

Migraine



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Disclosures

- I am interested in migraine as it frequently presents with acute transient neurology.
- This makes people think it's a stroke
- I end up seeing/diagnosing/ treating a lot of migraine
- I do not run a migraine service.
- I'm not anxious to start running a migraine service!

TABLE 3. Number of Nonstrokes and Diagnoses, Admitted by Rapid Ambulance Protocol, Primary Care Doctors, and Emergency Room Doctors

	RAP	PCDs	ER	Total
Total nonstrokes (% of admissions)	41 (23)	63 (29)	27 (29)	131 (27)
Seizures	15 (37)	6 (10)	6 (22)	27 (21)
Infections/sepsis and confusion	5 (12)	9 (14)	6 (22)	20 (15)
Cardiovascular collapses	6 (15)	5 (8)	1 (4)	15 (11)
Malignant tumor	5 (12)	7 (11)	1 (4)	13 (10)
Psychiatric causes	3 (7)	3 (5)	4 (15)	10 (8)
Deteriorating dementia	6 (10)	1 (4)	7 (5)	14 (10)
Subdural hemorrhage	2 (5)	5 (8)	7 (5)	14 (10)
Alcohol/drugs	1 (2)	3 (5)	2 (7)	6 (5)
Hypostremia and collapse		3 (5)	1 (4)	4 (3)
Peripheral neuropathy		3 (5)		3 (2)
Migraine	1 (2)	2 (3)		3 (2)
Deteriorating Parkinson's disease	1 (2)	2 (3)		3 (2)
Labyrinthine disorders		3 (5)		3 (2)
Subarachnoid hemorrhage	1 (2)	1 (2)		2 (1.5)
Tension headache		2 (3)		2 (1.5)
Transient global amnesia	1 (2)	1 (4)		2 (1.5)
Hypoglycemic collapse	1 (2)	1 (4)		2 (1.5)
Cervical spondylotic myelopathy	1 (2)			1 (1)
Meningococcal meningitis	1 (2)			1 (1)

Values in parentheses for total nonstrokes are percentage of admissions. All other values in parentheses are percentage of nonstrokes. * 2x3 Fishers exact test

Stroke Mimics and Source

Migraine.

Hemicrania



'Migraine'



Migraine



What is Migraine?

- Frequently Unilateral Headache
- Frequently Throbbing
- Frequently Associated with Photophobia
- Frequently Associated with Nausea
- Doesn't have to have any of these features.



1. Migraine
 - 1.1 Migraine without aura
 - 1.2 Migraine with aura
 - 1.2.1 Migraine with typical aura
 - 1.2.1.1 Typical aura with headache
 - 1.2.1.2 Typical aura without headache
 - 1.2.2 Migraine with brainstem aura
 - 1.2.3 Hemiplegic migraine
 - 1.2.3.1 Familial hemiplegic migraine (FHM)
 - 1.2.3.1.1 Familial hemiplegic migraine type 1 (FHM1)
 - 1.2.3.1.2 Familial hemiplegic migraine type 2 (FHM2)
 - 1.2.3.1.3 Familial hemiplegic migraine type 3 (FHM3)
 - 1.2.3.1.4 Familial hemiplegic migraine, other loci
 - 1.2.3.2 Sporadic hemiplegic migraine (SHM)
 - 1.2.4 Retinal migraine
 - 1.3 Chronic migraine
 - 1.4 Complications of migraine
 - 1.4.1 Status migrainosus
 - 1.4.2 Persistent aura without infarction
 - 1.4.3 Migrainous infarction
 - 1.4.4 Migraine aura-triggered seizure
 - 1.5 Probable migraine
 - 1.5.1 Probable migraine without aura
 - 1.5.2 Probable migraine with aura
 - 1.6 Episodic syndromes that may be associated with migraine
 - 1.6.1 Recurrent gastrointestinal disturbance
 - 1.6.1.1 Cyclical vomiting syndrome
 - 1.6.2 Abdominal migraine
 - 1.6.3 Benign paroxysmal vertigo
 - 1.6.3 Benign paroxysmal torticollis

1.1 Migraine without aura

Previously used terms:

Common migraine, hemicrania simplex.

