

Headache

László Oláh



International Headache Society

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31/8/2011

The Enrico Greppi Award 2012. The Italian Society for the Study of Headaches (SISC) announces the competition of the biennial Enrico Greppi Award 2012. The award will be granted to the best unpublished original paper dealing with clinical.....[Details](#) >

1/8/2011

NEWSFLASH!

IHC Poster Forum. Posters from the recent 15th IHC are now available in the Poster Library. Click on the link below to access. If you would like your poster to be included, please email a pdf file to Carol Taylor.

> [Contact By Email](#)

1/8/2011

NEWSFLASH!

IHC Abstract Supplement. The abstracts

Pain sensitive structures

- Skin, subcutaneous tissue, periosteum, arteries, muscles, eye, ear, pharynx, sinuses, basal dura, nerves

Pain sensitive structures

- Skin, subcutaneous tissue, periosteum, arteries, muscles, eye, ear, pharynx, sinuses, basal dura, nerves
- Extracranial structures: well localized pain
- Intracranial structures: diffuse pain
 - Supratentorial origin: trigeminal distribution – fronto-temporal region
 - Infratentorial origin: occipital region

Classification of headaches

- Primary headaches
- OR Idiopathic headaches

- THE HEADACHE IS ITSELF THE DISEASE
- NO STRUCTURAL LESION IN THE BEACKGROUND
- TREAT THE HEADACHE!

- Secondary headaches
- OR Symptomatic headaches

- THE HEADACHE IS ON LY A SYMPTOM OF AN OTHER UNDERLYING DISEASE
- TREAT THE UNDERLYING DISEASE!

Cranial neuralgias

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Cranial neuralgias

CLASSIFICATION OF HEADACHES

- Tension-type-headache (TTH)
 - Migraine
 - Cluster headache and other trigeminal autonomic cephalalgias
 - Other primary headaches
- I
- Headache attributed to head and/or neck trauma
 - Headache attributed to cranial or cervical vascular disorder
 - Headache attributed to non-vascular intracranial disorder
 - Headache attributed to substance or its withdrawal
 - Headache attributed to disorder of homeostasis
 - Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures
 - Headache attributed to infection
 - Headache attributed to psychiatric disorders
- II
- Cranial neuralgias, central and primary facial pain and other headaches
- III

HISTORY AND EXAMINATIONS SHOULD CLARIFY IF

- THE PATIENT HAS PRIMARY OR SECONDARY HEADACHE
- THERE IS ANY URGENCY
 - AFTER THE 5TH DECADE
 - PROGRESSING HEADACHE
 - NEUROLOGICAL SIGNS
 - HEADACHE WITH SUDDEN ONSET
 - AFTER DELIVERY
 - AFTER HEAD TRAUMA
 - HEADACHE WITH FEVER and CONFUSION

Differentiation between primary headaches

Medical history!!!

- Prodromal, aura sign
- Provoking factors
- Quality, characteristics
- Region, localization
- Severity, intensity – 10 grades scale
 - Aggravated by physical activity?
 - Can he/she continue his/her previous activity?
 - How does the pain react to common pain killers?
- Time course (onset, duration of an attack, frequency)
- Accompanying signs

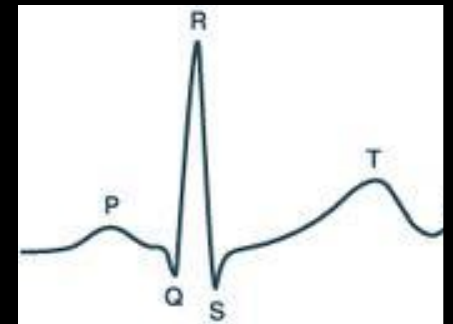
P: provoking factors

Q: quality

R: region

S: severity

T: time



Diagnostic procedures

- History! and examination
- X-ray
- EEG (meningitis, encephalitis, uraemia...)
- Cerebral CT (tumor, stroke)
- Cranial MR (tumor, vascular malformation, demyelination)
- Examination of CSF (inflammation, SAH, meningeal carcinomatosis)
- ENT, dentist, internist...

