

HEADACHE IN YOUNG AGE: TREATMENT STRATEGIES IN AN ITALIAN EXPERIENCE

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Educational Objectives

- ✓ List the diagnostic criteria for pediatric headaches
- ✓ Describe the available choices for the acute treatment of pediatric headache (migraine and tension-type headache)
- ✓ Discuss the objectives, limitations, and choices for preventive medications for pediatric migraine and tension-type headache
- ✓ List the most common behavioral approaches for headache treatment

Headache in young age: natural history

- ✓ 5% increase
- ✓ 15% no changes
- ✓ 30% spontaneous remission
- ✓ 50% slight improvement

	preschool	elementary	high school
Prevalence	1.2-3.2%	4-11%	8-23%
Gender ratio	boys > girls	boys = girls	girls > boys

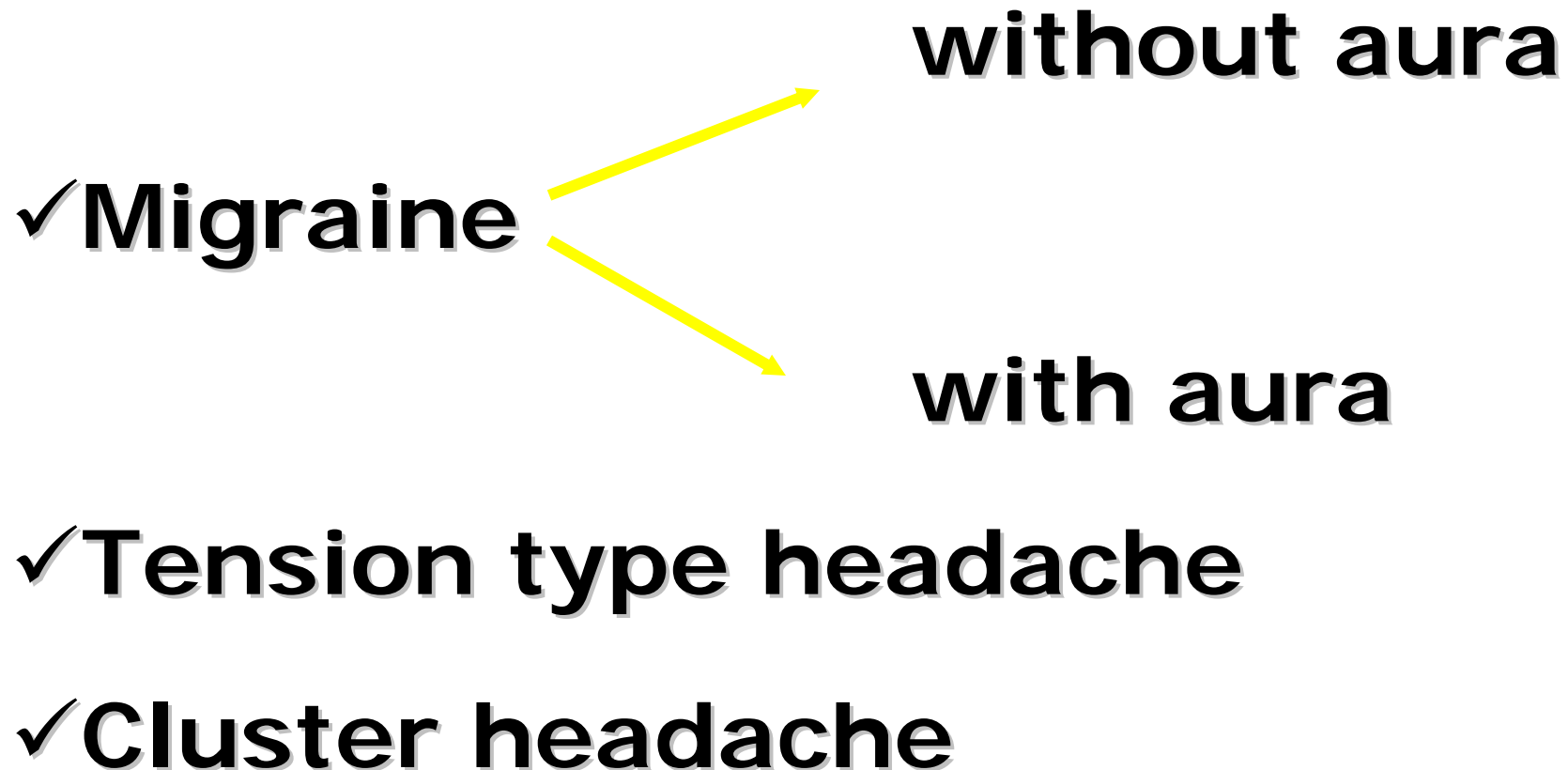
Until 1988

no specific and standardized criteria for the diagnosis
of the different headache forms

