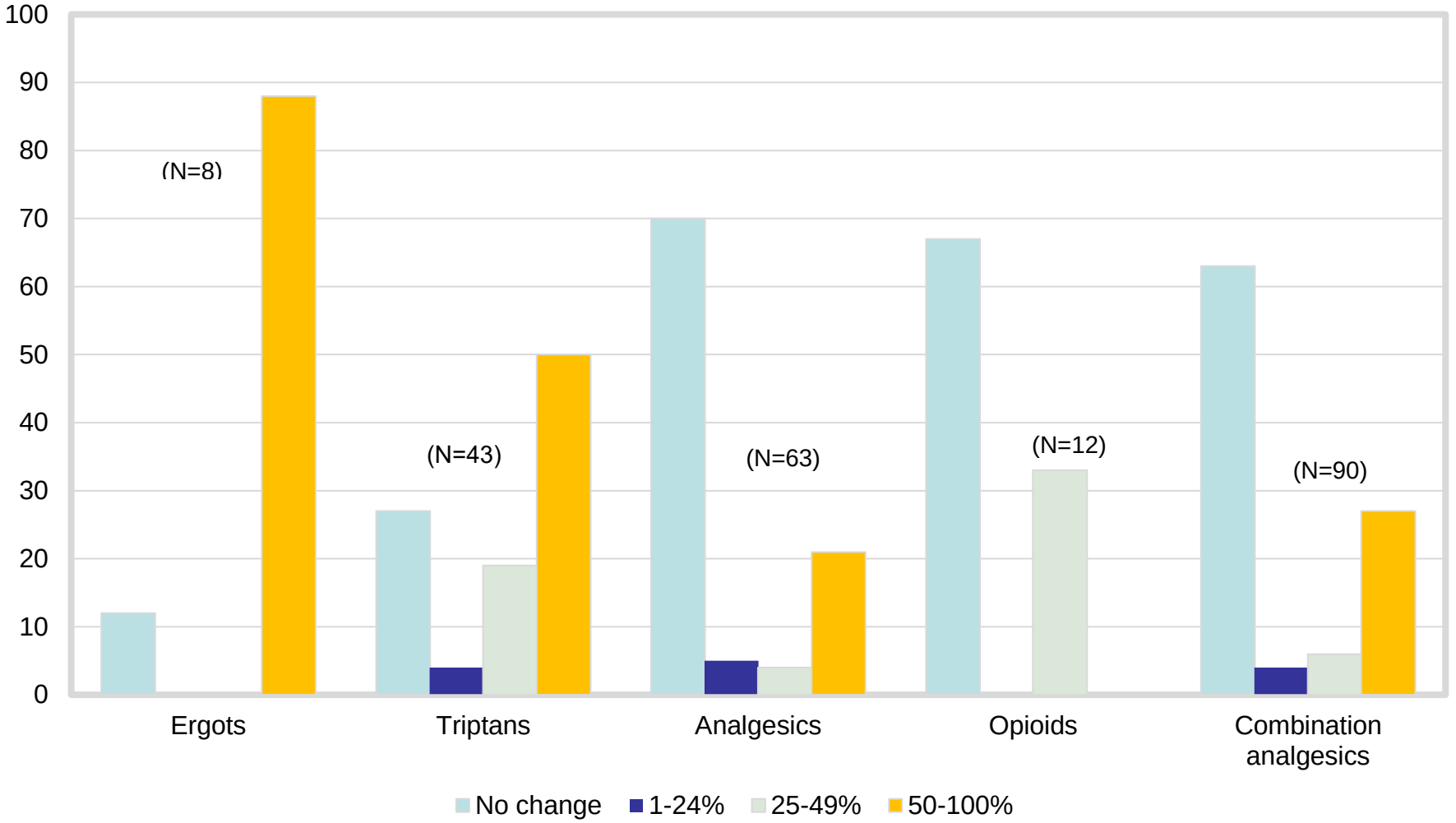
Lipton, Headache, 2018

*American Migraine Prevalence and Prevention (AMPP) Study (N=9031)