CLASSIFICATION OF HEADACHES

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- Other primary headaches

I

Recurring headaches

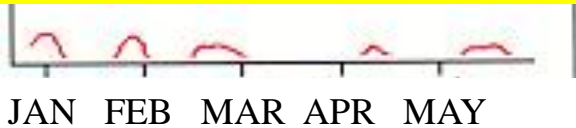
IN CASE OF PRIMARY HEADACHE
„ATTACK THERAPY”, OR
BOTH „ATTACK THERAPY” AND
„PROPHYLACTIC THERAPY”
(„PREVENTIVE THERAPY,
INTERVAL THERAPY”)

TENSION TYPE OF HEADACHE

EPISODIC FORM USUALLY AFTER STRESS SITUATION; ANXIETY, DEPRESSION IS FREQUENT

NO ACCOMPANYING SIGNS; IN SEVERE ATTACK PHOTO-OR PHONOPHOBIA MAY OCCUR

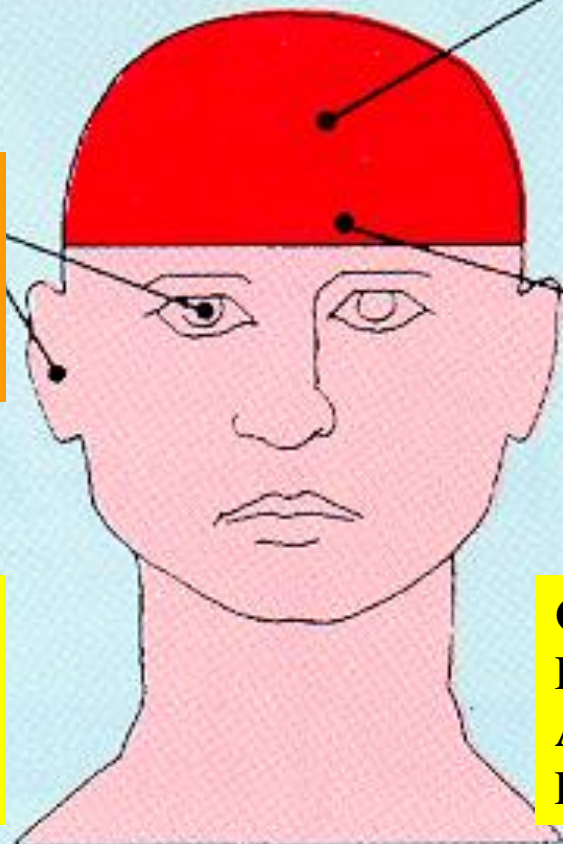
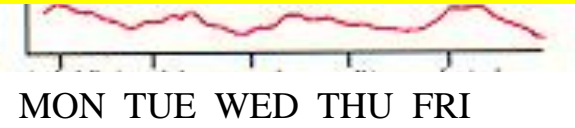
EPISODIC TENSION TYPE OF HEADACHE; LESS THAN 15 DAYS/MONTH; PERIODICITY PROFILE



DURATION: 30MIN-7DAYS; IN CHRONIC FORM, COULD BE CONSTANT, CONTINUOUS

DULL, BILATERAL PAIN; DIFFUSE OR BAND LIKE; PRESSING, TIGHTENING, NOT TOO SEVERE PHYSICAL ACTIVITY DOES NOT INCREASE THE INTENSITY

CHRONIC TENSION TYPE OF HEADACHE; AT LEAST 15 DAYS/MONTH; PERIODICITY PROFILE



Treatment of tension type of headache

- **Acute, episodic form:** NSAID, paracetamol, metamizol, or noraminophenazon
- **Indication of prophylactic treatment:** tension type headaches occur 15 days or more a month for at least 3 months

Prophylactic treatment of the chronic tension type of headache

- Tricyclic antidepressants (amitryptiline, clomipramine)
- Guidelines:
 - Preventive therapy, regular use
 - Start with low dose (10-25 mg) and increase the dose if there is no beneficial effect after 1-2 weeks (till 75 mg)
 - Change to other tricyclic antidepressant only after 6-8 weeks
 - Ask the patient to use headache diary
 - Use the tricyclic antidepressant for 6-9 months
 - Decrease the dose gradually
 - Call the patient's attention to potential side effects

Common side effects of tricyclic antidepressants

- Anticholinergic side effects:
 - Dry mouth
 - Increased pulse rate
 - Urinary retention (in prostate hyperplasia!!!)
 - Increased intraocular pressure (glaucoma!!!)
- Sleepiness or hyperactivity
- Serotonine syndrome (be cationous if the patient takes SSRI drug)

If the patient does not tolerate the TCA drugs, or cannot be administered because of danger of interaction

- Anxiolytics (e.g.: alprazolam, clonazepam...)
- + selective antidepressants (e.g. SSRI)
- Change of lifestyle
- Psychotherapy, psychological treatments, biofeedback, behavioral therapy, relaxation methods

CT?