After 1988

IHS Classification: the diagnostic criteria
of adults patients were adopted
for young patients

IHS Classification (2004)



Migraine without aura

- 1) Attacks may shorter than 1 hour
- 2) Bilateral pain
- 3) Photo-phonophobia
- 4) Sleep is often effective for attack resolution

IHS New Classification

1.3 Childhood Periodic Syndromes

1.3.1 Cyclical vomiting

1.3.2 Abdominal migraine

1.3.3 Benign paroxysmal vertigo

The most common diagnosis in our clinical practice...

***Tension-type headache**

***Migraine without aura**

***Chronic forms**

***Migraine with aura**

Schedule of our clinical practice...

Once a week: clinical screening of outpatients

First follow-up: after 3 months of daily diary card

Follow-up meetings and therapeutic strategy choice for the patient

Schedule of our clinical practice...

The clinical screening includes:

- Neurological and physical examination
- Discussion with parents and patients about the clinical condition
- Decision about neuro-imaging or other laboratory tests
- Psychological tests for anxiety and depression and disability
- A diary is given to the patients to record headache episodes, intensity and analgesics consumption

Schedule of our clinical practice...

Follow-up after 3 months of daily diary card:

- Daily card analysis**
- Tests for psychological variables**
- Evaluation of diagnostic changes**
- Therapeutic plan schedule**

Schedule of our clinical practice...

Follow-up meetings and choice of the therapeutic strategy for the patient...

Acute or preventive treatment?

About prevention....

Pharmacological treatment?

Non pharmacological treatment: natural compounds, behavioral approach, psychotherapy ?

Chronic Daily Headache (CDH)

0.2 to 0.9% of Children

Classification???

IHS 2004

1.5.1 Chronic Migraine

2.3 Chronic Tension-Type Headache

2.3.1 With pericranial tenderness

2.3.2 Without pericranial tenderness

Headache is not the only symptom.

Frequent comorbid symptoms include: dizziness,
sleep disturbance,, fatigue, difficulty in concentration,
sad mood, anxiety

Chronic Daily Headache

- It is reasonable to discourage patients from trying to use analgesics to treat the all-the-time headache, as this may result in analgesic overuse and a potential analgesic rebound headache
- * Because of the chronic nature of the pain, some patients with chronic headache benefit from a consultation with a psychologist to be introduced to the techniques of relaxation therapy and biofeedback

Rothner 1995: "the evaluation of the child or adolescent with headache is the key to appropriate treatment"

- ✓ History
- ✓ Headache characteristics
- ✓ Physical examination
- ✓ Laboratory tests

Evaluation

The evaluation includes a thorough medical and family history and a complete physical examination

Diagnosis and assessment of symptoms is complicated by the inability of children to articulate their complaints

Other infectious allergic or gastrointestinal disorders may mimic symptoms of migraine

The difficulty of treating headache in children is using medications that have shown efficacy in adults, however the appropriate safety and efficacy studies have not been conducted for young patients

Effect on disability and quality of life...

- ✓ A logical extension of incorporating a biobehavioral approach to the care of young patients with headache is the addition of headache disability and quality of life assessments to the traditional outcomes of headache intensity , duration and frequency
- ✓ **Ped-MIDAS; MIDAS jun; PedsQL**

What do the Parents and Children Want???

