OTHER PRIMARY HEADACHE SYNDROMES

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I. Primary Exercise Headache

ICHD-3 beta Diagnostic criteria:
A. At least two headache episodes fulfilling criteria B and C
B. Brought on by and occurring only during or after strenuous physical exercise
C. Lasting < 48 hours
D. Not better accounted for by another ICHD-3 diagnosis.

a. Clinical Features

Pascual et al.[1]-clinic based patients
- -Mean age 24 (ages 10-48); 88% males
- -Quality: throbbing
- -Intensity: moderate-severe
- -Duration: several minutes to 2 days
- -Location: 9/16 bilateral, 7/16 unilateral
- -Associated symptoms: nausea, photophobia in only 4/16
- -Frequency-1x/d to every 2 months over 15 days to 10 years

Chen et al.[2] Adolescent study from Tawain -1963 students completed the study, female predominance
- -Bilateral (51.4%), pulsating (59.4%) and short-lasting (<or= 1 h in 79%).
- -Rarely needed treatment-only 13.8% took meds
- -Migraineurs with concomitant exercise headache had more features of migraine and needed more frequent treatment

Vågå study [3]-population based study, Norway, 18-65 years of age
- -female preponderance (F/M ratio 1.38)
- -Location: 100% had bilateral pain
- -Quality: throbbing 87%
- -Associated symptoms-photo/phono: 8%, nausea 5%
- -Duration: shorter than migraine (no actual time given)
- -Profile: 40% stated attacks only occurred during a certain period of early life
- -majority of attacks only occurred over a period of 5-9 years
- -56% had <10 total episodes

Take Home Points:
Gender-older studies males but probably female predominance
Location: Bilateral is typical but can be one sided
Quality: Throbbing, pulsatile, non- explosive
Duration- 5 minutes to 48 hours
Trigger-physical exertion-usually starts at peak of exertion
Associated sxs: typically none unless migrainous symptoms in those with history of migraine
Age-normally younger population below age 50

b. Treatment

Not adequately studied so anecdotal no true evidence

Acute: Abortives are not very useful as when stop exercise the induced pain normally alleviates on its own or becomes low level and in addition patients normally want to prevent not treat when happens

Preventive

Non -Medicinal

1. Avoid activity is preventive maneuver of choice but may not be acceptable for the patient
2. Improve warm-up routine
   Prevention of exercise induced migraine by quantitative warm-up

Medicinal

Pretreat Activity

a. Indomethacin: Dosing 25mg to 250mg has been published-no controlled trials
Suggested strategy Pre-treat event by 30-60 minutes with 25-50mg although some have used daily TID dosing[4]
b. Ergotamine (unspecified dose) used as pre-treat to event showed to be effective in 4 patients[1]
c. Tripans: in same capacity as above although has not been studied

Maintenance Preventives

a. Propranolol or nadolol has been studied in small study sample with dosing 1-2mg/kg showing efficacy [5]

II. Primary Cough Headache

ICHD-3 beta Diagnostic criteria:

A. At least two headache episodes fulfilling criteria B-D
B. Brought on by and occurring only in association with coughing, straining and/or other Valsalva maneuver
C. Sudden onset
D. Lasting between 1 second and 2 hours
E. Not better accounted for by another ICHD-3 diagnosis.

a. Clinical Features

Symonds[6]: 27 pts (21 primary cough headache)

-Gender: 18/21 cases who had primary cough headache were males
-Age range: 37-77, average 55
-Location: bilateral from vertex to frontal regions
-Duration: 2-10 minutes (outliers dull ache lasting 1-2 hours)
-Quality: bursting
-Intensity-severe
-Triggers: cough, neck rotation

Pascual et al.[1] Primary cough headache 13 patients (10 males, 3 females)

-Age range 44 to 81, average 67 years
-Location bilateral 92%
-Duration: seconds to less than 30 minutes
-Associated symptoms: none
-Frequency: 1 to multiple per day
-Quality-sharp, stabbing
-Intensity: mod-severe
-Syndrome-lasted from 2 months to max of 2 years

