ד"ר שי מנשקו

היחידה לנוירולוגיה של הנער והמתבגר
ביה"ח ספרא לילדים, תל- השומר.

Learning Objectives

- Review the classification of pediatric migraine syndromes
- Diagnostic issues in migraine or other headache complaints
- Approaches to treatment

Headaches in Children

Incidence

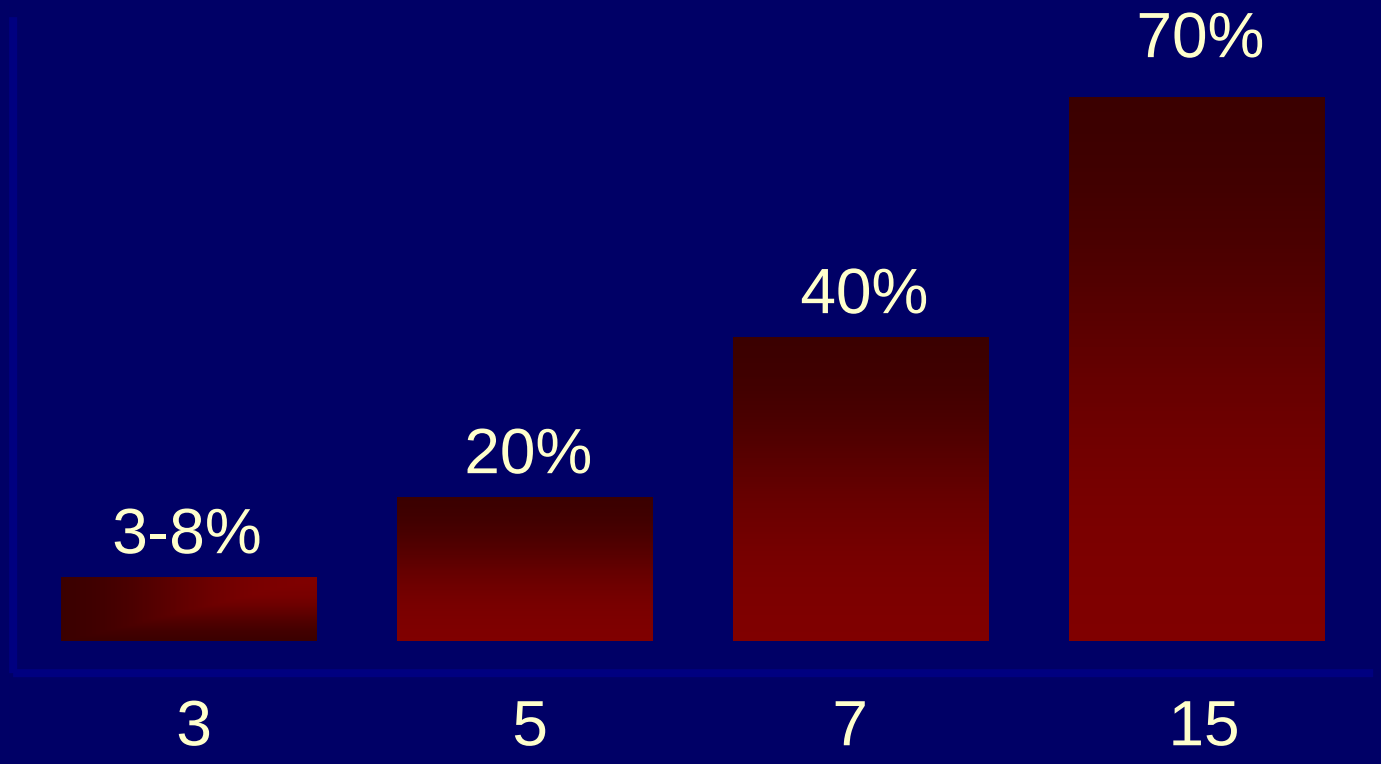
By age 7 years:

- **2.5% have frequent non-migrainous headache**
- **1.4% true migraine**
- **35% infrequent headaches**

In school-age children:

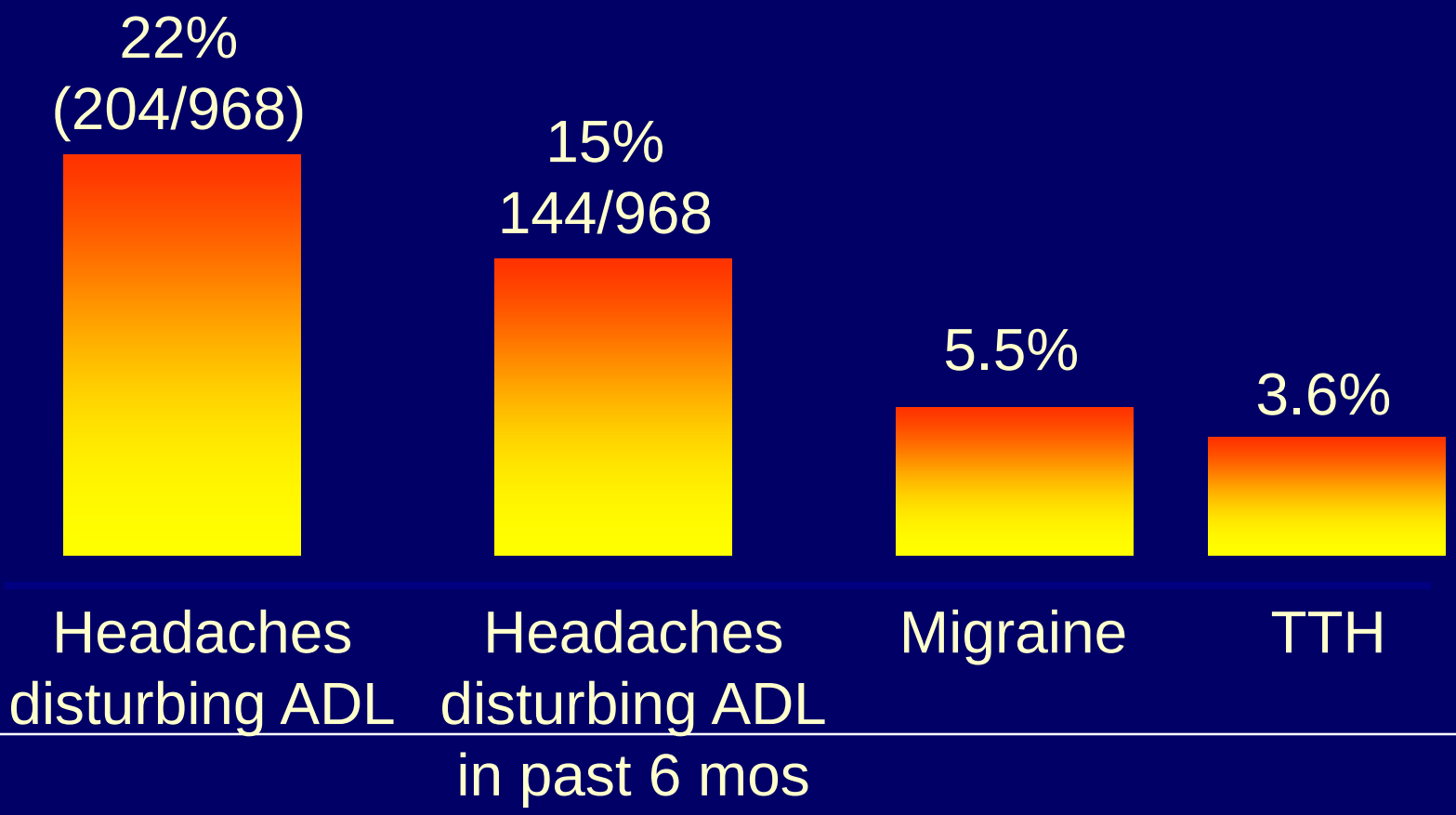
- **4% true migraine**

Percentage of children with headache



Headaches in 6 year olds

(Aromaa, Sillanpaa et al Pediatrics 2000:106;270-5)



