Primary Health Care Initiatives (PHCI) Project
Contract No. 278-C-00-99-00059-00
Abt. Associates Inc.

HEADACHE

LEARNING OBJECTIVES

- Understand the pathophysiology of the most common types of headache
- Accurately diagnose and differentiate between migraine, muscle contraction, and organic headaches, primarily by the patient history
- Effectively treat chronic headache syndromes with a preventive, long term perspective
- Recognize the psychosomatic elements of headache and when to refer
- Recognize the signs of more serious causes of headache

TEACHING STRATEGIES

- Focus on the diagnosis of headache by the history, rather than physical exam, laboratory or X-ray results
- Use the case studies to stimulate discussion of the diagnosis and treatment of different types of headache

MATERIALS AND EQUIPMENT NEEDED

- Overhead projector, transparencies, flip chats
- Case study

LEARNING POINTS

- Migraine headache
    - Common migraine
        - Throbbing, unilateral or generalized, moderately severe, present on awakening, sometimes accompanied by nausea and vomiting, lasts hours to days
    - Classic migraine
        - Throbbing, unilateral, usually preceded by an aura of visual or neurological signs, lasts few hours, may have specific triggers such as foods, lights
    - Cluster headache
        - Severe, unilateral, frequent repetition during period of time, accompanied by ptosis of one eye, unilateral nasal discharge, lasts few minutes to 30 minutes

- Pathophysiology of migraine
  Thought to be caused by activation of 5HT2 (serotonin) receptors in the brain, with release of inflammatory substances. This inflammation causes both vasodilatation of blood vessels and irritation of nerve fibers
  Classic migraine aura may be caused by localized, transient vasoconstriction of cerebral blood vessels
- Common triggers of migraine
  Caffeine, stress, hereditary component, drugs (alcohol, vasodilators, nitrates, oral contraceptives, estrogen, progesterone), depression
- Differential diagnosis (exclude by history and physical exam)
  Intracranial (subarachnoid) hemorrhage, intracranial mass or tumor, temporal arteritis in elderly, severe toxicity (drugs, carbon monoxide, lead poisoning), meningitis, prior head injury

- Treatment
  Acute migraine attack
    Pain relief
      Analgesics, anti-inflammatory med, narcotic medication
      Sumatriptan, orally or subcutaneous
    Suppression of nausea and vomiting
      Promethazine, Diphenhydramine, metoclopramide
    Prevention of overtreatment
  Treatment
    Muscle relaxation and massage, anti-inflammatory

- Muscle contraction headache
  Pathophysiology
    Tightness of neck and jaw muscles causes muscle fatigue, compression of small nerve bundles (such as occipital nerves)
  Symptoms of muscle contraction headache
    Occipital-frontal, squeezing pain, begins gradually and slow increase, often “band around head”, accompanied by neck pain and tightness, occasionally with nausea and vomiting
  Differential diagnosis (exclude by history and physical exam)
    Sinusitis, intracranial mass or tumor, dental infection or abscess, prior head trauma, neck strain, occipital neuritis
  Psychosomatic elements of muscle contraction headache
    Depression, stress and anxiety
  Treatment
    Muscle relaxation and massage, anti-inflammatories

CLINICAL PROTOCOL

- See attached algorithm

PREVENTION ISSUES AND HEALTH EDUCATION MESSAGES

- Headaches can be diagnosed mainly by history and focused physical exam; X-rays, lab, and CT scans only rarely needed
- Recurring headaches can be controlled and decreased, but usually not eliminated – patients must modify their expectations
- First preventive strategy is to eliminate caffeine from diet
- Headache log or diary can be helpful in pinpointing specific triggers or causes of recurring headaches
- Suppressive medications for migraine (propranolol, verapamil) must be taken continuously and daily to be effective; will sometimes diminish but not eliminate migraine headache.

Patient or family counseling issues:

- Keep headache log or diary
- Watch for elements of anxiety, anger, depression and recognize their role in recurring headaches
- Recognize that medication only suppresses headaches, but does not cure them

CRITICAL ELEMENTS FOR REFERRAL ("RED FLAGS")

- Sudden onset of the "worst headache of my life"
- Presence of fever, neck stiffness, or change in level of consciousness
- Headache that awakens patient at night
- Severe hypertension (greater than 200/120)
- Persistent neurological signs such as local weakness, decreased vision in one eye, change in speech or personality

CASE STUDIES

First patient – This is a 46 year old woman who is complaining of a severe headache, which she has had for 4 days. She has had many headaches in the past, often 4 or 5 per month. They usually begin on awakening in the morning, are described as "pounding", are felt throughout the entire head, and she can feel her heartbeat in her head. Occasionally she will become nauseated, and finds that bright light makes the headache worse. The headache today is no worse than her previous headaches, but she wants relief now.

Questions:

1. What type of headache is this?
2. What further questions would you ask, and what elements of the physical exam should be done?
3. What can you give her to help with the immediate pain?
4. What can you offer her to help with prevention of these headaches?

Second patient – This is a 52 year old man who has not had headaches previously, but is complaining of a headache most days for the past two weeks. The headache seems to be

worse in the forehead and around the eyes, and is worse when he bends forward. He has had a respiratory infection for the past 3 weeks, and has noticed a thick, purulent nasal discharge for the past week. He has had some fever over the past two weeks.

Questions:

1. What type of headache is this?
2. What further questions would you ask, and what elements of the physical exam should be done?
3. What can you give him to help with this headache?

Third patient – This is a 32 year old woman who has had frequent headaches since she was an adolescent, often as often as 2 or 3 per week. She is accompanied in the interview by her mother-in-law, who treats the patient poorly. The headaches are described as beginning slowly, often in the late morning or afternoon, and as a pressure, squeezing of her head. She does not become nauseated with these, and they usually are improved by the next day. She also notices that her neck and shoulders are tight and painful when she has the headaches.

