HEADACHE in the ELDERLY

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	PRIMARY	SECONDARY
YOUNG		
ELDERLY		

SECONDARY HEADACHES

New onset of headache > age 65 in 17 %
Secondary headache due to a serious condition - 15 % elderly
- 1.6% < 65 yrs

Risk of headahes due to serious condition increases 10 fold > age 65

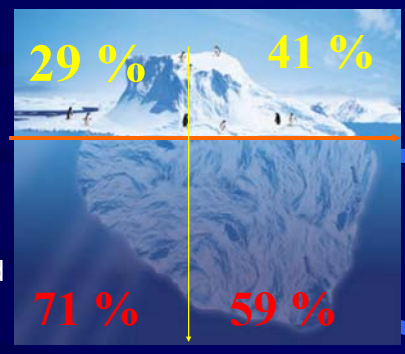
Study: new onset migraine-like headache in elderly, 5/69 (7%) had silent infarct on MRI

Possible causes:

vascular - ischemic, haemorrhagic
cardiac cephalalgia
acute angle closure glaucoma
obstructive sleep apnea
metabolic diseases (liver, kidneys, lungs)
giant cell arteritis
thrombosis
tumor
infective
cervicogenic

Diagnosed

un-diagnosed



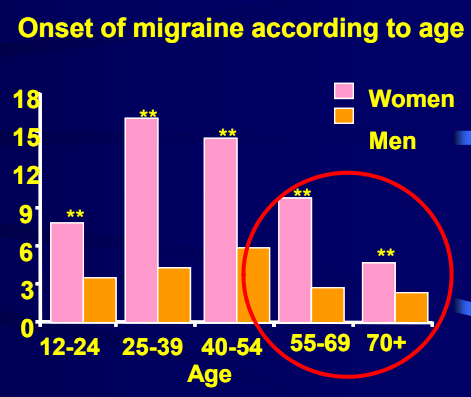
Men Women

Migraine in elderly: lots of "not"

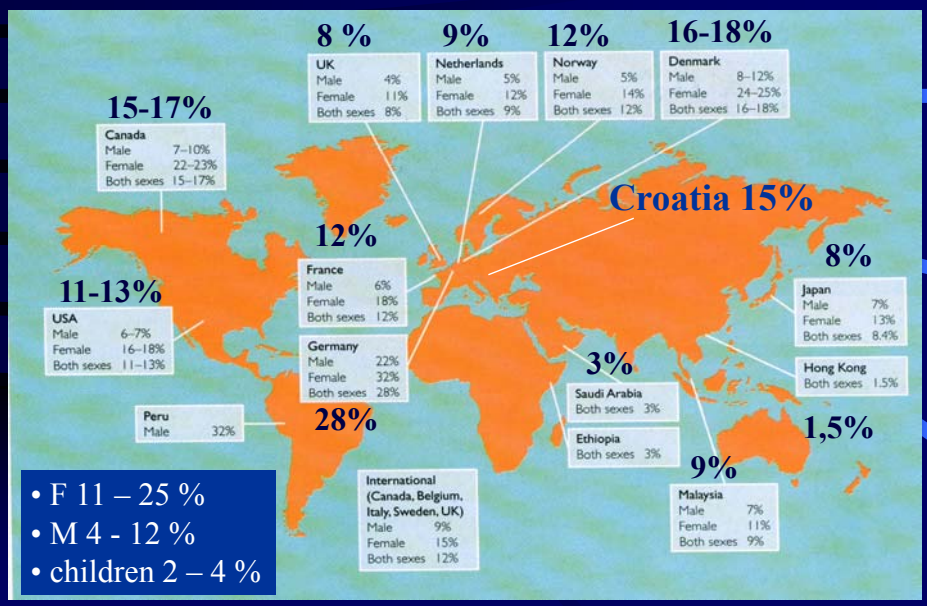
- not recognised
- not efficiently treated: most uses only OTC drugs
- minority consultes physicians
- tend to underestimate the importance of their headache
- after 1st consultation majority does not come for check-ups

Course of migraine

- onset at any age
- in childhood girls and boys- equal frequency
- onset of menache – prev. increases in girls
- frequency and intensity decreases with years