MIGRAINE

without aura

common migraine

h e a d a c h e



with aura

classic migraine

aura

h e a d a c h e



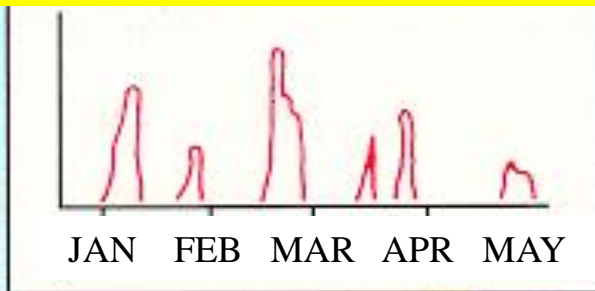
20-60 MIN

MIGRAINE

AURA SIGNS IN 20-30% OF ATTACKS;
USUALLY VISUAL AURA
ZIG-ZAG LINES, BRIGHTENING SPOTS...

ACCOMPANYING SIGNS:
PHONOPHOBIA

PERIODICITY PROFILE



ALCOHOL, ANXIETY,
VASODILATORS, COLD
WIND, MENSTRUATION
MAY PROVOKE

DURATION: 4-72 HOURS

SEVERE PAIN;
MOSTLY UNILATERAL;
PULSATING;
PHYSICAL ACTIVITY
INCREASES THE INTENSITY

PHOTOPHOBIA

NAUSEA
VOMITING



Migraine

- **WITHOUT AURA**
- **Typical headache 2/4**
 - Unilateral
 - Severe
 - Pulsating
 - Physical activity aggravates
- **Accompanying signs 1/2**
 - Photophobia and phonophobia
 - Nausea, or vomitus
- **WITH AURA +**
 - VISUAL
 - SENSORY
 - SPEECH DISTURBANCE
before migraineous headache
- **AURA SYMPTOMS**
 - At least 5 min but maximum 60 min

Migraine: epidemiology

- Life-time prevalence 10%-12%
- 1% chronic migraine (>15 days/months, 3months)
- Sex ratio 2.5 (f) to 1 (m); in childhood 1 to 1
- Mean frequency 1.5/month
- Mean duration 24 h (untreated)
- 10% always with aura, >30% sometimes with aura
- 30% treated by physicians

Migraine: pathophysiology

- **Genetic disposition, hormonal influence**
- **Activation of brainstem nuclei**
- **Activation of trigeminal ggl.**
- **Activation of trigemino-vascular system**
- **Release of neuropeptides**
- **Neurovascular inflammation of intracranial vessels**
- **„Spreading Depression“ as mechanism of aura**

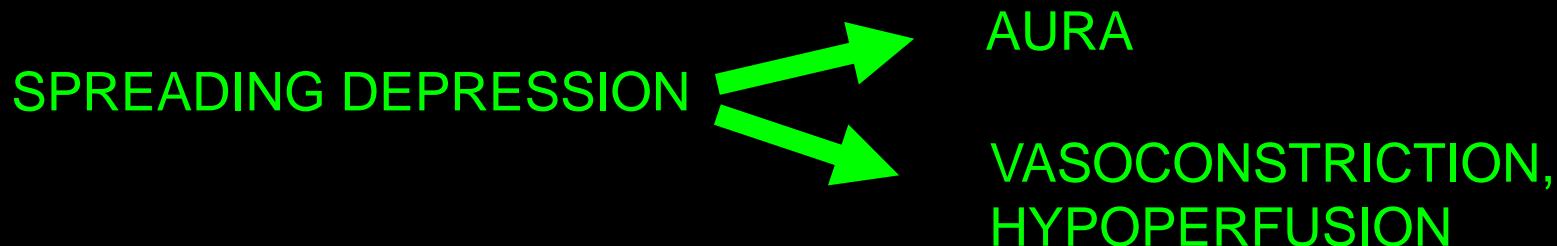
MIGRAINE WITH AURA

- DURING AURA:
 - VASOCONSTRICTION
 - HYPOPERFUSION
- DURING HEADACHE
 - VASODILATION
 - HYPERPERFUSION

CUASE OF THE AURA: SPREADING DEPRESSION.

Depolarization wave that moves across the cortex at a rate of 3–5 mm/min, followed by prolonged nerve cell depression

THE VASOCONSTRICTION AND HYPOPERFUSION ARE CONSEQUENCES OF THE SPREADING DEPRESSION



IMPORTANT TO KNOW! MIGRAINE WITH AURA...

- IS A **RISK FACTOR FOR ISCHAEMIC STROKE**
 - THEREFORE PATIENTS SUFFERING FROM MIGRAINE WITH AURA
 - SHOULD NOT SMOKE!!!
 - SHOULD NOT USE ORAL CONTRACEPTIVE DRUGS!!!
- THE **PROPORTION OF PATENT FORAMEN OVALE** IN PATIENTS WITH MIGRAINE WITH AURA IS ABOUT **50-55%!** (IN THE POPULATION IS ABOUT 25%).
- If the aura begins after age 40, if negative features are predominant, if it is prolonged or very short, other causes should be ruled out!