Van Dusseldorp, BMJ. 1990

Discontinuation of medication overuse in headache patients: recovery of therapeutic responsiveness



Relative reduction in headache frequency after 2-month drug-free period in patients MOH

Zeeberg, Cephalalgia 2006

Acute medication overuse : 50% response not achieved

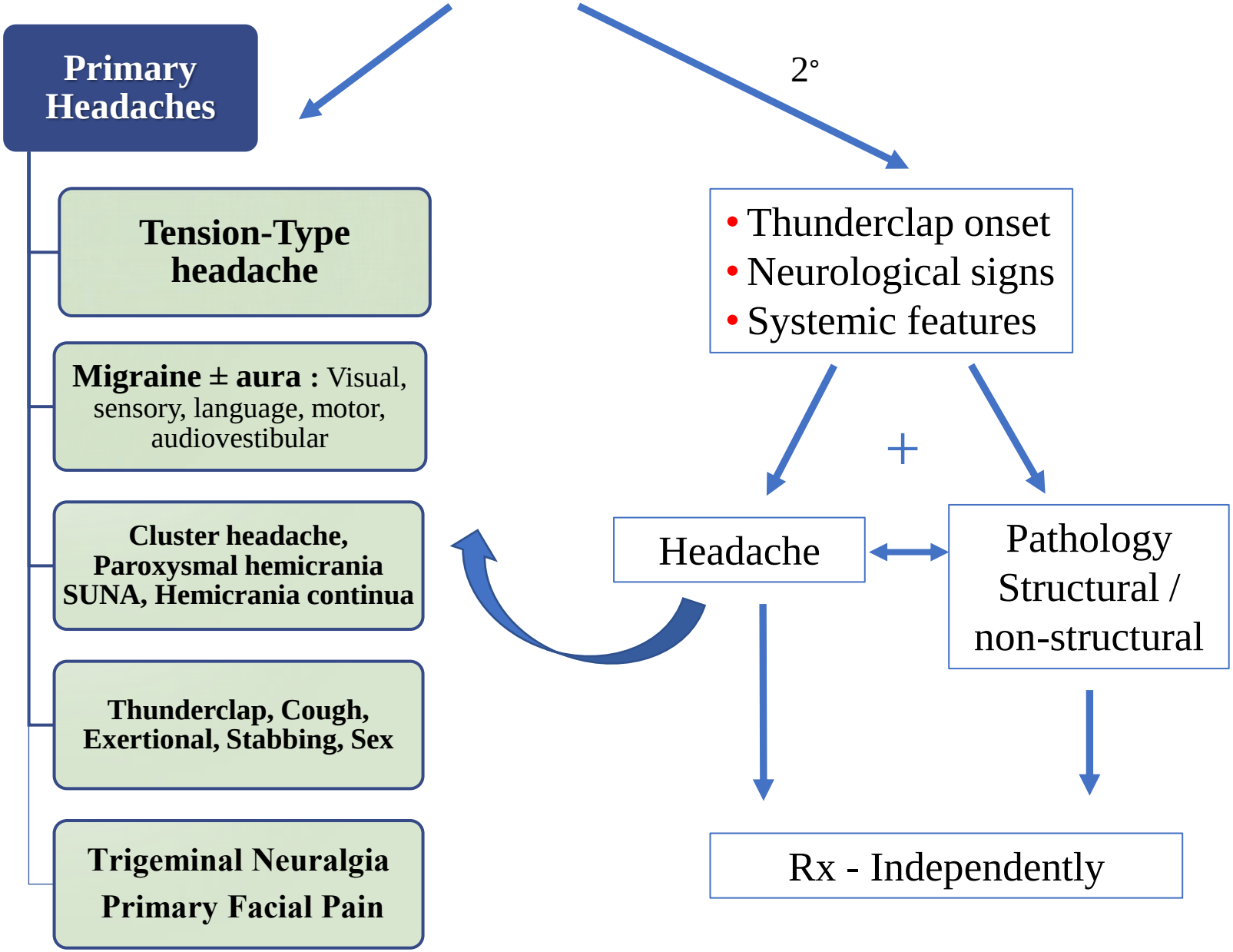
- Amitriptyline: Kudrow, Advances in Neurology 1982
- Oral preventatives: Zeeberg, Cephalalgia 2006
- Topiramate: Silberstein, Headache 2007
- Occipital Nerve Stimulation: Lipton, Cephalalgia (P047) 2009
- Botulinum Toxin: Pijpers, Brain 2019
- CGRP Monoclonal antibodies: Pensato, Cephalalgia 2022, Silvestro, Acta Neur Scand 2021