Description:

Recurrent headache disorder manifesting in attacks lasting 4-72 hours. Typical characteristics of the headache are unilateral location, pulsating quality, moderate or severe intensity, aggravation by routine physical activity and association with nausea and/or photophobia and phonophobia.

Diagnostic criteria:

- A. At least five attacks¹ fulfilling criteria B-D
- B. Headache attacks lasting 4-72 hr (untreated or unsuccessfully treated)^{2,3}
- C. Headache has at least two of the following four characteristics:
 1. unilateral location
 2. pulsating quality
 3. moderate or severe pain intensity
 4. aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
- D. During headache at least one of the following:
 1. nausea and/or vomiting
 2. photophobia and phonophobia
- E. Not better accounted for by another ICHD-3 diagnosis.

1.2 Migraine with aura

Previously used terms:

Classic or classical migraine; ophthalmic, hemiparaesthetic, hemiplegic or aphasic migraine; migraine accompagnée; complicated migraine.

Description:

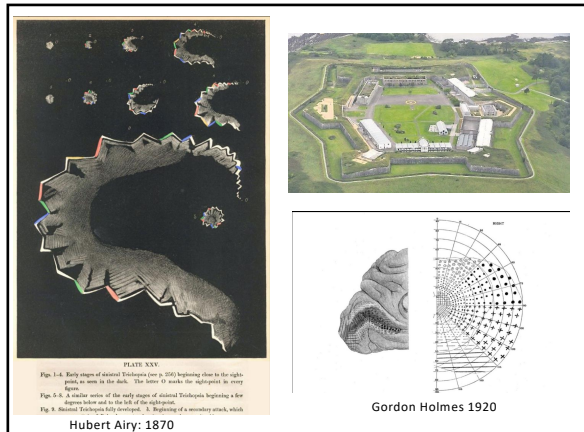
Recurrent attacks, lasting minutes, of unilateral fully-reversible visual, sensory or other central nervous system symptoms that usually develop gradually and are usually followed by headache and associated migraine symptoms.

Diagnostic criteria:

- A. At least two attacks fulfilling criteria B and C
- B. One or more of the following fully reversible aura symptoms:
 1. visual
 2. sensory
 3. speech and/or language
 4. motor
 5. brainstem
 6. retinal
- C. At least three of the following six characteristics:
 1. at least one aura symptom spreads gradually over ≥5 minutes
 2. two or more aura symptoms occur in succession
 3. each individual aura symptom lasts ≤60 minutes¹
 4. at least one aura symptom is unilateral²
 5. at least one aura symptom is positive³
 6. the aura is accompanied, or followed within 60 minutes, by headache
- D. Not better accounted for by another ICHD-3 diagnosis.

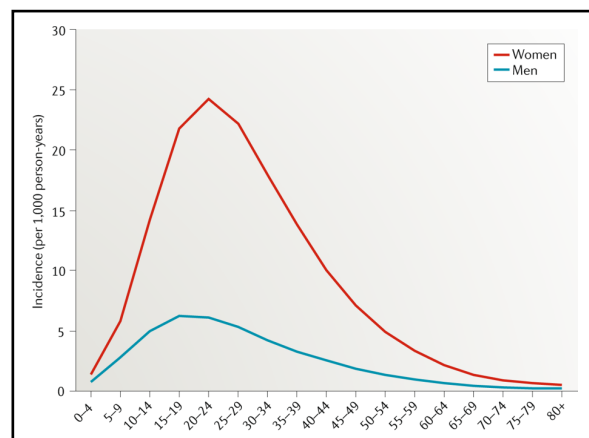
Migraine aura.

- Gradual Onset.
- Positive symptoms.
- Symptom spread over several seconds to minutes.
- Gradual resolution over 20-60 minutes
- Headache
- Recurrent Stereotyped attacks.
- Typically young.
- Visual auras most common (>90%)
- Sensory auras (30-40%)



Migraine is underdiagnosed.