Prevalence of migraine



INCIDENCE and PREVALENCE of MIGRAINE

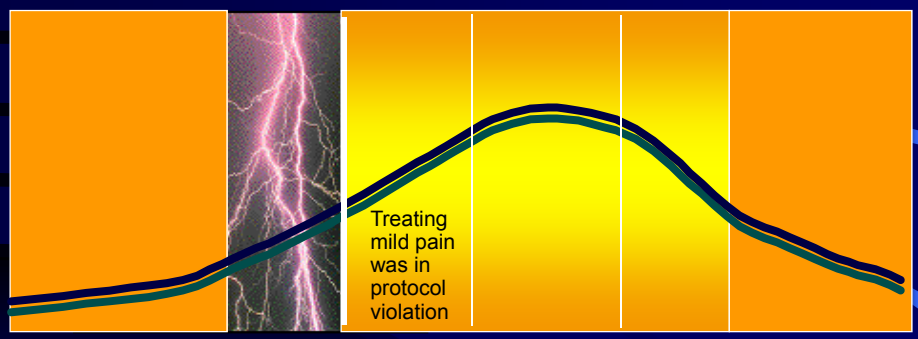
Incidence decreases in early adulthood; lower in elderly
Prevalence peak around 40s, declines after mid-life (women and men)
Migraine onset after age 50: 2-4 %

Age group	migraine %	probable m	aura %
18-29	16	17	13
30-39	20 peak prevalence	16	15
40-49	16	14	20
50-59	13	13	25
60-69	7	9	31
> 70	4	6	41

One year prevalence of M 6-11%
Dutch: prev. > 55 yrs 20% women, 5.6% men
Swedish: 60-64 yrs 9% women, 65-69 yrs 6.8%, 70-74 yrs 3.4%
French: > 80 yrs 5%
American: > 60 yrs 6.4% w; 2.1% m,

Neurology 2006;67:246-51
Cephalagia 2001;21:198-200
Neurology 2000;54:314-9

Migraine



Premonitor Prodromal phase | **Aura** | **Headache** | **Postdromal phase**

Migraine without aura

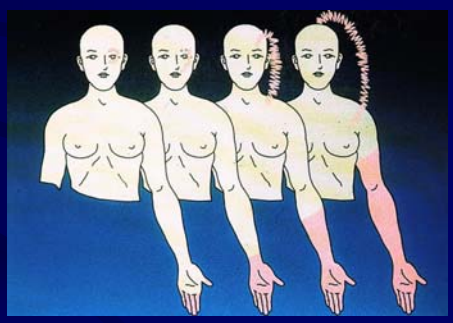
1. 4 - 72 h
2. At least 2 of:
   - unilateral localization
   - throbbing quality
   - moderate-severe (daily activites impaired)
   - worsenes with physical activity
3. At least 1 of:
   - nausea and/or vomitng
   - photo- phono-osmophobia

Facts

1. Up to 41 % pts has bilateral pain
2. Localization can include:
   - neck
   - nasal area
   - area of sinuses
3. 50 % of time pain is not throbbing

CLINICAL CHARACTERISTICS OF HEADACHE IN ELDERLY

"transformed migraine"
change of localization,
intensity, frequency,
character, symptoms



CLINICAL CHARACTERISTICS OF HEADACHE IN ELDERLY

Characteristic	YOUNG %	ELDERLY%
Unilateral	57	38 (48)
Nausea	86	75
Vomiting	54	30
Photo, phonoph	94 (77)	83 (67)
Throbbing		decrease
Severe pain		decrease (24)
Need to rest		decrease
Dizziness		decrease
More mild days		INcrease
Better functioning		INcrease
Better response to ac.med		INcrease
Aura		INcrease
		Paleness
		Dry mouth
		anorexia
		running of nose, tearing

Headache 2006;31:331-7
Headache 2006;46:1161-71

CLINICAL CHARACTERISTICS OF HEADACHE IN ELDERLY

Less typical
- no longer fulfill ICHD II criteria for M, re-categorised as PM

Headache element less frequent and less intense
- severe headaches 10 % W, 5 % M > 70 yrs

Aura remains, “late life migraine accompaniments” (Fisher)
- typical sign is gradual build-up and spread over time:
  - paracentral onset, slow progression and expansion over visual field,
  - lasting 5-60 min
  - > 2 spells occured

Aura generated by cortical spreading depression – mechanisms remain intact
Migraine pain by neurovascular inflamation - propensity declines ???

