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

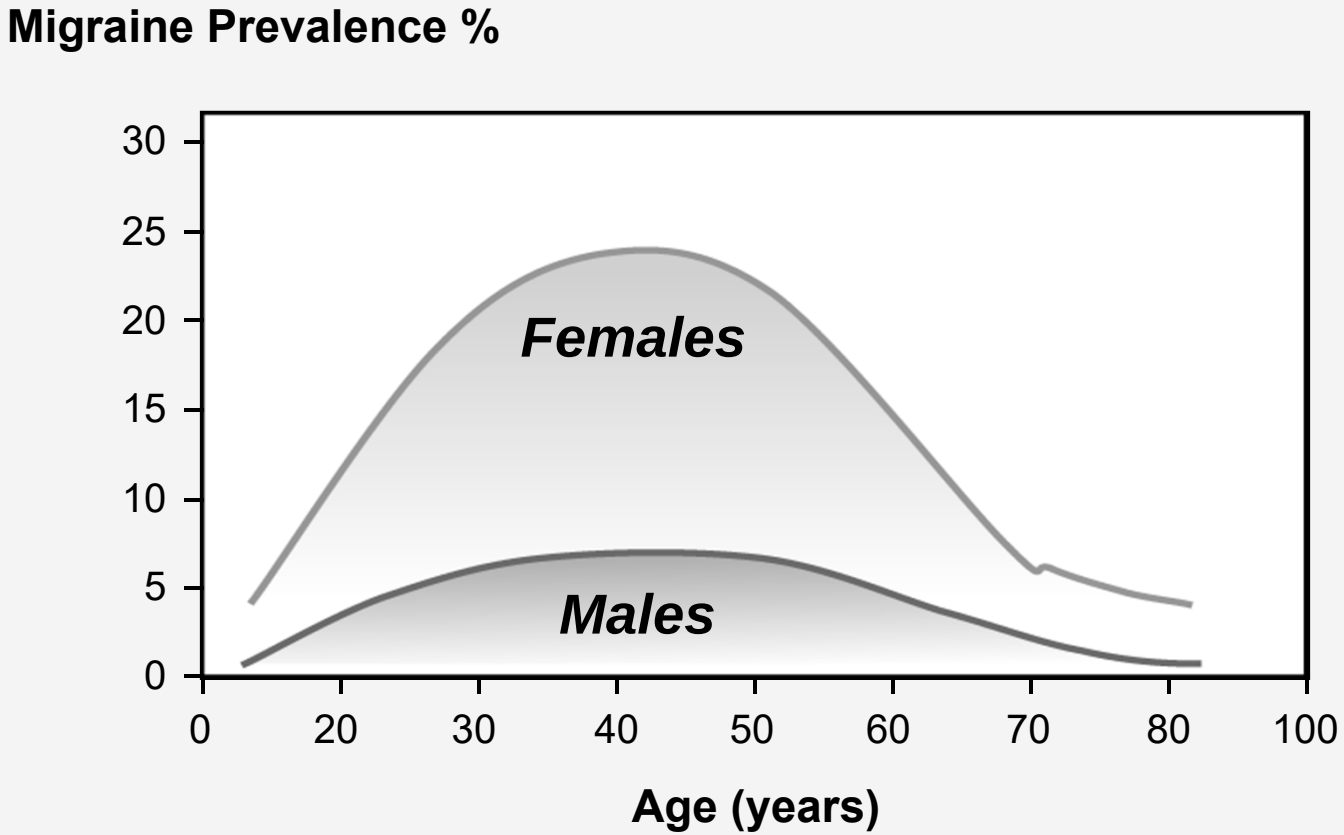
Medical disorders

- Raynaud's syndrome
- Asthma

Psychiatric

- Depression
- Anxiety disorders
- Panic disorder
- Manic-depression bipolar disorder