- Affect 25% women, 8% men.
- ≈1/3% Migraine with aura.
- 50% of US Neurologists
- >80% of US female headache neurologists.
- Transmission ≈50-70% parent to child.
- 30-50% concordance between identical twins.
- 38 identified genetic loci: Most Vascular related

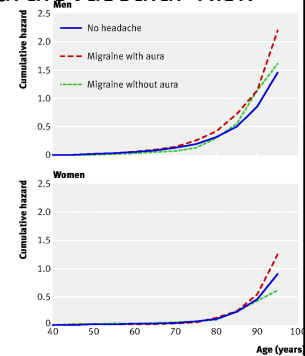


Hemiplegic Migraine

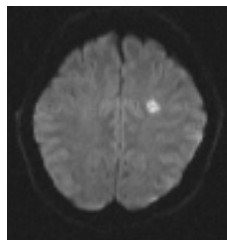
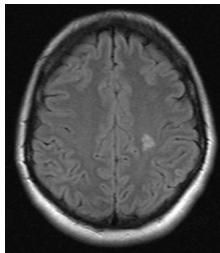
- Rare Monogenetic Cause
- First described in 1893 by Living
- 4 subtypes (FHM 1-4) + sporadic forms.
- Ion channelopathies
- Migraine with aura with hemiplegic features, usually familial with one first degree relative with attacks.
- Hemiparesis may alternate from side to side.
- 30 – 60 minutes duration followed by severe headache
- Familial forms Autosomal Dominant
 - FHM1: Ch 19p, FHM2: Ch1p,
 - FHM3: Ch 2p, FHM4: Ch 1p

Migraine and Cardiovascular Risk

Migraine with aura and risk of cardiovascular and all cause mortality in men and women: prospective cohort study
 BMJ 2010; 341 doi: <https://doi.org/10.1136/bmj.c3966> (Published 24 August 2010)



Migranous Stroke



Syncope and Migraine

- Light-headedness is a common complaint in migraine.
- Migraine with brainstem aura.
- Syncopal Migraine

Syncope in migraine

The population-based CAMERA study

R.D. Thijs, MD^a, M.C. Kruit, MD^a, M.A. van Buchem, MD, PhD, M.D. Ferrari, MD, PhD,
 L.J. Launer, PhD, and J.G. van Dijk, MD, PhD
 NEUROLOGY 2006;66:1054-1057

	Migraineurs, n = 323	Controls, n = 153		Migraineurs, n = 323	Controls, n = 153	p Value
Male/female ratio, %	32	38	Syncope ever, %	46*	31*	0.001
Age, y	48 (8)	48 (8)	Women	50	32	
Body mass index	25 (4)	24 (4)	Men	35	26	
Medical history (% present)			Frequent (≥5×) syncope, %	13*	5*	0.02
Diabetes mellitus	4 (1)	6 (4)	Women	17	6	
Myocardial infarction	1 (0.3)	—	Men	1	5	
Currently uses antihypertensive medication	40 (12)	12 (8)	Fainters			
High alcohol use (≥3 drinks/d)	23 (7)*	23 (15)*	Age at first faint, y	21 ± 13	23 ± 13	0.3
Low education†	171 (53)	81 (53)	Age at last faint, y	30 ± 14	29 ± 13	0.6
Migraine with aura	174 (54)	—	Fainted previous year, %	12	9	0.5
≥1 migraine attack/mo	156 (48)	—	Total no. of faints	6 ± 16*	6 ± 14*	0.005
			Symptoms, %			
			Prolonged standing	32*	12*	<0.001
			Long, hot shower	11*	2*	0.001
			After a heavy meal	4	3	0.4
			After exercise	23*	5*	<0.001
			At sight of blood	9	7	0.6
			OH, %	16	14	0.7
			POTS, %	3	2	0.5

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	n	Syncope ever, %	Frequent syncope, %	Orthostatic intolerance, %	POTS, %	OH, %
Migraine overall	323	46	13	32	3	16
Migraine with aura	174	43	11	32	3	14
Migraine without aura	149	50	15	32	4	17
≥1 migraine attack/mo	156	44	14	37	3	16
<1 migraine attack/mo	167	49	12	28	4	15

Syncopal migraine

David Curfman · Michael Chilungu ·
Robert B. Daroff · Amer Alshekhlee ·
Gisela Chelmsky · Thomas C. Chelmsky