Pediatric Headache Epidemiology

- Headache overall
  - Headache in the last year – 77- 91%
  - Recurrent non-infectious headache – 23-38%
  - 3rd leading cause of illness-related school absenteeism
- Tension-type headache – 1 year prevalence
  - Up to 75%
- Migraine – 1 year prevalence
  - Up to 20%
- Chronic Headache – 1 year prevalence
  - Up to 3%

Impact of Childhood Migraine

- school absenteeism
- missed family and peer interactions
- use of non-prescription medications
- rated as the most common pain complaint to paediatricians
- long, unpredictable pattern of headaches leads to increase in emotional problems including depression and anxiety

IHS Headache Classification 2004

- Migraine with aura
- Migraine without aura
- Childhood periodic syndromes
- Retinal migraine
- Complications of migraine
- Probable migraine

Migraine

Recurrent headaches

Last 4-72 hrs untreated

> 2 of the following
- unilateral
- pulsating
- mod-severe intensity
- aggravated by exertion

> 1 of the following
- nausea +/- vomiting
- photo- + phonophobia

No evidence on history or physical of another cause

Changes in the Migraine Criteria

> 2 of the following

- unilateral (note - pediatric migraine often bilateral)

4-72 hrs untreated (for pediatric migraine – now 1-72 hours)

- pulsating

- mod-severe intensity

- aggravated by exertion (or causes avoidance of activity / exertion)

> 1 of the following

- nausea +/- vomiting

- photo- + phonophobia (for peds - may be inferred from history)

** migraine in kids usually fronto-temporal -> if occipital, investigate**

MIGRAINE
"COMFORT" FEATURES

- Stereotyped premonitory symptoms
- Predictable timing around menstruation (or ovulation)
- Characteristic triggers
- Abatement with sleep
- Positive family history
- Childhood precursors (motion sickness, episodic vomiting, episodic vertigo)
- Osmophobia

Childhood Periodic Syndromes

cyclic vomiting in infants

benign paroxysmal vertigo

paroxysmal torticollis

abdominal migraine (?)

Childhood Periodic Syndromes

Cyclic Vomiting - Diagnostic criteria:

At least 5 attacks A. ☐

Episodic attacks, stereotypical in the individual patient, of intense nausea and vomiting lasting from 1 hour to 5 days B. ☐

Vomiting during attacks occurs at least 4 times/hour for at least 1 hour C. ☐

Symptom-free between attacks D. ☐

Not attributed to another disorder E. ☐

Abdominal Migrain

5+ attacks A.

Abdo pain lasting 1-72 hours B.

Abdo pain has all of the following characteristics: C.

1. midline location, periumbilical or poorly localised
2. dull or “just sore” quality
3. moderate or severe intensity

During abdo pain at least 2 of: D.

1. anorexia
2. nausea
3. vomiting
4. pallor

Not attributed to another disorder E.