Questions:

1. What type of headache is this?
2. What further questions would you ask, and what elements of the physical exam should be done?
3. What can you give her to help with the immediate pain?
4. What can you offer her to help with prevention of these headaches?

CRITICAL POINTS FOR EVALUATION OF COMPETENCE

- Recognition of clinical differences between migraine and muscle contraction headache
- Understanding of treatment protocol and sequence for migraine
- Recognition of danger signs of serious cause of headache
- Understanding of psychosomatic elements of headaches

Differential Diagnosis of Headache

Symptom	Migraine	Muscle Contraction
Pain	Throbbing (pulsing), forehead or part of face, often unilateral, worse with light	Steady, squeezing, "band around head", entire head or occipital-frontal
Onset	Early morning, after certain foods (preserved, cheeses, sausage, wine), may be preceded by neurologic aura (classic migraine)	Later in day, gradual onset
Length	Few hours, occasionally last for days	Usually most of day, often many days
Nausea/Vomiting	Frequently	Rarely
Frequency	Often with menstruation, may be irregular	Often frequent – several times per week
Associations	Perfectionism, compulsiveness, women more frequent, positive family history	Stress and anxiety, depression, equally among men and women, muscle tightness of neck and shoulders
Acute Treatment	Sumatriptan (where available), anti-inflammatory, ergot sublingually at onset of aura (classic migraine) Promethazine, metoclopramide for nausea/vomiting Occasionally may need narcotics	Analgesics, anti-inflammatory, neck and shoulder massage, muscle stretching, relaxation exercises
Prevention	Propranolol, verapamil, anti-depressants (amitriptyline)	Muscle relaxation with stress, muscle stretching, anti-depresssant (amitriptyline)

Evaluation of Headache

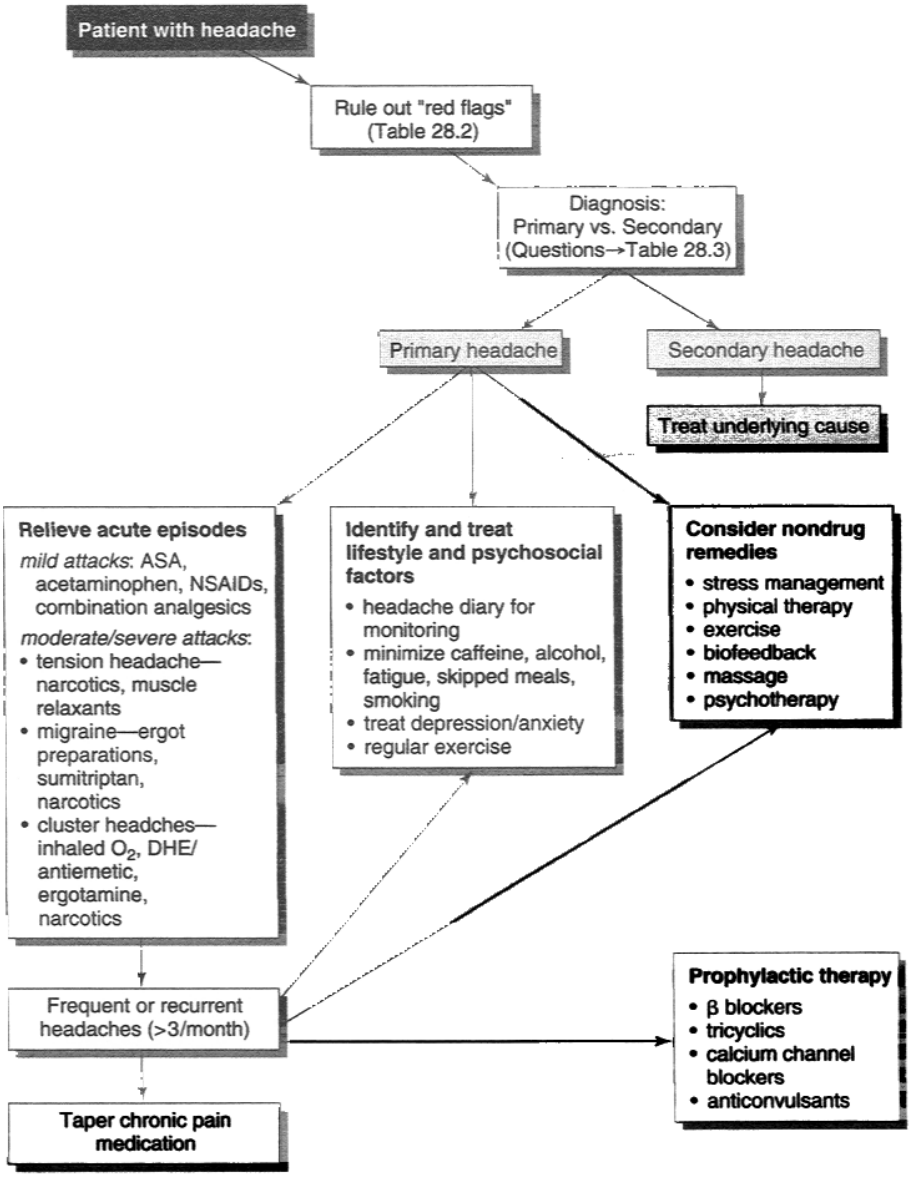

Figure 28.1. ***General approach to the patient with headache.***

(from "Essentials of Family Medicine" 3rd Edition, Sloane, Slatt, et al editors, Williams and Wilkins, 1998)