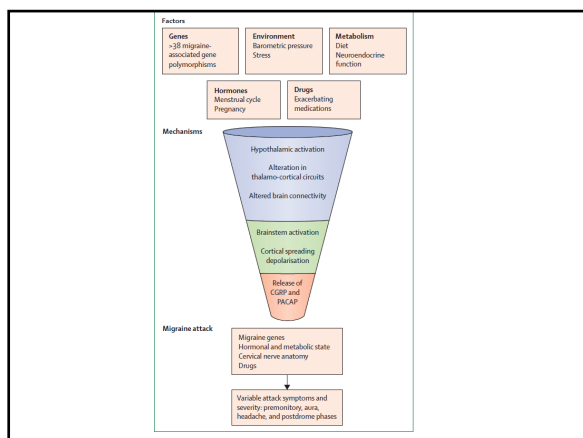
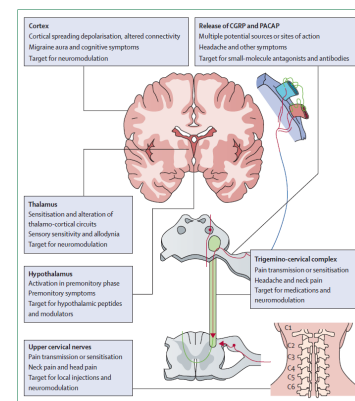
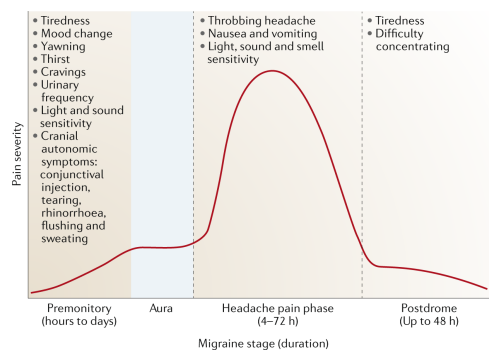
- 248 Recurrent Syncope subjects
- 127 (52%) had headache concurrent with syncope
- 78 (31%) had headache classifiable as probable migraine

	Syncope	<i>P</i> value	Syncopal migraine	<i>P</i> value	Migraine without aura
Number of subjects	95		78		199
Age	50.9 (±20.9)	<0.001	34.9 (±15.9)	0.72	37 (±16)
Female	60 (63.8)	0.05	59 (77.6)	0.23	165 (83.7)

What Causes Migraine

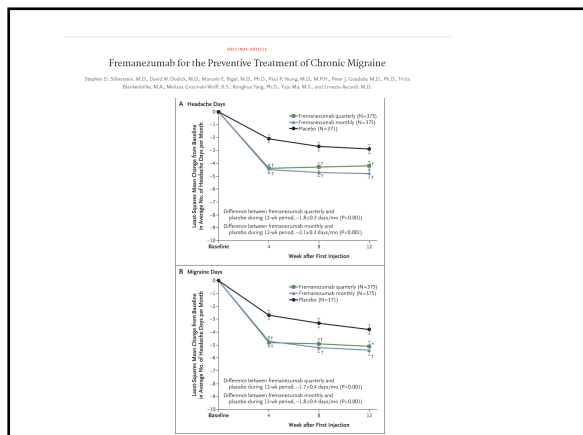


The (variable) phases of a migraine attack



How to treat it?

- Diagnose it!
- Lifestyle: Caffeine, Sleep, Diet, Exercise.
- Remove exacerbating medications.
 - Analgesics, PPIs, SSRIs,
- Treatment: Triptans, NSAIDs, ?CGRP inhibitors
- Treat Nausea: Prochlorperazine, Metoclopramide
- Prevention: TCADs, Topiramate, Flunarizine
 - ?Beta Blockers, Candesartan, Botulinum Toxin



Reversible Cerebral Vasoconstriction Syndrome.

- ? One or a group of disorders
- Sudden 'Thunderclap' headache.
- Cerebral vasoconstriction on MRA Brain
- Resolve in days-weeks.
- High (>50%) risk of stroke (14%, ICH).
- Can be managed by CCBs
- Beware in perurperium or pregnancy.