Parents Want

- To know their child does not have a brain tumor
- To find a safe and effective treatment
- To learn about the cause of their HA

Children Want

- *Reassurance that he or she doesn't have a life-threatening illness*
- To find something that will make the the headaches better

Successful Management of Pediatric Headache

- ✓ Reassure patient and parents there is no CNS lesion
- ✓ Educate patients and their parents about the pathogenesis and Natural History of Headache
- ✓ Establish realistic goals for treatment according to age
- ✓ Attention to the effects of headache and the accompanying psychological distress

About therapies...

the difficulties of treating headache in young patients is using medications that have shown efficacy in adults, however the appropriate safety and efficacy studies have not been conducted for young patients

Treatment of juvenile headache

- ✓ Acute Treatment

- ✓ Prophylactic Treatment:

pharmacological and non-pharmacological options

Acute treatment of juvenile headaches

general principles for treatment of acute migraine:

- ✓ Treat attacks rapidly and consistently without recurrence
- ✓ Restore the patient's ability to function
- ✓ Minimize the use of back-up and rescue medications
- ✓ Optimize self-care and reduce subsequent use of resources
- ✓ Be cost-effective for overall management
- ✓ Have minimal or no adverse events

Acute treatment of juvenile headaches: clinical questions

- ✓ How safe and tolerable are acute migraine medications in children?
- ✓ What are the effects on acute headache pain of medications taken during the attack?

Parameters for analgesic use in young age

- ✓ No more than 12 tablets /month for a child
- ✓ No more than 24 tablets of an analgesic/month for an adolescent
- ✓ No more than 2 headaches treated with these parameters per week

Table II - Symptomatic drugs evaluated in placebo-controlled and open clinical trials.

Drug	Dose	Age range	n.	% of responders*	p	Ref.	Notes	
<i>Non-specific drugs</i>								
Ibuprofen	10 mg/kg	4-16 y	88	68%	37%	<0.05	26	
	7.5 mg/kg	6-12 y	84	76%	53%	0.006	27	
	200-400 mg	6-18 y	32	69%	28%	<0.05	28	
Acetaminophen	15 mg/kg	4-16 y	88	54%	37%	<0.05	26	
<i>Specific drugs</i>								
Dihydroergotamine	20 µg/kg and 40 µg/kg	5-15 y	12	58%	16%	NS	32	
Sumatriptan nasal	20 mg	6-10 y	14	86%	43%	0.03	35	
	5/10/20 mg	12-17 y	510	66% [§]	53%	<0.05	36	
	10-20 mg	8-17 y	83	64%	39%	0.003	37	
	20 mg	12-17 y	738	61%	52%	NS	38	1 hour post-dose: primary end point.
				42%	33%	0.046		30 min post-dose: secondary end point
				68%	58%	0.025		2 hours post-dose: secondary end point
Sumatriptan oral	50-100 mg	8-16 y	23	30%	22%	NS	31	
Sumatriptan subcutaneous	3-6 mg	6-16 y	17	64%		OT	33	
	0.06 mg/kg	6-18 y	50	78%		OT	34	
Rizatriptan oral	5 mg	12-17 y	296	66%	56%	NS	39	
	5 mg	12-17 y	234	68%	69%	NS	39	Therapy on school-days
				74%	58%	0.002		Therapy also at week ends
Zolmitriptan oral	5 mg	12-17 y	686	77%		OT	40	
	2.5/5 mg	12-17 y	38	88/70%		OT	41	
	2.5 mg	6-18 y	32	62%	28%	<0.05	28	
Almotriptan oral	6.25-12.5 mg	11-17 y	15	86%		OT	42	
Eletriptan	40 mg	12-17 y	267	57%	57%	NS	44	Significant differences in secondary endpoints (see text)

Abbreviations: NS=non-significant difference (active drug vs placebo); RCT=randomised controlled trial; OT=open trial.

* the % is expressed as overall % of responders (OT) or active-drug vs placebo % of responders (RCT); [§] 5 mg.

Tension-Type Headache: Acute Treatment

- ✓ Paracetamol 100 mg/day per os
- ✓ ASA 20 mg/kg body weight/day
- ✓ Indomethacin 100-200 mg/day

Preventive treatment of juvenile headaches

general principles related to the goals of migraine prevention:

- ✓ Reduce attack frequency , severity and duration
- ✓ Improve responsiveness to treatment of acute attack
- ✓ Improve function and quality of life, reduce disability

Migraine: Prophylaxis

β -BLOCKERS

- ✓ Propranolol 30-60 mg/day per os
- ✓ Metoprolol 1-2 mg/kg/day per os

CALCIUM ANTAGONISTS

- ✓ Flunarizine 5 mg > 20 kg
10 mg > 40 kg

SEROTONIN ANTAGONISTS

- ✓ Pizotifen 0.5-1 mg = 20-40 kg
1 mg > 40 kg
- ✓ Ciproheptadine 0.2 – 5 mg/kg/day

SODIUM VALPROATE 15 – 30 mg/kg/day

TOPIRAMATE 10 mg/Kg/day

Topiramate in Children with migraine

EFFECTIVENESS OF TOPIRAMATE IN THE PREVENTION OF CHILDHOOD HEADACHES.