Treatment of migraine attack

- Try to sleep
- Antiemetics
- Analgetics (NSAIDS)
- Ergot derivatives
- Triptans

Treatment of migraine

Attack treatment

Not specific

Aspirin

NSAID

Antiemetics

Combinations

lizin-acetylsalicylate + metoclopramid

aminophenazon+coffein+drotaverin

ergotamin+ atropin+coffein+aminophenazon

Specific

Ergotamin

Dihydroergotamin

Selective 5-HT_{1B/1D}
agonists (triptans)

Prophylactic treatment

Beta-receptor blockers

Ca-channel antagonists

Antiepileptics

Antidepressants

Treatment of migraine attack

Triptans

1. <u>Sumatriptan</u> (Imigran [®] 6 mg inj, 50 and 100 mg tabl, Imitrex nasal spray, supp, Glaxo)	6 mg sc with autoinjector 50-100 mg per os, nasal spray 20 mg
2. <u>Zolmitriptan</u> (Zomig [®] , Zeneca)	2,5 – 5 mg
3. Naratriptan (Naramig [®] , Glaxo)	2,5 mg
4. Rizatriptan (Maxalt [®] , MSD)	5 – 10 mg per os
5. <u>Eletriptan</u> (Relpax, Pfizer)	20 – 80 mg per os
6. Frovatriptan (Smith-Kleine Beecham)	2,5 mg per os
7. Avitriptan (Bristol-Myers Squibb)	75 – 150 mg
8. Alniditan (Janssen)	2 – 4 mg, nasal spray

Contraindications of triptans

- Ischemic heart disease, angina pectoris, myocardial infarction
- Ischemic stroke
- Not treated hypertension, arrhythmia
- Long-lasting aura
- Hemiplegic or basilar migraine

Prophylactic treatment of migraine attacks

Prophylactic treatment of migraine attacks

- **Indication:**
 - 3 or more attacks/month
- **Duration of prophylactic treatment: 2-9 months**
- **INFORM THE PATIENT ABOUT THE PROPHYLACTIC TREATMENT!!!**

Prophylactic treatment of migraine

- Beta-receptor-blockers (propranolol, metoprolol)
- Tricyclic antidepressants (amitriptyline)
- Antiepileptics (topiramate, gabapentine, valproic acid)
- Calcium channel blockers (flunarizine)
- Serotonin antagonists
- Mg

Blood pressure

Pulse rate

Depression in the history?

BMI

Epilepsy? Essential tremor?

Tension type of headache?

Pregnancy?

Prophylactic treatment of migraine

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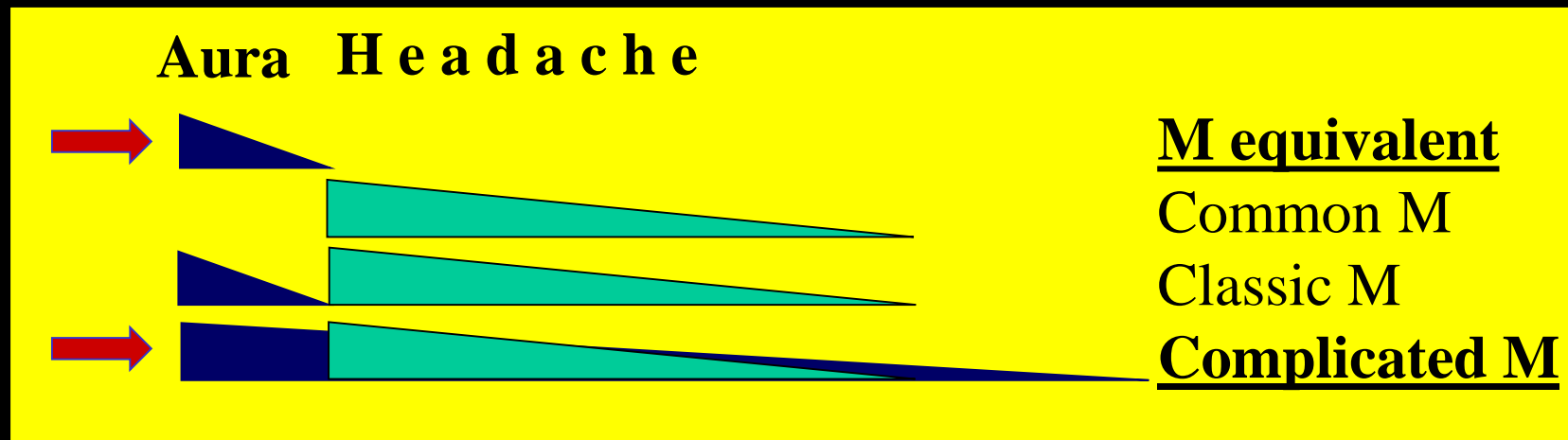
Pregnancy?