Benign Paroxysmal Vertigo

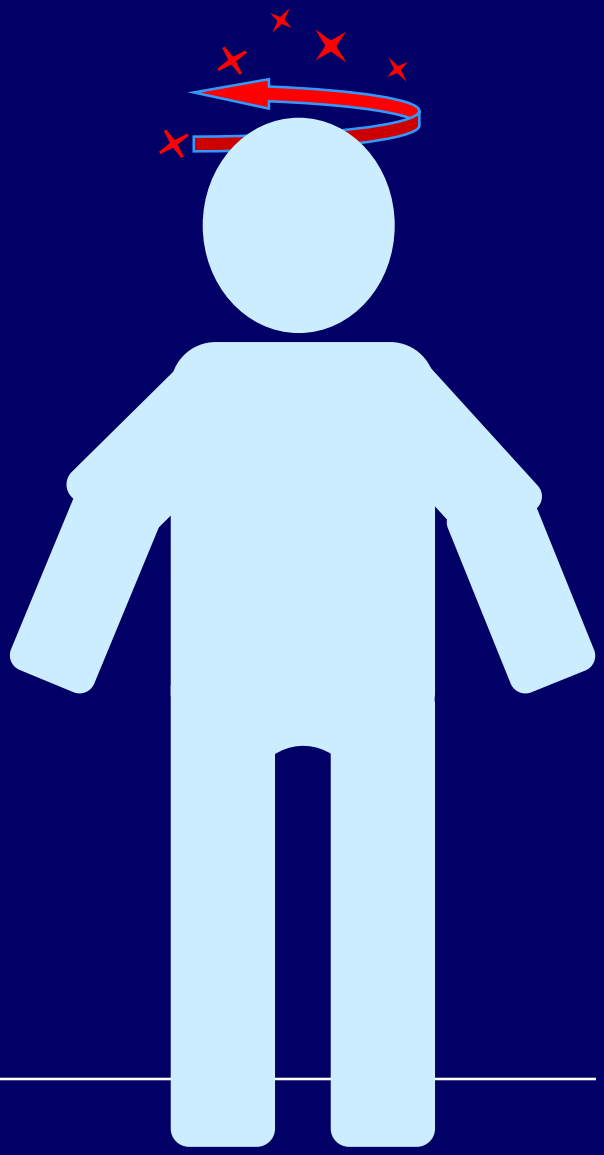
Diagnostic criteria:

A. At least 5 attacks

B. Multiple episodes of severe vertigo, occurring without warning and resolving spontaneously in min-hrs

C. Normal neuro exam; audiometric and vestibular functions between attacks

D. Normal EEG



Benign Paroxysmal Torticollis?

Episodic attacks, in a young child, with all of the following: A.
head title to 1 side (not always same), with/without slight rotation 1.
lasting minutes to days 2.
remitting spontaneously and tending to recur monthly 3.

During attacks, symptoms and/or signs of 1 or more of: B.
pallor 1.
irritability 2.
malaise 3.
vomiting 4.
ataxia 5.

Normal examination between attacks C.

"Benign paroxysmal torticollis of infancy: four new cases and linkage to CACNA1A mutation." *Dev Med Child Neurol 2002*

Alternating Hemiplegia of Childhood??

A. Recurrent attacks of hemiplegia (alternating sides)

Onset before 18 months B.

At least 1 other paroxysmal phenomenon: C.
- dystonic posturing
- nystagmus or other ocular motor abnormalities
- tonic spells
- choreoathetoid movements
- autonomic disturbances

Progressive cognitive and/or neurological decline D.

Alternating Hemiplegia of Childhood?

- Alternating hemiplegia of childhood: clinical manifestations and long-term outcome.
  Ped Neuro 2000
- "Benign nocturnal alternating hemiplegia of childhood: six patients and long-term follow-up." ***Neurology 2001***
- "Alternating hemiplegia of childhood or familial hemiplegic migraine? A novel ATP1A2 mutation."
  Ann Neurol 2004