CARDIAC CEPHALALGIA (CC)

- headache (exertional) as sole presentaton of acute MI
- in pts > 80 yrs MI presents atypicaly (toothache, throat pain, abdominal pain, back pain)
- CC: no specific pattern of clinical features, high variability of symptoms:
  - form of migraine accompanied by autonomic sympts, TTH
- benign in general, usually after exertion
- cardiac enzymes, ECG can be neg

Results from convergence of heart autonomic fibers with somatic inputs originating from the head

IHS II codes CC to secondary headache, disorder of homeostasis (10.6)

Clues for dg, warrants further work-up:

1. Older age
2. No past medical history of headache
3. Exertional headache in the presence of risk factors for atherosclerosis
4. Onset of headache under stress

Am J Geriatr Cardiol 2001;10:100-1.
Eur J Emerg Med 2009;16:1-3
J Headache Pain 2009;10:3-9

COMORBIDITY IN MIGRAINE PTS

alergies, angina, arthritis, depression, osteoporosis, epilepsy, hypotension, ulcus, iritabile colon, fibromyalgia, sy chronic fatigue

Pts > 70 yrs suffer from:
- arthritis (58%)
- hypertension (45%)
- heart disease (21%)
- cancer (19%)
- diabetes (12%)
- stroke (9%)

COMORBIDITY OF MIGRAINE RELEVANT FOR ELDERLY

History of migraine is not a risk factor for **stroke** in elderly
Lifetime prev. of M: 8% stroke pts
8% controls
15% MI pts
Stroke – no association between M and stroke in pts >55 yrs but
1 study: MA associated with cerebrovascular incidents > 55 yrs
- M not associated with high blood pressure, increased IMT in elderly; an inverse association in women

No signif. diference regarding **cardiovascular risk-factor profile** after adjustment for age, gender among migraineurs and non-migraineurs; 1 study: higer cardiovascular risk profile in MA pts than in pts without migraine

Coronary heart disease – no increased risk in elderly migraineurs

Cephalagia 2006;27:97-106
Cephalalgia 2003:23:914-20
Cephalalgia 2011;31:331-7
Headache 2001;41:399-401.

COMORBIDITY OF MIGRAINE RELEVANT FOR ELDERLY

Depression - high comorbidity
- worse prognosis of migrane in depressive pts

Cognitive function
5 yrs follow up
- after adj for age, gender, education, smoking:
- pts with M or non-M headache: no cognitive decline

Even long history of M does not impair cognition

MASS: information processing speed, memory in young and elderly pts with migraine -
results: M does not influence cognitive performance, medication use has no effect on cognitive measures

Cephalagia 2006;27:97-106
Cephalalgia 2011;31:1291-300
Headache 2010;50:176-84.

COMORBIDITY OF MIGRAINE RELEVANT FOR ELDERLY

Vertigo – dizziness common complaint in general population, increases with age (peak in 3-5 th decade in W, 4th in M);
- migrane-related vertigo is not spec. associated with age >60 yrs

Epilepsy – M present in 20% of pts with epilepsy (in 3% attacks of epi in close temporal relationship with attacks of M)

Cephalagia 2006;27:97-106
Neurology 1993;43:2476-83.

LONG TERM PROGNOSIS OF MIGRAINE

Favorable prognosis in most pts
2 trends: majority decrese, minor progress to CDH
Progressive decline after age 40; in menopause 2/3 improve

2 studies: migraine 12 year follow up:

1) 29%
   80%
   1.6%

2) 42% remission
   38% fewer attacks, milder
   20% developed CM

CM associated with:
- high migraine freq. at baseline
- onset younger < 20 yrs
- obesity
- obstructive sleep apnea
- co-morbid pain disorders
- depression
- medication overuse
- socioeconomic status

Headache 2009;49:1144-52
Neurology 2005;23:580-5
Neurology 2006;67:246-51

PREVALENCE, LONG TERM PROGNOSIS OF TTH

1- year prevalence 15-75 % (30-40 %)
Modest increase in ages 30-50
Decrease > 70 yrs prevalence: 65-74: 56%
75-84 45%
75-84 26%

New onset headache in elderly:
TTH the leading cause (43-80 %); trigeminal n. 36%

TTH: 45% remission
39% frequent
16% CTTH

Clinical characteristics: less severe

Curr Pain Headache Rep 2005;9:436-41
J Neurol Neurosug Psychiatry 2001;377-381

PRIMARY HEADACHE

Cluster h: occasionaly in elderly

Hypnic headache: 0.1% of headache pts in tertiary care
> 50 yrs, night, bilateral, mild-moderate, 2-4 h

Chronic daily h: 3-4%, of these: 70% CTTH
15% CM
5% other type CDH
- among CDH 38% has medication overuse, 24% takes no drugs

Hemicrania continua: prevalence unknown

New daily persistent headache: 0.03-0.1 in population;
hypothyroidism more frequent

DIAGNOSTICS

History, clinical picture

Diagnostic problems: “aura” in elderly, without migraine in past history
Onset of migraine?
TIA, mass lesion, temporal arteritis ?