Hershey AD, et al. Headache. 2002

TOPIRAMATE IN THE PROPHYLACTIC TREATMENT OF MIGRAINE IN CHILDREN.

Campistol et al. J Clin Neurol, 2005

Tension-Type Headache: Prophylaxis

- ✓ Amitriptyline 0.25 – 1 mg/kg body weight/day
- ✓ Trazodone 1 – 2 mg/kg body weight/day
- ✓ Magnesium salts 360 mg/day
- ✓ Ginkgolide B, riboflavine, CoQ10 plus magnesium

Silberstein reminds us some useful considerations and recommendations for children

- ✓ **Reassure the family** about the benignity of the condition
- ✓ **Adjust the life style** of the child to assume a regular bed time, a reasonable meal schedule and the avoidance of overload activities
- ✓ **Identify and eliminate headache triggers** (physical exertion, hunger, noise, travelling, light exposure, certain foods or head trauma)
- ✓ In children with disturbed home life, significant depression or abuse, family and individual **psychotherapy** is indicated

Non pharmacological habits for managing headaches in young patients

- ✓ Good sleep hygiene (regular sleep schedule avoidance of chaotic sleep)
- ✓ Regular aerobic exercise
- ✓ Regular meals avoiding missing meals
- ✓ Dietary adjustments
- ✓ Identification of “migraine triggers”

Non pharmacological treatment options for managing headaches in young patients

Biobehavioral methods

(Biofeedback, Relaxation Training, Cognitive therapy, Stress management)

Alternative methods

(Minerals-magnesium, Vitamins-riboflavin, Ginkgolide B, Acupuncture, Herbs)

L. Grazzi • F. Andrasik • S. Usai • G. Bussone

Magnesium as a preventive treatment for paediatric episodic tension-type headache: results at 1-year follow-up

Behavioural therapies: Biofeedback (BFB) & Relaxation Training (RT)

- ✓ Since seventies several authors confirmed the efficacy of **RT** and **BFB** for treatment of headaches
- **Relaxation Training** (RT) and **Biofeedback** (BFB) are the most important behavioural approaches
- These techniques may be used separately or combined in the same therapeutic program

Behavioural therapies: advantages

- ✓ Long-term efficacy
- ✓ No side effects
- ✓ They can be used alone or combined with other therapies
- ✓ Easy to perform with children
- ✓ Patients directly involved in the therapeutic program
- ✓ To avoid early onset of “medication overuse”

The efficacy of treatment has to be confirmed by:

- ✓ studies with control groups
- ✓ durability of treatment effects over time

Biofeedback-assisted relaxation training for young adolescents with tension-type headache: a controlled study

G Bussone, L Grazzi, D D'Amico, M Leone, F Andrasik

Headache Center, National Neurological Institute "C. Besta", Milan, Italy and Behavioral Medicine Laboratory, University of West Florida, Pensacola, FL, USA

Cephalalgia

Bussone G, Grazzi L, D'Amico D, Leone M, Andrasik F. Biofeedback-assisted relaxation training for young adolescents with tension-type headache: a controlled study. *Cephalalgia* 1998;18:463-7. Oslo. ISSN 0333-1024

