Migraine Headache
Part 1

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Objectives to Guide DiPiro

Recommended Readings

• Describe the prevalence of migraine by age and gender
• Describe the involvement of the trigeminovascular system in the pathophysiology of migraine and the role of serotonin as a mediator of migraine headache.
• Briefly review “Clinical Presentation of Migraine Headache” and Table 63/70-6 (precipitating factors or “triggers”).
• Briefly review Table 63/70-4 and the types of medications used for acute treatment. Note the dosage forms available.
• Explain why it is advisable to limit opiate analgesic use in HA patients.
• Compare/contrast ergotamines and triptans for acute migraine.
• Based on indication, side effects and contraindications, distinguish between the use of beta-blockers, antidepressants and anticonvulsants in migraine prophylaxis.
Objectives

- Discuss the prevalence of migraine and its debilitating effects.
- Explain current thinking regarding the pathophysiology of migraine.
- Characterize the symptoms, diagnosis & classification of migraine.
- Explain the differences between stratified care and step care approaches to migraine management.
- Identify common migraine triggers and aggravating factors.
- Discuss the safe and effective use of pharmacologic and non-pharmacologic therapies for alleviating migraine attacks.
- Compare and contrast pharmacologic treatment therapies (e.g. route of administration, onset of action, time to relief).
- Describe the role of prophylactic therapy in migraine management.
- Choose an appropriate therapeutic regimen based on an individual migraine patient’s history and needs.
# Migraine Is Associated With Other Medical Disorders

**Neurologic**
- Epilepsy
- Stroke in women under 45

**Medical disorders**
- Raynaud’s syndrome
- Asthma

**Psychiatric**
- Depression
- Anxiety disorders
- Panic disorder
- Manic-depression bipolar disorder
Migraine Prevalence by Age and Gender

Migraine Prevalence %

Adapted from Lipton RB, Stewart WF. *Neurology*. 1993
Burden of Migraine

• Individual
  – Pain & associated symptoms
  – Disability

• Societal impact
  – Indirect cost: $$meds
  – Direct cost

% of migraine sufferers

Mild
Moderately Severe
Severe
Extremely Severe

American

Males
Females

Indirect cost:

0%
5%
10%
15%
20%
25%
30%
35%
40%
45%
50%
53% of recent NHF online respondents switched from Rx to OTC migraine headache treatments to save money
What is Migraine?
Clinical Pathophysiology
Migraine Pathogenesis: Hypotheses

- Neurovascular hypothesis
- Involves trigeminal nucleus caudalis (TNC) and cortical spreading depression (CSD)
- 5-HT neurotransmission
- New insights: Calcitonin gene-related peptide (CGRP)

ONE NERVE PATHWAY - MULTIPLE SYMPTOMS
MULTIPLE MANIFESTATIONS OF MIGRAINE
Symptom of activation
- Head pain experienced during migraine

https://www.youtube.com/watch?v=SJW7rz2d-ak
Clinically, migraine is a loss of central inhibition and ability to accommodate various stressors.
The Phases of a Migraine Attack

- **Pre-HA**
  - Premonitory/Prodrome

- **Headache**
  - Aura
  - Mild
  - Moderate to Severe

- **Post-HA**
  - Postdrome

**Time**

**Early Intervention Point**
Migraine Characteristics
Premonitory/Prodrome

60% of people with migraine experience premonitory phenomena

May feel elated, irritable, depressed, neck stiffness, food cravings, fluid retention, thirsty, or drowsy

Adapted from Silberstein SD. Semin Neurol. 1995
Migraine Aura

- Neurologic symptoms / signs reflecting cortical or brainstem dysfunction
- Visual and somatosensory most common
- Speech / language, motor, or brainstem deficits may also occur, often in combination with visual aura
- Symptoms evolve slowly and persist for up to 20-60 minutes
- Aura usually precedes and terminates before headache, but may persist or begin during headache phase

http://www.mayoclinic.com/health/migraine-aura/MM00659

Adapted from Russell MB and Olesen J. *Brain*. 1996
The Migraine Attack
Aura
Migraine with Aura – New Findings

- Associated with increased cardiovascular risk
- Women’s Health Study
  - Migraine with aura strong contributor major CVD risk
    - Incidence rate per 1000 women per yr = 7.9
  - As compared to:
    - elevated SBP (IR = 9.8)
    - diabetes (IR = 7.1)
    - smoking (IR = 5.4)

AAN 2013 Abstract 1892
The Migraine Attack
Headache

• Moderate to severe unilateral, throbbing pain aggravated by normal physical activity

• Associated symptoms: nausea, vomiting, photophobia, phonophobia, osmophobia

• Resolution with sleep

Adapted from Headache Classification Committee of the IHS. Cephalalgia. 1988
Resolution (Postheadache) Phase

- Mood Changes: 72%
- Muscular Weakness: 54%
- Physical Tiredness: 52%
- Reduced Appetite: 32%

Adapted from Blau JN. JNNP. 1982;45:223-226
Diagnosis of Migraine
Headache Classification and Diagnosis

*Primary Headaches*
- Migraine
- Tension-type
- Cluster Headache

*Secondary Headaches*
- Tumor
- Meningitis
- Alcohol use hangover

Adapted from Headache Classification Committee of the IHS. *Cephalgia.* 1988
I.H.S. Diagnosis
At least five attacks fulfilling these criteria:

Migraine Without Aura  
(vs With Aura)  
• 4 to 72 hours  
• Pain (2 of 4)  
  – Intensity mod to severe  
  – Unilateral  
  – Pulsatile or Throbbing  
  – Aggravated w/ Activity  
• In addition (1 of 2)  
  – Nausea &/or vomiting  
  – Sensitivity to light & sound  
• No evidence of organic disease

Episodic Tension-Type (ETTH)  
• 30 minutes to 7 days  
• Pain (2 of 4)  
  – Bilateral  
  – Pressing/tightening  
  – Mild to Moderate  
  – Not aggravated by activity  
• In addition  
  – No nausea  
  – Photo or phonophobia (or neither)

75% of migraine patients reported neck pain with their attack
A-U-S-T-I-N

- Mnemonic for diagnosing Migraine Without Aura:
  - Activity aggravates the headache
  - Unilateral location
  - Sensitivity to light and/or sound
  - Throbbing
  - Intensity moderate/severe
  - Nausea/vomiting
QuEST SCHOLAR Approach

Quickly and accurately assess the patient for triage and monitoring purposes

• Objective information
  – Ask about medications (Rx/OTC/herbal)
  – Ask about coexisting health conditions
  – Ask about drug allergies

• Subjective information
  – Ask about current complaint (SCHOLAR)

SCHOLAR

• Symptoms
  – What are the main **AND** associated symptoms?

• Characteristics
  – Specific questions to characterize symptoms
    • On a scale of 1 to 10...(pain, nausea)? MIDAS Score

• History
  – What has been done so far? What do you typically do to relieve symptoms?
    • Has this happened in the past?
    • What was done then?
SCHOLAR

• **Onset**
  – When did it start? (time, age) How fast was the onset?

• **Location**
  – Describe where the pain is located

• **Aggravating factors**
  – What makes it worse? (Triggers)

• **Remitting factors**
  – What makes it better? (drug and non-drug)
Headache History

- age at onset*
- frequency
- location
- time from onset to peak intensity*
- Pain scale* (0-3 or 0-10)
- Aggravating* and relieving factors
- duration
- associated symptoms*
- previous medications
- triggers

- Do the headaches interfere with activities?
  - miss work or school
  - work at a slowed pace
  - cancel social activities
- Is the pattern stable?
- menstrual association
- family history
- How effective is current treatment?

*RED FLAGS
Headache History: Red Flags

• No similar headaches in the past
  – “first” or “worst”
• Age over 50
• Sudden onset
  – severe persistent HA maxes quickly
  – onset with exertion
• Concomitant infection, altered mental status, seizure, or visual changes
Triggers and Aggravating Factors

**Fasting**
- Skipping meals/eating specific foods/caffeine intake

**Medication**
- Analgesic overuse

**Circadian Rhythms**
- Changes in sleep/wake cycles

**Environment**
- Weather
- Lighting
- Fragrances/odors

**Hormones**
- PMS, oral contraceptives, pregnancy, menopause, menses

**Stress/Overexertion**
Treatment Strategies

Successful treatment relies on matching the appropriate level of treatment to the severity and disability of migraine.
Objective Migraine Disability Assessment: The MIDAS Questionnaire

1. On how many days in the last 3 months did you miss work or school because of your headaches?  
2. How many days in the last 3 months was your productivity at work or school reduced by half or more because of your headaches?  
3. On how many days in the last 3 months did you not do household work because of your headaches?  
4. How many days in the last 3 months was your productivity in household work reduced by half or more because of your headaches?  
5. On how many days in the last 3 months did you miss family, social or leisure activities because of your headaches?

A. On how many days in the last 3 months did you have a headache?  
B. On a scale of 0-10, on average how painful were these headaches? (0=no pain, 10=pain as bad as it can be)

Once you have filled in the questionnaire, add up the number of days from questions 1-5 (ignore A and B). If your total is above 6, we suggest that you make an appointment to see your doctor. ©IMR 1997
Comparing Systematic Approaches to Acute Care: Step vs Stratified Care

• **Step care across or within attacks:**
  – Simple analgesics (ie, NSAIDs)
  – Combination treatment
  – Specific migraine therapies

• Disadvantages/limitations of **Step care**:
  – Overuse of analgesics
  – Repeated clinic visits \(\rightarrow\) increased cost of care
  – Discouraged and lapse from care
Stratified Care with Disability Assessment

Migraine Diagnosis

MIDAS Questionnaire

Low Need Grade I

Moderate Need Grade II

High Need Grade III/IV

Medical Needs Assessment and Treatment

MIDAS Score 0-5

MIDAS Score 6-10

MIDAS score 11+
Stratified Care Provides Tailored Treatment Options

- Low-end therapies
  - NSAIDs, analgesics
  - triptans if infrequent but severe migraines

- Moderate therapies
  - combination analgesics/NSAIDs
  - antiemetics
  - triptans
  - Prophylactic therapy

- High-end therapies
  - triptans
  - ergots
  - opioids
  - Prophylaxis
  - Consultation

Disability Assessment

Lower Need
MIDAS Grade I
Clinical Judgment

Moderate Need
MIDAS Grade II
Clinical Judgment

High Need
MIDAS Grade III/IV
Clinical Judgment

MIDAS Grade I
MIDAS Grade II
MIDAS Grade III/IV
Four Main Points:

• 1. Describe the typical migraine sufferer and headache triggers.

• 2. Describe the phases of a headache and optimal treatment time.

• 3. Classify a migraine patient based on a thorough history (Quest SCHOLAR) and reported migraine symptoms (AUSTIN).

• 4. Explain why stratified care (not step care) is the preferred treatment approach.