Migrainous symptoms > age 60 warrants diagnostic work-up
Only when extensive work-up is unremarkable, symptoms are typical of MA, they may be called “migrainous”

Diary

CT scan, MRI: rule out vascular, mass lesion
Ultrasound: artery occlusion, dissection
Laboratory: SE, CRP, blood gasses, GUK, liver, kidney function
EEG: differentiation between seizure and atypical MA

AGEING is associated with physiological and pathological changes that alter the effects of **drug treatment**

Gastric - decline of gastric acid secretion
- slowing of gastric emptying
- changes in gut wall metabolsm

Hepatic - 40% reducton of blood flow to liver
- changes in liver metabolism
- decline in liver mass

Renal - decline in glomerula filtration rate
- reduction in kidney mass

Change in vascular control systems

Less studies; in trials (acute and preventive medication) pts > 60 yrs excluded – this led to undertreatment of elderly migraine pts – many physicians are uncertain how to treat elderly - treatment options are considered to be restricted

THERAPY in elderly - factors that influence medication use

Clinical characteristics (severity, frequency, duration, disability)

Comorbid diseases and risk factors
- contraindications
- pharmacological interaction (2-3 drugs)
- exacerbate migraine: vasodilating drugs: nitrate containing drugs, nifedipine; HRT, bronchodilators, antiarrhythmics, histamine H2 rec. antagonists (ranitidine), amantadine

Overall side-effect profile

Adverse events
- more likely to develop
- incidence correlates with age
- due to age -related changes: altered pharmacokinetics
- due to comorbidity, polypharmacy
- more likely to be severe
- 4-6th greatest cause of death

Practical issues (cost, availability)

THERAPY in elderly

- individual approach (preferences); caution in elderly
- explain triggers
- explain medication posibilities and realistic aims

- slow introducton of medication
- gradual increase
- adjustment of therapy depends on liver, kidney function
- more frequent control of ECG, Holter
- therapy in agreement with other physicians (cardiologist, nephrologist)
- more often check-ups - lab findings (after dose increase)
  - other specialists

ACUTE THERAPY OF MIGRAINE

Use of medication:
12 % no drug
46% regularly
42% only when interfered with activities that could not be postponed
30 % pts > 65 yrs every day takes an analgesic

Analgesics: paracetamol – safest; in renal or hepatic dysfunction a dose dose reduction 50-75% is advisable, max/day 2 g
ASA – caution – GI (risk of bleeding, gastric ulcer)
-add proton pump ihnibitor

NSAIDs – naproxen sodium, ibuprofen, diclofenac – consistent evidence of efficacy
- limited use due to GI AEs; interaction with anticoagulants, hypoglycaemics, antihypertensives, diuretics, digoxin
- combination of NSAIDs and SSRIs - risk of GI AEs

J Neurol Neurosurg Psychiatry 2001;70:377-381
Arch Intern Med 2010;170:1968-76
Cephalalgia 2006;27:97-106

ACUTE THERAPY OF MIGRAINE

Triptans
- not recomended, even in absence of cardio - or cerebrovascular risk (?)
- Triptan Cardiovascular Safety Expert Panel evaluated evidence from recent large study of triptan use in elderly pts with various risk factors – no increased risk of stroke, MI, cardiovascular death, mortality
- chest symptoms are not serious, not explained by ischemia
- periodic cardiac screening is advised

Conclusion: in absence of contraindications, safe to use in elderly

- pharmacokinetics of rizatriptan similar in healthy young and elderly
- zolmitriptan does not affect heart rate, induced a signif. increase in blood pressure – not of clinical concern, transient
- no need for adjustment of dose - in regard to gender
- in case of renal dysfunction
- severe hepatic lesion- lower dose advisable

Arch Intern Med 2010;170:1968-76
Cephalalgia 2006;27:97-106
Int J Clin Pharmacol Ther 2001;39:447-52
Int J Clin Pharmacol Ther 1998;63:342-53

ACUTE THERAPY OF MIGRAINE

Caffeine – often in combination with analgesics - has adjuvant effects; in migraine and TTH, limit is 100 mg/day to avoid CDH