Other prophylactic treatment strategies in migraine

- Change of life-style
- Regular, not exhausting physical activities
- Cognitive behavioral therapy
- Regular sleeping
- Avoid the precipitating factors
- Acupuncture

Rare forms of migraine

- Migraine equivalent
- Familiar hemiplegic migraine
- Sporadic hemiplegic migraine
- Basilar-type migraine



CLUSTER HEADACHE

**ACCOMPANYING SIGNS
UNILATERAL SWEATING**

ALCOHOL, COLD WIND,
VASODILATORS, ANXIETY,
BUT ALSO SLEEP PROVOKE

RED FACE

**NASAL CONGESTION, OR
RINORRHEA**

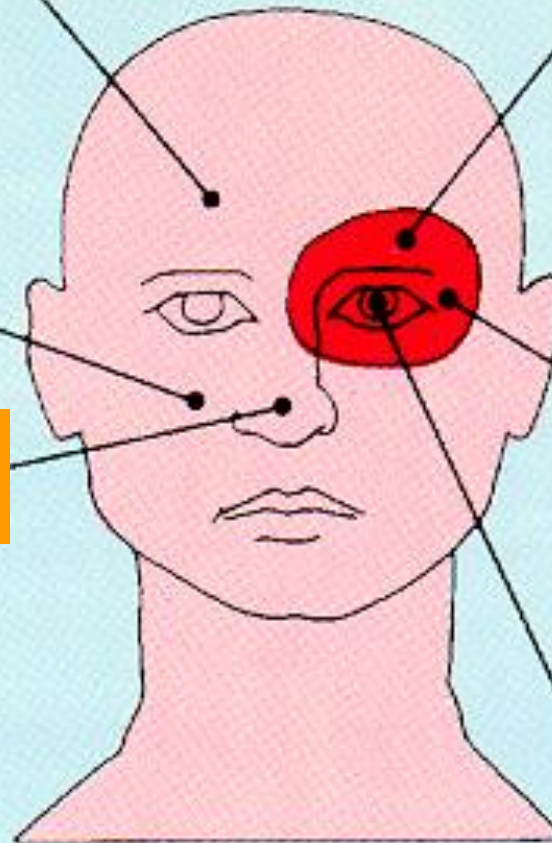
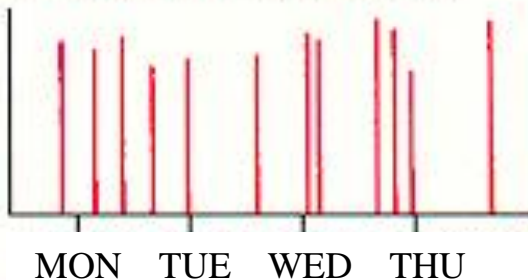
CLUSTER ATTACK