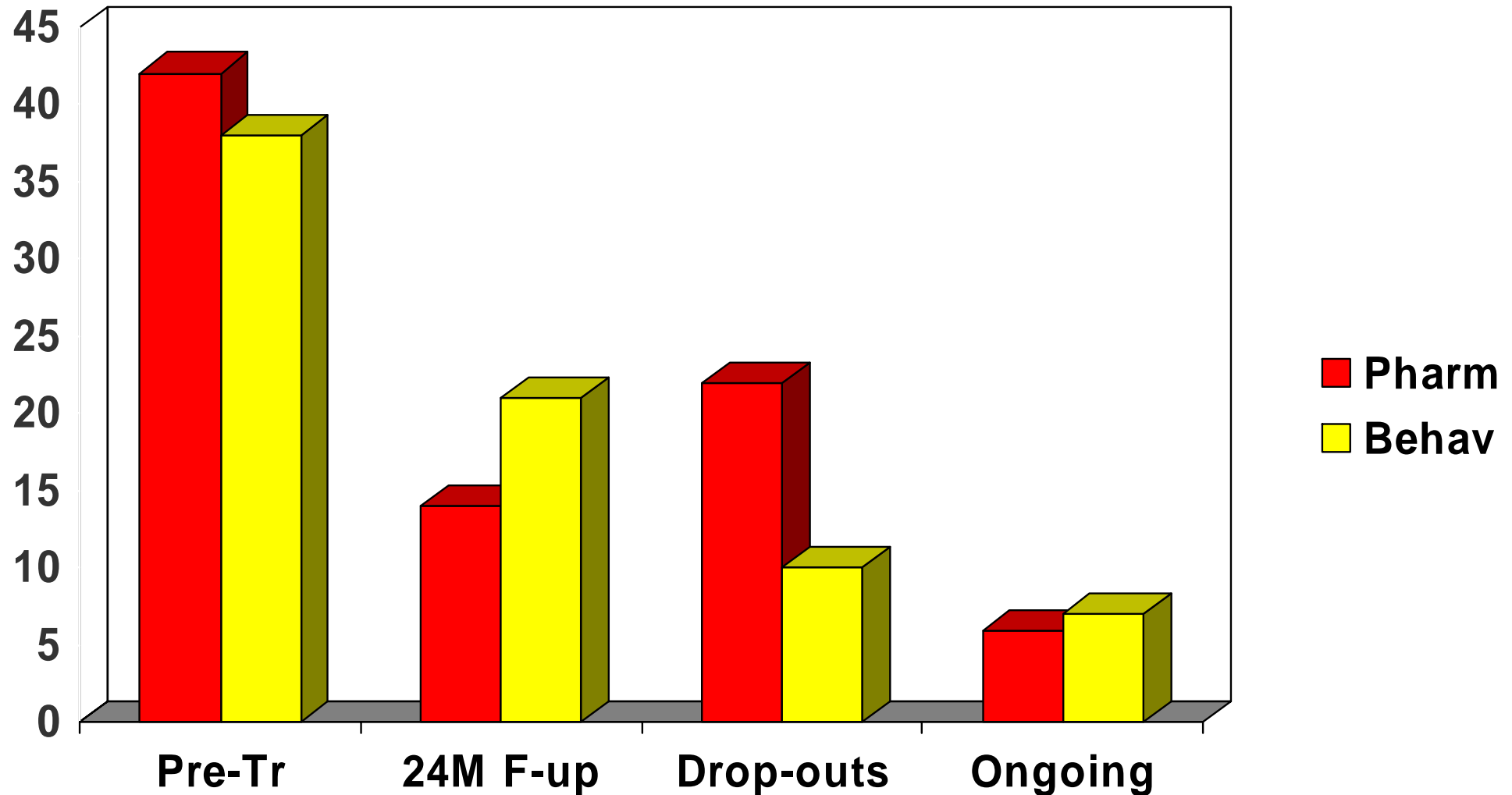
Tension-type headache is common in children and adolescents and is generally treated with medication, but emerging literature suggests that various behavioral treatments may provide efficacious alternatives to medication. Juvenile tension-type headache sufferers were randomly assigned to biofeedback-assisted relaxation or relaxation placebo and followed for 1 year. Following treatment, both conditions led to sizeable headache reductions (approximately 50%). Over time, children receiving biofeedback-assisted relaxation continued to improve and were superior to the control condition at a 6- and 12-month follow-up (86% versus 50%). Biofeedback-assisted relaxation appears to be an efficacious and durable treatment for juvenile tension-type headache and merits further exploration. □ *Childhood headache, electromyographic biofeedback, relaxation training, tension-type headache in children*