Raskin [7]

-headache arises immediate after cough, reaches peak almost instantaneous, then subsides over several seconds to few minutes; sometimes peak pain lasts several seconds
-most are pain free between attacks but some have pain that lingers for hours after triggered attack
Migrainous associated symptoms-rare
Location: Attacks typically bilateral but can be one-sided

****Take Home Point-for age of onset Primary Cough Headache normally starts after age 50, Primary Exercise Headache normally begins younger than age 50**

b. Treatment

Acute: Abortive therapy not utilized secondary to short duration of attacks

Preventive

a. Indomethacin-most frequent choice
-Mathew [8] double-blind study of two patients 150mg dose demonstrated efficacy
-Raskin[9] 16 patients treated (10patients complete response, 4 patients moderate response, 2 patients no response)
Dose range 50-200mg, duration of treatment 6 months to 4 years
-Pascual et al.[1] 6 patients studied all responded at dose 75mg/day
b. Acetazolamide
-Wang et al.[10] noted in 4/5 patients who were indomethacin responsive that cough headache also responded to acetazolamide (dosing 1125mg to 2000mg)-2 patients became pain free.
c. Topiramate-Medrano et al.[11] 3 patients intolerant to indomethacin, one complete relief, two partial but dose never increased above 100mg
d. Methysergide-two isolated case reports
Calandre et al.[12]; Bahra and Goadsby [13]-both had more prolonged attacks >15 minutes
e. IV dihydroergotamine[7]-4 patients reported with relief
f. Lumbar Puncture
-first reported by Symonds[6]
Raskin[9] reported on 14 patients of which 6 improved with 40cc removal of csf (all had Normal opening pressures by report)
-3 immediate, 3 relief in 2 days, one responder needed a repeat LP in 6 weeks secondary to recurrence
6/8 failures responded to indomethacin –thus indomethacin is working by means other than lowering csf pressure

III. Primary Headache Associated with Sexual Activity

ICHD-3 beta Diagnostic criteria:

A. At least two episodes of pain in the head and/or neck fulfilling criteria B-D
B. Brought on by and occurring only during sexual activity
C. Either or both of the following:
1. increasing in intensity with increasing sexual excitement
2. abrupt explosive intensity just before or with orgasm
D. Lasting from 1 minute to 24 hours with severe intensity and/or up to 72 hours with mild intensity
E. Not better accounted for by another ICHD-3 diagnosis.

a. Clinical Presentation
Duration: minutes to few hours to a day
**common feature in all cases is intense pain in first 5-15 minutes then subsiding (duration maybe longer if pain comes at orgasm vs before orgasm)[14]
Location: is bilateral in two-thirds and unilateral in one-third of cases and is diffuse or occipitally located (Comment section ICHD 3-beta)[15]
Associated symptoms: **are rare**; also should not see aura, change in consciousness
Other headache syndromes co-associated: Migraine (25-47%, exercise headache 31-40%).
Course: Can be unpredictable, can be regular for periods then sporadic
-Recent studies have shown that up to 40% of all cases run a chronic course over more than a year.
-Frese et al.[16]-found two patterns in 60 patients
Episodic headache associated with sexual activity (defined as: at least two attacks occurring in 50% of sexual activity and then no attack for 4 weeks despite continuing sexual activity. ¾ of patients
Chronic headache associated with sexual activity defined as : ongoing attacks for 12 months without remission of 4 weeks. ¼ of patients
Even in chronic headache associated with sexual activity, the prognosis is favorable, with remission rates of 69% during an observation period of 3 years

b. Treatment

a. Indomethacin: 25-100mg dosed 1-2 hours prior to coitus[1]

Acute treatment at time of headache

a. Indomethacin 25-50: Frese et al.[16]
b. Triptans Frese et al.[16]

For Chronic headache associated with sexual activity - maintenance prevention

a. Beta blockers (propranolol 120-140mg/day>metoprolol 100-200/day>diltiazem 180mg/day)[1]-some have also stated beta-blocker failures
b. Lamotrigine 100mg per day-single case report[17]

IV. Primary thunderclap headache

ICHD-3 beta Diagnostic criteria:

A. Severe head pain fulfilling criteria B and C
B. Abrupt onset, reaching maximum intensity in <1minute
C. Lasting for 5 minutes
D. Not better accounted for by another ICHD-3 diagnosis.