DURATION OF AN ATTACK:
15-180 MINUTES;
DURATION OF A CLUSTER
PERIOD: 3-16 WEEKS

PIERCING QUALITY

FREQUENTLY AT NIGHT;
UNILATERAL - AROUND THE
EYE; THE PAIN RADIATES TO
THE TEMPORAL REGION

PERIODICITY PROFILE

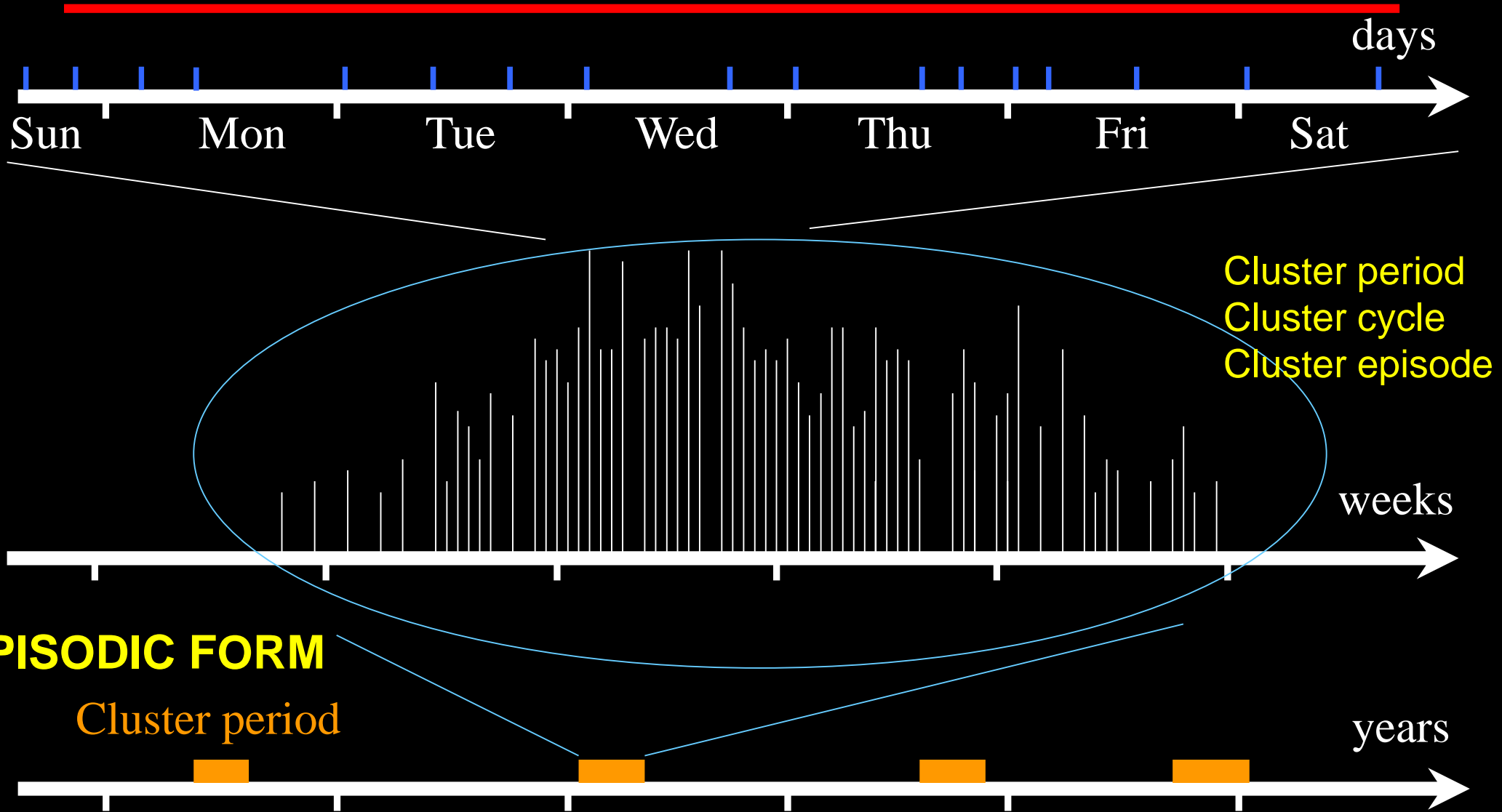


**CONJUNCTIVAL INJECTION;
LACRIMATION, TEARING;
PUPILLARY DISTURBANCE
(ANISOCORIA, HORNER'S
SYNDROME)**

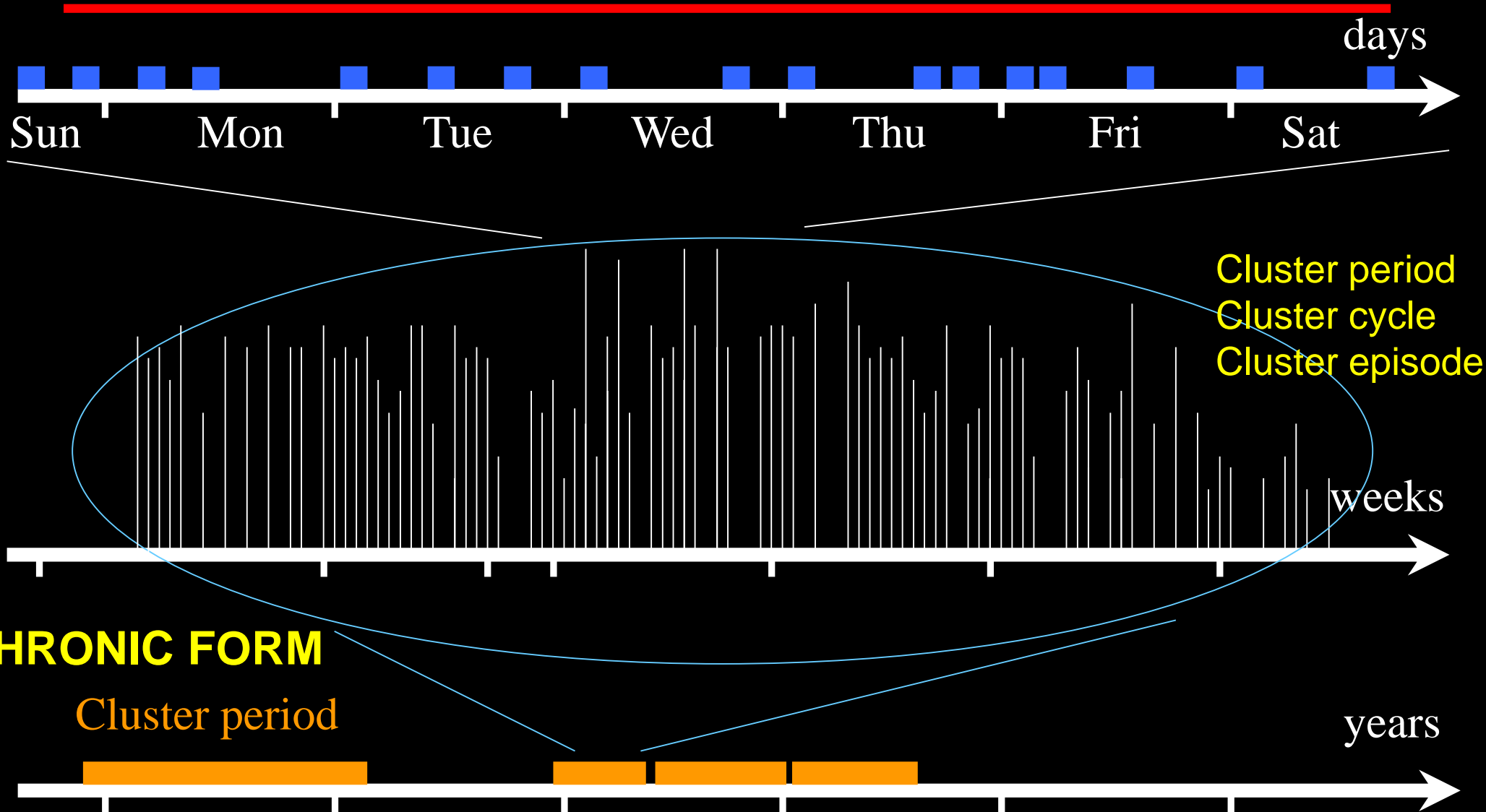
Nicknames of cluster headache

- „Suicide headache”
 - More severe pain than that during childbirth
 - Like a red-hot poker inserted into the eye
- „Alarm-clock headache”
 - Regularity of its timing
 - Wakes a person from sleep
 - Strikes at the same time each night

CLUSTER HEADACHE – Periodicity profile



CLUSTER HEADACHE – Periodicity profile



Treatment of cluster attack

- Oxygen: 6-14 liters/min 100% oxygen for 15 minutes
 - Effective in 75% of patients within 10 minutes
- Sumatriptan 6 mg s.c., 50-100 mg per os
- Ergot derivatives (lots of side effects)
- Anaesthesia of the ipsilateral fossa sphenopalatina
 - 1 ml 4% Xylocain nasal drop

Prophylactic treatment of the episodic form of cluster headache

- Episodic form:
 - Calcium-channel blockers (verapamil)
 - Corticosteroid (methylprednisolon)