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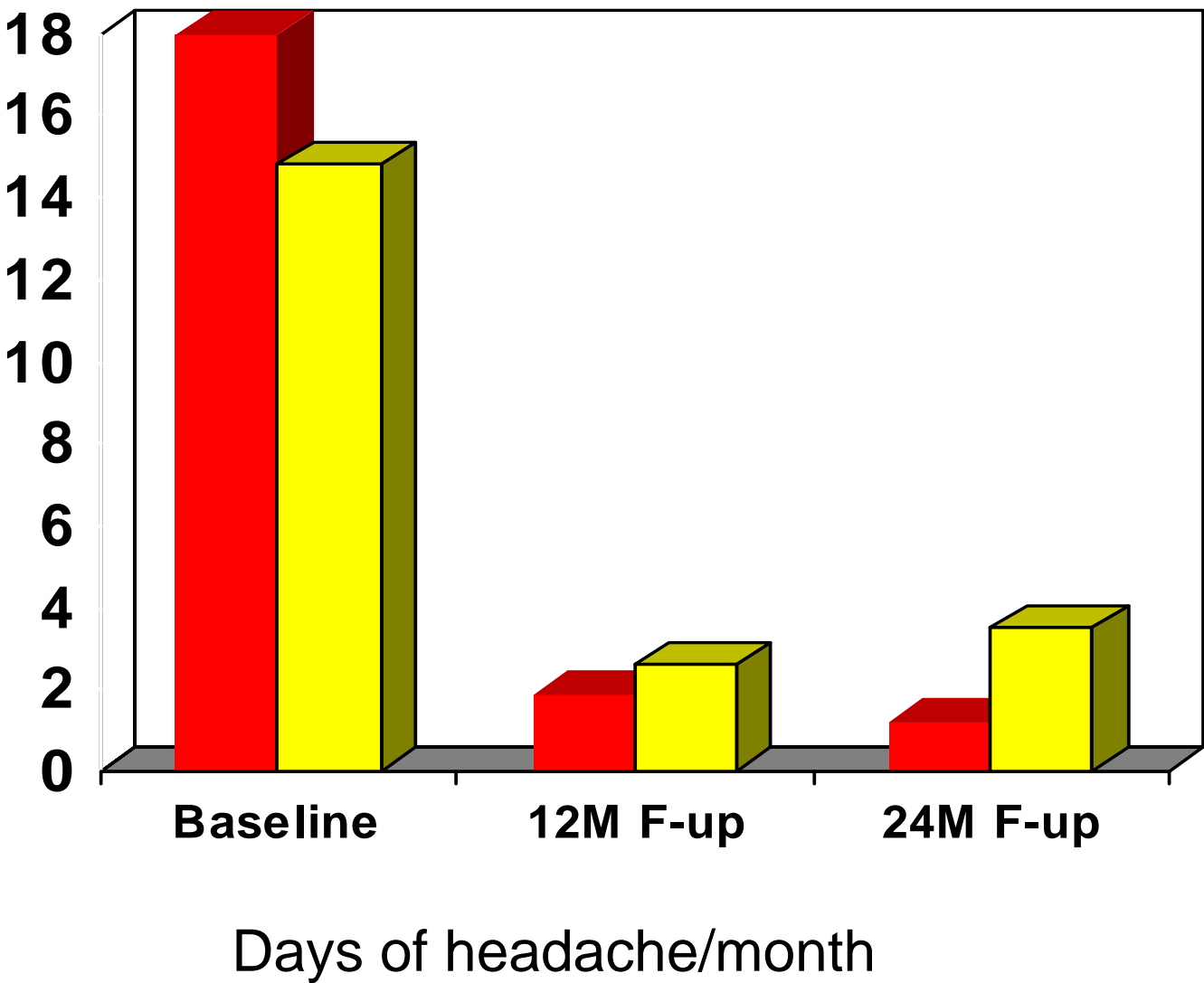
Brief neurologist-administered behavioral treatment of pediatric episodic tension-type headache

F. Andrasik, PhD; L. Grazzi, MD; S. Usai, MD; D. D'Amico, MD; M. Leone, MD; and G. Bussone, MD

Amytryptiline vs Behavioral therapy in childhood tension-type headache: SYNOPSIS



■ Pharmacological Group ■ Behavioral Group



Behavioral Headache research...

- ✓ Across studies behavioral interventions yielded about **35-55% reduction in migraine and tension-type headache** parameters
- ✓ Although direct comparisons of behavioral and pharmacologic treatments for headache are few, the evidence suggests that the **level of headache improvement with behavioral interventions may rival those obtained by medications**
- ✓ Clinical trials research is evolving with comparisons to standard pharmacologic treatments, broader populations and cost-effective applications