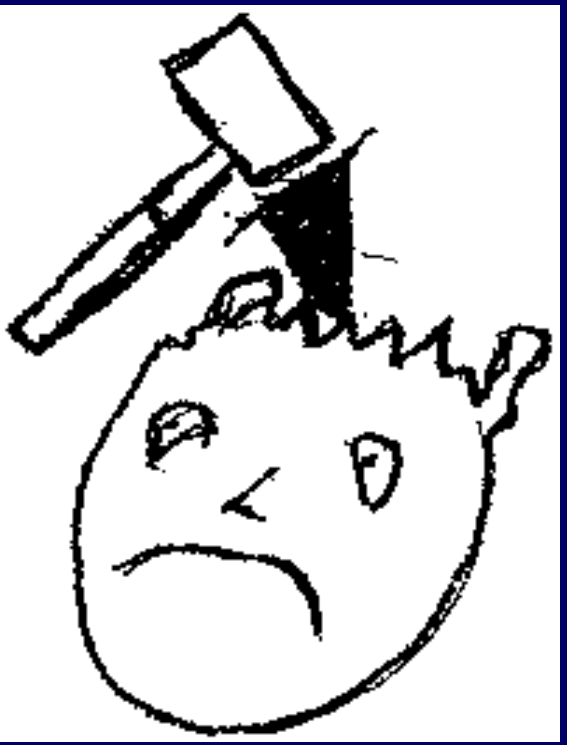
Diagnosis and Management

- careful history and neurological examination
- when to investigate

Diagnosis and Management: Neuroimaging

- Change in type of headache
- Neurological dysfunction:
  - abnormal neurological exam
- Coexistence of seizures
  - Recent onset of severe headache

Diagnostic Aids – Pediatric Headache



Drawing overall
PPV = 87%
Sensitivity – 93%
Specificity – 83%

Peri-orbital pain or sharp object to eye (100%)
Sleep or recumbency (95%)
Scotoma or field defect (95%)
Photophobia (91%)
Nausea or Vomiting (91%)
Severe pounding or throbbing (83%)
Phonophobia (80%)

Stafstrom et al Pediatrics 2002

Diagnostic Aids – ID Migraine

- Disability, Nausea and Photophobia
- 2/3 - Positive Predictive Value = 93%
- 3/3 - Positive Predictive Value = 98%

Lipton et al Neurology 2003

Migraine Treatment

- Reassurance
- Headache Diary
- Prophylaxis
- Abortive
- Relaxation and other methods

Headache Diary

Retrospective diary for the 24 <u>hours preceding the headache</u>

- Stress (good and bad)
  - Missed sleep
  - Missed meals
  - Foods - 20%
  - Other precipitants

MIGRAINE TRIGGERS

Diet

Sleep deprivation or excess

Stress and anxiety

Hormonal changes

Environmental factors

Physical exertion

Management of Childhood Migraine

Acute Headache

- **simple analgesia -acetaminophen**
  -ibuprofen
- **sumatriptan nasal spray (for adolescents ie over 12 years)**
- **rest**
- **cool gel pack, cool cloth or Magic Bag**

ACUTE MIGRAINE MEDICATIONS

- Nonspecific
  - NSAIDs, Acetominophen, ASA
  - Combination analgesics (with caffeine +/- butalbital)
  - Opioids
  - Neuroleptics/antiemetics
  - Other
- Specific
  - Ergotamine/DHE
  - TRIPTANS

Management of Childhood Migraine

Con't

Preventative Treatment

- **headache diary**
- **sleep hygiene**
- **eating habits**
- **exercise**
- **knowledge! (information and education)**

Management of Childhood Migraine

Non-Pharmacological Treatment

relaxation techniques

psychotherapeutic

- brief therapy

- self-hypnosis

- cognitive

When Should Prophylactic Therapy Be Considered?

Preventive Medications

- Anticonvulsants
  - Topiramate
  - Divalproex
  - Gabapentin
- Antidepressants
  - TCAs (amitriptyline, nortriptyline)
- Beta blockers
  - Propranolol
  - Timolol, Nadolol
- Calcium channel blockers
  - Verapamil
  - Sibelium
- Others
  - Sandomigran
  - Cyproheptadine
  - NSAIDS
  - BOTOX
- Herbal
  - Riboflavin, feverfew, Petasites, Mg, CoQ10?

Pearls for Preventing Migraine

- Prescribe reality
- Prevent aggressively
- Primum non nocere
- Try for “two for’s”
- Start low; go *very* slow
- Persist, persist, persist