Lifetime Psychiatric and Substance Abuse in patients with and without migraine

Breslau, Psychiatry Research 1991	Migraine (N=128) %	No Migraine (N=879) %	Odds Ratio
Panic Disorder	10.9	1.8	6.6
General anxiety disorder	10.2	1.9	5.7
Obsessive Compulsive	8.6	1.8	5.1
Major Depression	34.4	10.4	4.5
Any anxiety	53.9	27.0	3.2
Phobia	39.8	20.6	2.6
Illicit drug dependence	20.3	10.4	2.2
Nicotine dependence	32.8	18.2	2.2
Alcohol dependence	27.3	20.6	1.5

Radat, J Head Pain 2013 - behavioural dependence, depression, anxiety, catastrophizing.

Acute Medical Headache Admission



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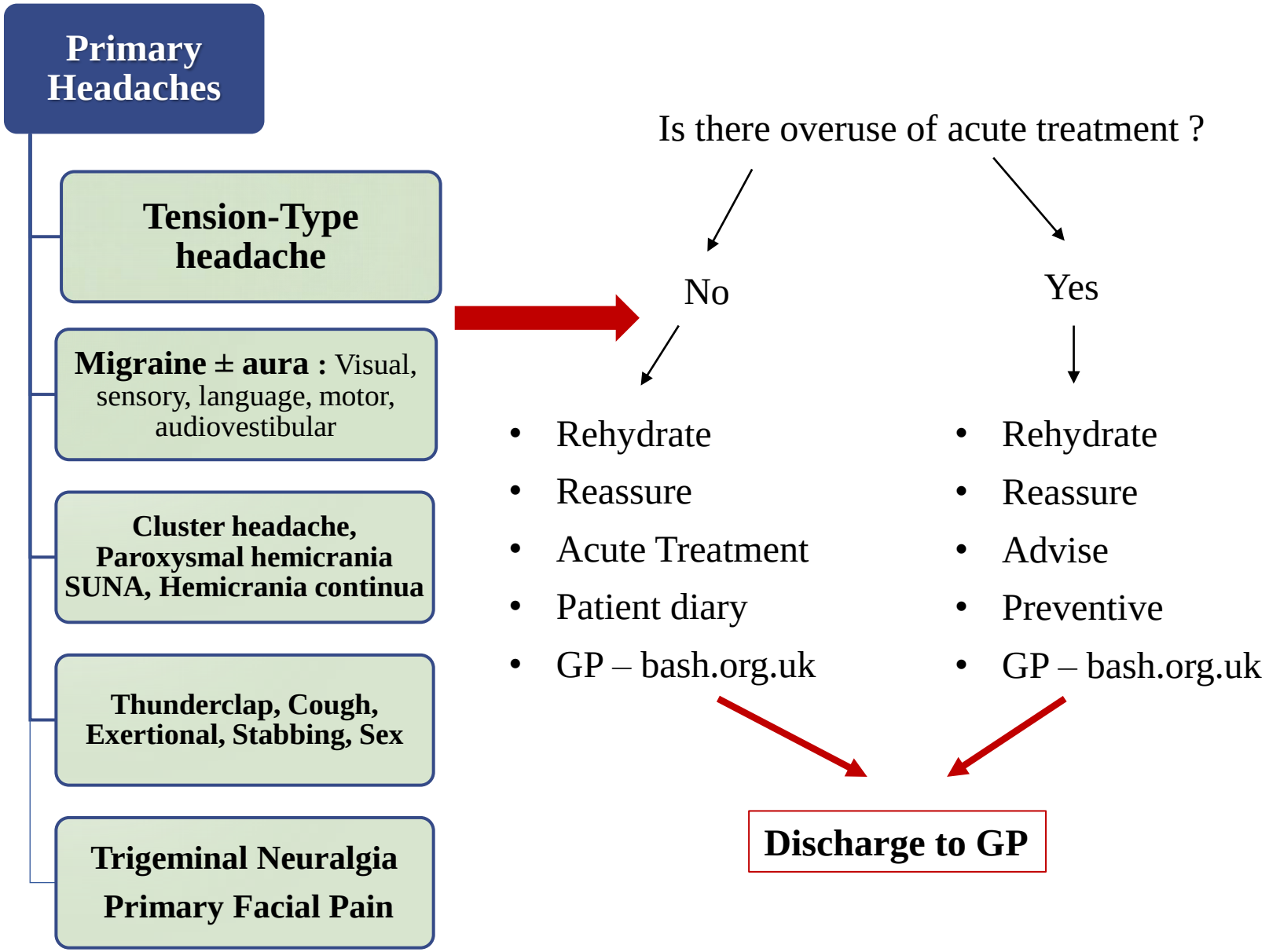
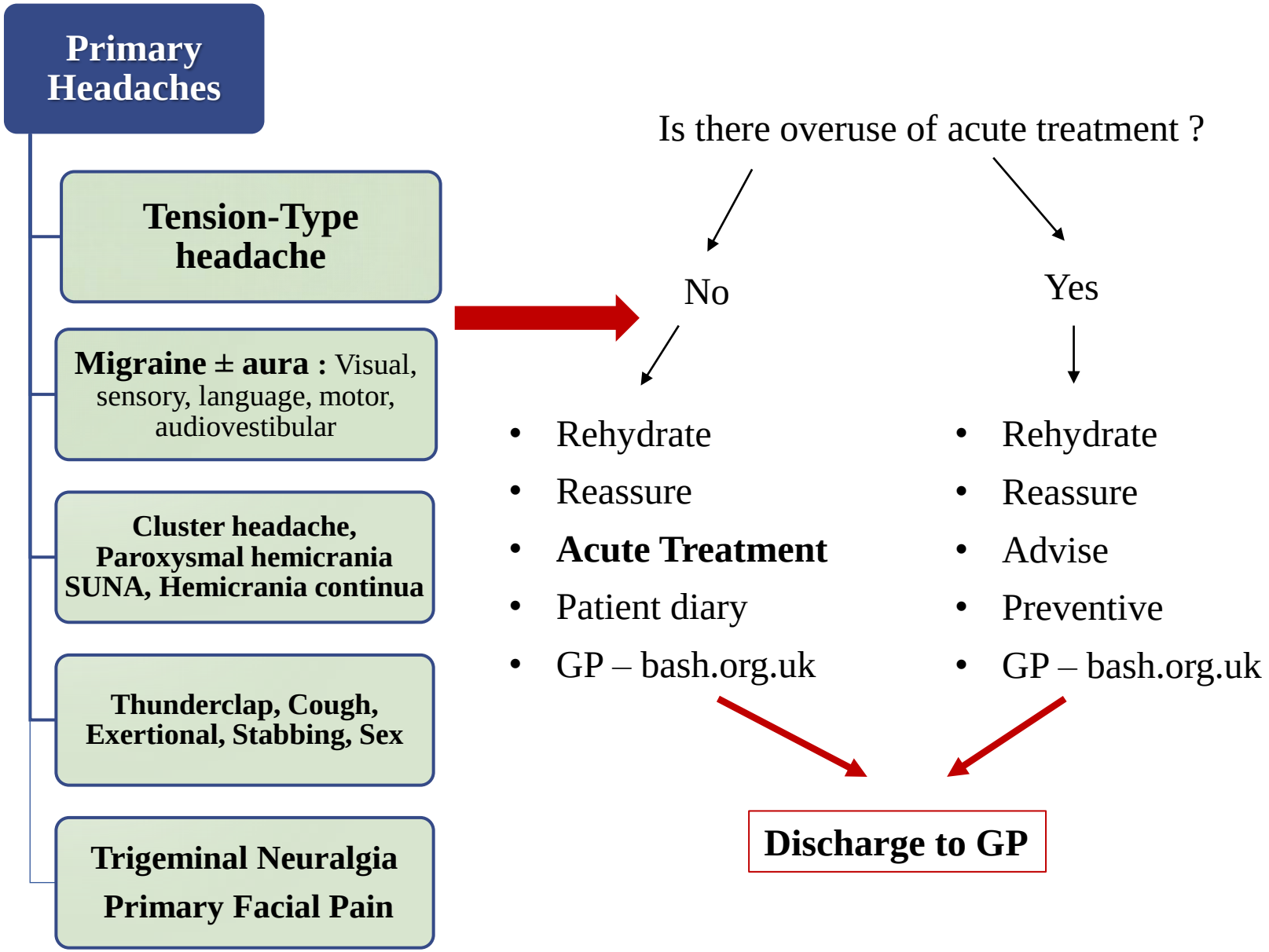