Opioids – rescue medication, other medication CI
- limited use due to sedation, cognitive side effects, nausea, vomiting, constipation, urinary retention, seizures
- increased relative risk of many safety events (and all mortality)
- elevated fracture risk

Ergotamins, DHE - not recomended (vasoconstriction- hypertension, ischemic events)

Antiemetics – metoclopramid - adjuvant medication to NSAIDs or tripans
- prochlorperazine - as monotherapy
- risk of movement disorders, sedation, orthostatic hypotension, lower epileptogenic threshold
- domperidone - recommended for elderly (not associated with central or extrapyramidal AEs)

PROPHYLACTIC THERAPY MIGRAINE

Beta blockers – propranolol 80-240 mg, metoprolol, atenolol
CI: asthma, glaucoma, depression, chronic obstructive pulmonary disease, diabetes, heart failure, peripeheral vascular disease
AEs: fatigue, depression, nausea, dizziness
- absolute bioavailability doubles in elderly – adjust dose

Antidepressants – tricyclic – consistent support of efficacy
- low doses, up to 10-30 mg (150 mg) at bedtime
- CI: cardiac dysrrhythmia, urine retention, glaucoma, prostatism, heart disease
- higher plasma drug concentrations

AEs: orthostatic hypotension, confusion, weight gain, drowsiness, cardiac conduction disturbances (QT interval prolongation)
- nortryptiline – less AEs, little evidence for efficacy

SSRI, venlafaxine - good tolerabilty profile

Drugs Aging 2006;23:461-89.

PROPHYLACTIC THERAPY MIGRAINE

Antiepileptics

Valproat – 500-750 mg/d
- mood stabilising effect in bipolar pts
- AEs: liver function disturbances, bone marrow suppression, delirium, tremor, ataxia

Topiramat – 100 mg/d, slow titration
AEs: cognitive impairment, renal stones, body weigth loss, sedation, agitation, fatigue, taste perversion, peripheral paresthesias
- study in epilepsy - well tolerated
- preferred in concomitant essential tremor

Levetiracetam - study: 1000 mg / 6 mo, signif. reduction
- dosage 2000-4500 mg/day in 2-3 doses
- AEs: somnolence, concentration, GI

Gabapentin – moderate efficacy, 900-1200 mg/day
- good safety profile

Lamotrigine -100 mg /day

PROPHYLACTIC THERAPY MIGRAINE

Serotonine 5-HT rec. **antagonists** –
pizotifen - AEs: weight gain, drowsiness
methysergide - CI: severe atherosclerosis or hypertension, peptic ulcer, thromboflebitis, retroperitoneal fibrosis

Ca channel antagonists – CI: hypotension, heart failure, AV block, Parkinson's disease
verapamil (CI: MAO inhibitors); in elderly associated with GI bleeds due to antiplatelet effects
240mg/d
flunarizine (CI depression, parkinsonism)
AEs: sedation, weight gain, abdominal pain
10 mg/day

ACE inhibitors – lisinopril, enalapril
Angiotensin II inhibitors – candesartan
- caution – both can cause acute renal insuficiency

PROPHYLACTIC THERAPY MIGRAINE

No response to conventional therapies, pts with CIs:

1. Tanacetum parthenium (feverfew) 50-82 mg/d
2. Mg 300-600 mg/d
3. riboflavin (vitamin B2) (25mg; 400 mg/d)
4. Q 10 co-enzim
5. botulinum toxin – well tolerated, no AEs
6. melatonin

Behavioral therapy – relaxaton techniques
- biofeedback

Physical therapy – acupunture
- TENS
- massage

Peripheral nerve blockade – unilateral greater occipital nerve blockade
- cluster, cervicogenic headaches

WHICH TREATMENT SHOULD BE USED IN ELDERLY?

ACUTE TREATMENT

1st choice	paracetamol
2nd choice	triptans
Do not use, with caution	NSAIDs
	ASA

PREVENTIVE TREATMENT

1st choice	propranolol
	pregabalin
	topiramate
	sodium valproate
2nd choice	Ca channel blockers
Do not use, with caution	nortryptilin
Do not use	amytriptiline

MOST COMMON MISTAKES

- wrong diagnosis (more than 1 headache)
- no change of lifestyle (triggers)
- initial dose too low / high
- cesation of therapy too early (at least 3 mon)
- cessation due to AEs
- not adequate way of medication appliance (per os, spray, parenteral)
- medication overuse
- use of medication that exacerbate headache
- non compliance
- unrealistic expectations from therapy