 - Anticonvulsants (valproate)
 - Melatonin
- Chronic form:
 - Lithium
 - Methysergid
 - Radiofrequency thermocoagulation of the trigeminal ganglion
 - Hypothalamic deep-brain stimulation

Other trigeminal autonomic headaches

- **Cluster headache**
- 15-180 minutes
- 0-9 attacks (1-3)
- **Paroxysmal hemicrania**
- 2-30 minutes
- Usually > 5 attacks / day
- Indomethacin prevents the headache
- **SUNCT***
- 5-240 seconds
- 3-200 attacks/day
- (5-30 attacks/hour for days)

***Short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing (SUNCT)**

Differentiation between primary headaches – History!!!

	Migraine	Tension type h.	Cluster h.
• Aura sign	Yes	No	No
• Intensity – 10 grades scale	8-9	5-6	10
• Localization	Unil.	Band-like	Ocular
• Characteristics	Throbbing	Pressing	Severe
• Does he/she work further?	No	Yes	No
• Influenced by physical activity?	Yes	No	No
• Accompanying signs	Yes	No	Yes!
• Reaction to common pain killers	No	Yes	No
• Duration	4-72 hrs	Variable	¼-3 hrs

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Symptomatic, secondary headaches

- Secondary headaches
 - OR Symptomatic headaches
- THE HEADACHE IS ONLY A SYMPTOM OF AN ANOTHER UNDERLYING DISEASE
- TREAT THE UNDERLYING DISEASE!