****controversy if this headache condition even exists**

a. Clinical Presentation
   -can occur at rest or during activity, severe headache lasts minutes to typically several hours with residual low grade headache which can last for several days
   -Associated symptoms: nausea, vomiting can be present
   -Location-diffuse, often occipital
   -Paroxysms of headache can occur in a cycle over 1-2 weeks
b. Treatment: <u>no literature</u>
   Acute: simple analgesics, opiates, no vasoconstrictors
   Preventives-calcium channel antagonists?

V. New Daily Persistent Headache

ICHD-3 beta Diagnostic criteria:

A. Persistent headache fulfilling criteria B and C
B. Distinct and clearly remembered onset, with pain becoming continuous and unremitting within hours
C. Present for >3 months
D. Not better accounted for by another ICHD-3 diagnosis.

a. Clinical Presentation (adapted from multiple studies)[18-21]
   1. Gender: female predominance noted in almost all studies (gender ratio range 1.4-2.5:1)
   2. Age of onset -younger in women, many 2nd-3rd decade, older in men (50s and 60's)
   3. Location: bilateral in most
   4. Intensity: moderate-severe in most
   5. Pain Duration: constant without pain free time
   6. Associated symptoms: migrainous features are <u>very</u> common
   7. Recognized triggers in 40-50%: (with infection 30%, stressful life event 12%, extracranial surgical 12%)
   8. In studies that have looked up to 82% can recognize date that headache began

B. Treatment-unknown-very refractory at present-reflects lack of knowledge about pathogenesis
Agents recognized to have some success

1. Doxycycline[22]
2. Mexiletine[23]
3. IV Corticosteroids[24]
4. Nerve blockade[21]
5. AEDS-gabapentin, topiramate

Secondary disorders mimicking NDPH: All patients with a daily headache from onset must be ruled out for secondary underlying conditions. The most frequent mimics are cerebral vein thrombosis and a spinal CSF leak. Other possible causes include: elevated CSF pressure, nasal contact syndrome, sphenoid sinusitis, and neoplasm.

If NDPH is one-sided, the differential diagnosis includes: cerebral vein thrombosis or vein occlusive syndrome, sphenoid sinus lesions (sinusitus, fungal, mass), CSF leak, cervicogenic headache, nasal contact syndrome, cavernous sinus lesion, aneurysm, carotid dissection, central nervous system vasculitis and, based on age, giant cell arteritis.

Key points in regard to NDPH

1. Always rule out a secondary cause of the daily headache
2. Try to determine a triggering event for NDPH if possible as that may help to establish an underlying pathogenesis theory and treatment (post-infectious, post-surgical, post-stressful life event).[25]
3. Always ask about the first ever headache and temporal profile of that headache onset. There is a distinct form of NDPH that starts with a thunderclap headache and in that setting the evaluation is different (include arterial studies with imaging) and one may consider nimodpine as a preventive choice if no secondary cause is noted.
4. Utilize the Trendelenburg test to help with diagnosis. If a patient improves in head down tilt position consider evaluation for a CSF leak.
5. Evaluate for cervical hypermobility as if there is no triggering event and significant cervical irritation on exam, the predisposing cause of the headaches is probably related to hypermobility issues.
6. Be aggressive with therapy up front especially if you meet an individual within one year of headache onset. Treating with infusion therapy or inpatient therapy with intravenous medications (even with standard migraine protocols) may help break cycle. This is less effective years into syndrome.

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