Tension-Type Headache (TTH)

 PATHOPHYSIOLOGY
- not well understood and defies single or simple pathophysiologic explanation.

 Likely cause is abnormal neuronal sensitivity & pain facilitation, not abnormal muscle contraction.

 TTH is not result of sustained contraction of pericranial muscles* with subsequent ischemic pain in response to emotion / stress. *although many patients have muscle tenderness.
  - muscle ischemia is not present during headache.
  - EMG activity is increased in some muscles (independent of tenderness and pain).

"MYOFASCIAL-SUPRASPINAL-VASCULAR" MODEL – headache is viewed as sum of nociceptive input onto brain stem neurons from vascular structures, myofascial and muscular sources, and descending supraspinal modulation.

 Contributions from both central and peripheral factors!
• relative importance of these three factors varies among attacks and among patients.
• neurotransmitter abnormalities (5-HT, norepinephrine, dopamine, enkephalins) in hypothalamus, brain stem, and spinal cord.
  - CNS [5-HT]↓ may be responsible for abnormal pain modulation (decreased pain thresholds).
  - in presence of pain facilitation, normal subthreshold stimuli may produce significant pain (even if myofascial nociceptor hypersensitivity is not present).

 State of cranial hyperalgesia - reduced endogenous pain modulation + enhanced pain potentiation.

 ETIOLOGY
- many causes!
• co-morbid migraine, mood disorders, sleep dysfunction, anxiety states contribute.
EPIDEMIOLOGY

- can begin at any age (most commonly – 2nd decade - adolescence or young adulthood); uncommon before puberty.
- lifetime PREVALENCE – 69% men, 88% women - one of most costly diseases!!!
- prevalence declines with increasing age (severity decreases in women but does not change in men).
- socioeconomic factors do not contribute to risk.
- genetic factors are not prominent (vs. migraine or other headache syndromes).
- 25% patients also have migraine!

CLINICAL FEATURES

- relatively featureless, mild headache.
- no prodrome.
- often during or after stress, anxiety.
- may be associated with menstruation, hunger, eyestrain, uncomfortable stressful position and/or bad posture.
- PAIN (gradual onset):
  - nagging, tight, bandlike, constricting bilateral pressure (discomfort).
  - located in forehead, temples, or occipital area.
  - may radiate to neck and shoulders (patient may feel that posterior neck muscles are tight*).
  - severity fluctuates (typically worse late in day).
  - may persist for days.
  - often improved by physical activity or alcohol!
- normal general & neurologic examinations; some patients may have tender spots or taut bands in pericranial or cervical muscles (TRIGGER POINTS).
- no associated autonomic or GI symptoms (occasional anorexia).

Episodic TTH

IHS criteria - at least 10 headaches fulfilling following criteria:
1) each lasting 30 minutes ÷ 7 days (82% last < 24 hrs; median - 12 hours).
2) at least 2 of following characteristics:
   a) bilateral
   b) nonpulsating (pressing, tightening) quality
   c) mild ÷ moderate intensity (may inhibit but does not prohibit activities)
   d) no aggravation with routine physical activity (e.g. climbing stairs)
3) no nausea, vomiting, photophobia*, phonophobia*, osmophobia!!!
   *photophobia or phonophobia may be present but not both!
4) number of days with headache < 15 days / month.
5) secondary headache excluded.

- patients are no different from controls in terms of depression, stress, anxiety, emotional conflicts, sleeping problems, fatigue.
- benign recurrent condition that usually improves with time (some patients with analgesic overuse may progress to chronic TTH).

Chronic TTH

IHS criteria
TENSION-TYPE HEADACHE

1) at least 2 characteristics (as in episodic TTH).
2) no vomiting!
3) no more than one of following: nausea, photophobia, phonophobia.
4) secondary headache excluded.
5) number of days with headache \( > 15 \text{ days / month} \) for > 6 months.

- patients are often depressed!
- prognosis is controversial.

N.B. criteria have **high specificity** but **low sensitivity** - experienced clinicians often make presumptive diagnosis based on fewer criteria and proceed with treatment!
Muscle Contraction Headache

Intermittent, recurrent or constant head pain, often in forehead, temples, or back of head and neck. Commonly described as “bandlike,” “tightness” or “viselike”

Soreness of scalp; pain on combing hair

Occipital tension

Bandlike constriction
Temporal tightness or pressure
Pressure on contracted muscle may augment pain

Rigidity of neck

Sleep disturbances common. Diurnal incidence: headache occurs most often between 4 and 8 AM and 4 and 8 PM

Psychogenic factors in episodic headache: emotional conflict, repressed hostility, dependency need, etc. Depression often a factor in chronic headache
**EVALUATION**

**Episodic TTH**: long stable history + normal neurological examinations → no further evaluation.

**Chronic TTH** → CT/MRI (even if general and neurological examinations are normal!) ± metabolic screen, CBC, electrolytes, kidney & thyroid function studies, psychiatry consultations.

**MANAGEMENT**

N.B. symptomatic medication overuse can convert episodic TTH to chronic TTH!

- patients usually self-medicate with over-the-counter analgesics (aspirin / acetaminophen / NSAIDs ± caffeine).
- if OTC are not effective:
  1) prescription **NSAIDs** (ibuprofen, ketoprofen, naproxen)
  2) **combination analgesic** (with isometheptene mucate, butalbital)
  3) **physical therapy** - neck massage and heat, stretching exercises, traction, manipulations, ultrasound therapy, TENS.
  4) **psychophysiogetic therapy** - relaxation techniques, biofeedback techniques.
  5) **minimally invasive techniques** - trigger point injections, nerve blocks (greater or lesser occipital nerve, auriculotemporal nerve, supraorbital nerve), botulinum toxin* injection in pericranial muscle.

*probably ineffective by American Academy of Neurology report

N.B. overuse of analgesics that contain narcotics / sedatives / caffeine may cause dependence!
PREVENTIVE THERAPY

- indicated if frequent headaches produce disability or may lead to symptomatic medication overuse.

1) **tricyclic antidepressants** - first choice! (esp. AMITRIPTYLINE)
   Adequate trial period of at least 1-2 months must be allowed!

2) **β-blockers**
3) **anticonvulsants** (VALPROATE)
4) **biofeedback** therapy.
5) peripheral nerve blocks see p. S24 >>

BIBLIOGRAPHY see p. S24 >>