Symptomatic, secondary headaches

- Tumor
 - Progressing headache
 - Neurological signs
 - Nausea, vomitus
 - (Epilepsy)
 - Change of behaviour
- Cerebral hemorrhage
 - Sudden onset
 - Neurological signs
 - Nausea, vomitus
 - (Epilepsy – especially in case of sinus thrombosis)
- Inflammation (meningitis, encephalitis)
 - Acute or subacute onset
 - Fever, meningeal signs
 - Neurological signs in case of encephalitis
 - Progressing headache, confusion
 - Epilepsy
- Diff. dg
 - CT, MR
 - CSF
 - EEG

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Arteriitis temporalis

(Giant cell arteriitis)

- Arteriitis temporalis (age>50y, We>50 mm/h)
- Autoimmune disease, granulomatose inflammation of branches of ECA
 - Unilateral headache
 - Pulsating pain, more severe at night
 - Larger STA
 - 1/3 jaw claudication ← inflammation of internal maxillary artery
 - Weakness, loss of appetite, low fever,
 - Danger of thrombosis of ophthalmic or ciliary artery!!!
 - Amaurosis fugax may precede the blindness
 - Treatment: steroid – 45-60 mg methylprednisolone – decrease the dose after 1-2 weeks to 10 mg!!!
 - Diagnosis: STA biopsy.
 - BUT **Start the steroid before results of biopsy!!!**
 - →We, pain decrease

Carotid dissection

- After neck trauma, extensive neck turning, or spontaneous
- Neck pain, headache
- Horner's syndrome
- Lower cranial nerve lesion
- Stroke
- Diagnosis: carotid duplex, MRI-T1

Headaches, provoked by medicines

- Vasodilators
 - Nitrates
 - Dipyridamol
- Addiction to pain killers
 - ergotamine, coffein, barbiturates, ASA
 - When the effect of the pain killer decreases, the headache increases
 - Stop the drugs, if necessary start indomethacine or carbamazepine

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Trigeminal neuralgia

- In middle or older ages
- Males:females ratio: 2:3
- Incidence: 4-5/100 000/year
- Prevalance: 30/100 000
- V/2, V/3
- V/1 rare (less than 5%)
- Right sided > left sided
- Usually no neurological sign
- In remission no complaint

Trigeminal neuralgia – signs and symptoms

- Severe, shooting, sharp pain (electricizing pain) – danger of suicide
- Sudden onset and end
- Short duration (usually ca. 5 sec., but might be repeated several hundreds times/day); always < 2 min.
- Respects the territory of a trigeminal branch
- The pain paroxysm is followed by 2-3 min. refractory period
- Trigger points: not nociceptive stimuli, but touch may provoke
- Previous Dental or ENT treatment?

Trigeminal neuralgia

- Idiopathic: 20 years ago: 90%.
- Symptomatic
 - Pons (MS), cerebello-pontine angle, pyramid
 - Mandibula, teeth, sinuses.
 - Microvascular compression and local demyelination

Trigeminal neuralgia - therapy

- Carbamazepine (Na-channel), NNT:1,4-1,7
- Baclofen (GABA-B rec agonist), NNT:1,4
- Lamotrigine (Na channel...), NNT:2,1
- Gabapentin, (Ca channel...), NNT: 3,2-3,8
- Phenytoin, Valproic acid, Clonazepam, Lidocaine,

- Start with low dose, increase after 2-3 days till the effective dose, or intolerable side effects, or maximal dose -- tolerance

- Spontaneous remission is not rare

Conservative treatment or surgery

- Success of medicine therapy
- Side effect of medicine therapy
- Risk of surgery

Atypical facial pain

- Frequently after dental treatment
- No dental cause
- Signs are not typical for trigeminal neuralgia
- Continuous, not severe pain
- Treatment = treatment of chronic tension type of headache

Glossopharyngeal neuralgia

- 100x less frequent than the trigeminal neuralgia
- Localization of pain: pharynx, Eustachian tube, middle ear
- Provoke: swallowing, yawning, laughing, chewing...
- Cause: microvascular compression, elongated styloid process, tumor of cerebello-pontin angle, tumor of base of skull, nasopharyngeal cc., peritonsillar abscess

Postherpetic neuralgias

- Herpes zoster ophthalmicus
 - Herpes zoster infection of the Gasserian ggl.
 - Eruptions usually in V/1 region
 - Eruptions occur 4-5 days after severe pain of V/1
 - Long-lasting, burning pain, superimposed by attacks of pain
- Treatment: acyclovir in acute phase
- Treatment of neuralgia: carbamazepine, phenytoin, TCA,

Spondylotic headache

Headache related to diseases of the cervical spine

- Arthropathy, Rheumatoid arthritis, cervical spondylosis
- Neck pain radiating to the posterior region of the head
- Neck movement is painful, especially after rest
- Treatment: NSAID, muscle relaxant, Lidocain infiltration, TENS