Acute Medical Headache Admission



Immediate Pain Relief

- Sumatriptan sc Diener Cephalalgia 1999 Cochrane Database of Systematic Reviews 2013
- IV Aspirin 1g Diener Cephalalgia 1999
- Diclofenac 50-100mg Cephalalgia 1999
- IV Paracetamol 1g Cochrane Database of Systematic Reviews 2013
- ± Metoclopramide 10mg
- Avoid opioids**

BASH Proforma (bash.org.uk)

Patient details			
Title		Preferred name	
Family name		Date of birth	
Forename		Ethnicity	
NHS number		Home tel	
Gender		Mobile no	
Permanent address		Email	
		Physical/Communication Difficulties (specify support requirements, if any)	
		If interpreter required, language:	
Postcode			
Referrer details			
GP practice name		GP name	
GP address		Tel no	
		Fax no	
Postcode		Email	
Date of referral			

STEP 1: Exclude Secondary Headaches	
Thunderclap Headache (reaching maximum intensity within 5 mins)	**Refer to A&E** (needs CT-head within 6 hours)
Any headache presentation with focal (examinable) neurology. Includes seizures & alteration of consciousness. Any headache presentation with systemic features of causative disease	**To be seen within 24 hours to 2 weeks** (depending on presentation)

STEP 2: Screen for primary headache syndrome
94% of all headaches presenting in primary care are migraine.

During the last three months has the patient had any of the following with their headache?

- Feeling nauseated or sick ☐ Yes / ☐ No
- Sensitive to light ☐ Yes / ☐ No
- Headache limits ability to carry out day-to-day activity ☐ Yes / ☐ No

If you tick yes to all three questions, the patient is very likely to have migraine.

Other features of history helpful for diagnosis:

Location:	Duration of attacks (untreated):
☐ Strictly Unilateral	☐ Less than 4 hours
☐ Can be bilateral	☐ 4 -72+ hours
Response to movement:	Frequency:
☐ Movement worsens pain	☐ Headaches less than 5 days per month
☐ Movement does not make pain worse	☐ headaches 5 - 15 days per month