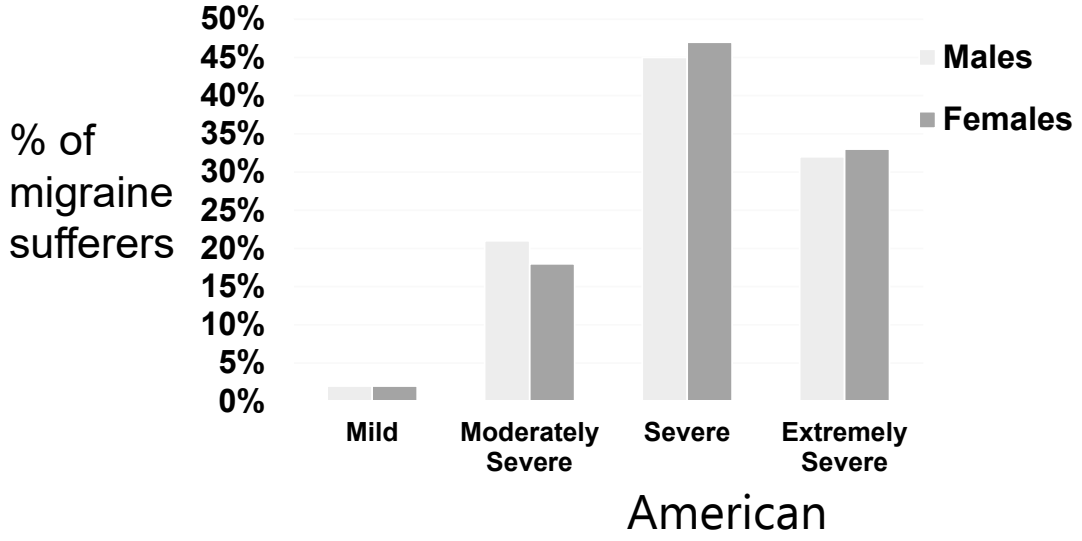
Migraine Prevalence by Age and Gender



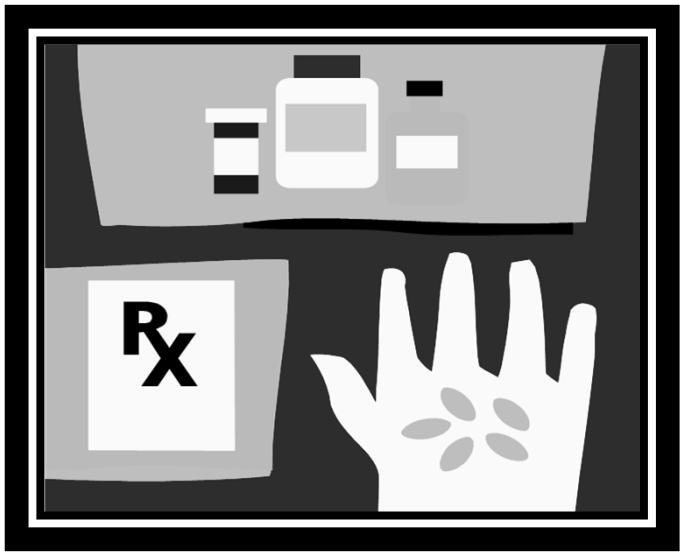
Adapted from Lipton RB, Stewart WF. *Neurology.* 1993

Burden of Migraine

- Individual
  - Pain & associated symptoms
  - Disability
- Societal impact
  - Indirect cost : $$meds
  - Direct cost



53% of recent NHF online respondents switched from Rx to OTC migraine headache treatments to save money

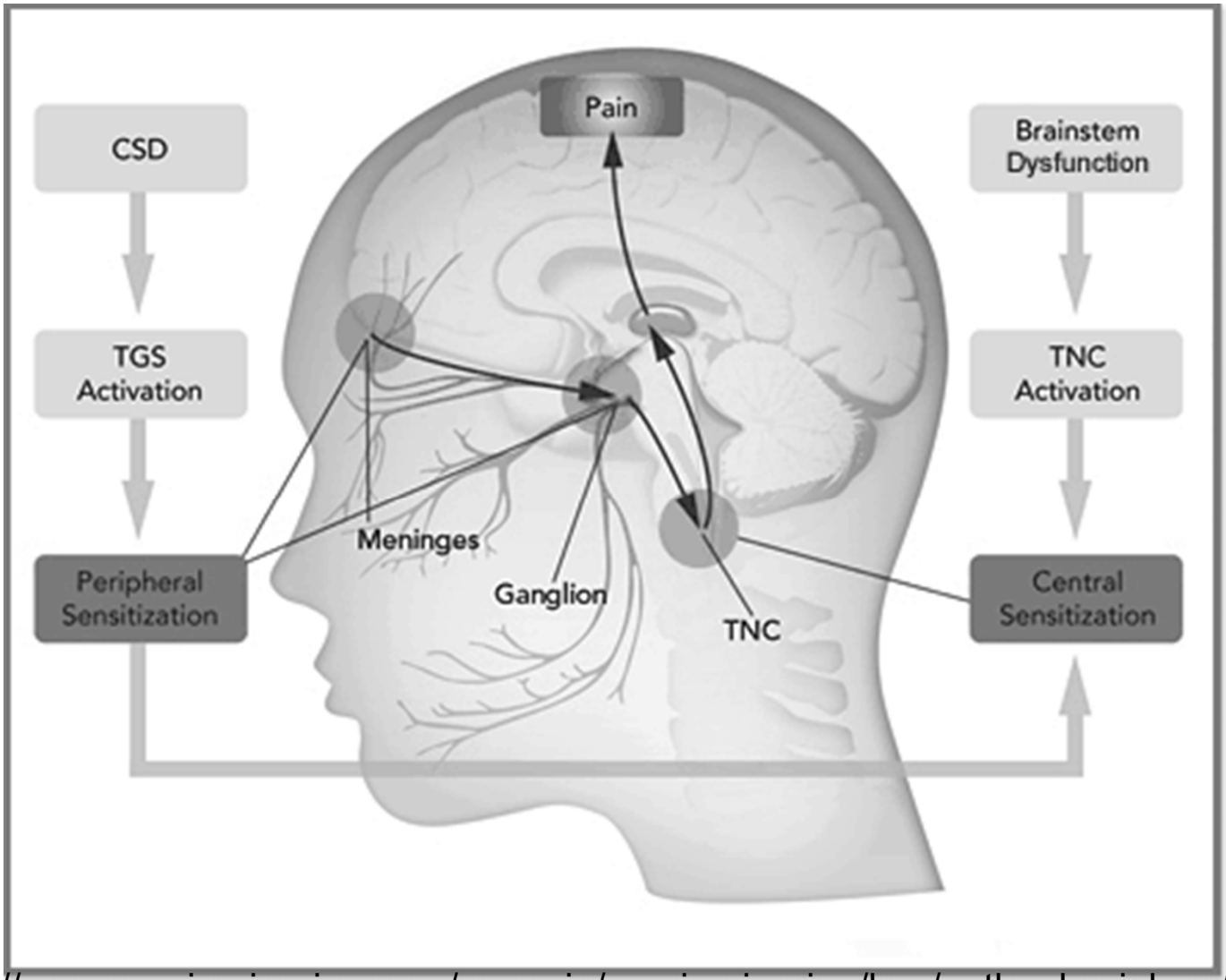


What is Migraine?
Clinical Pathophysiology

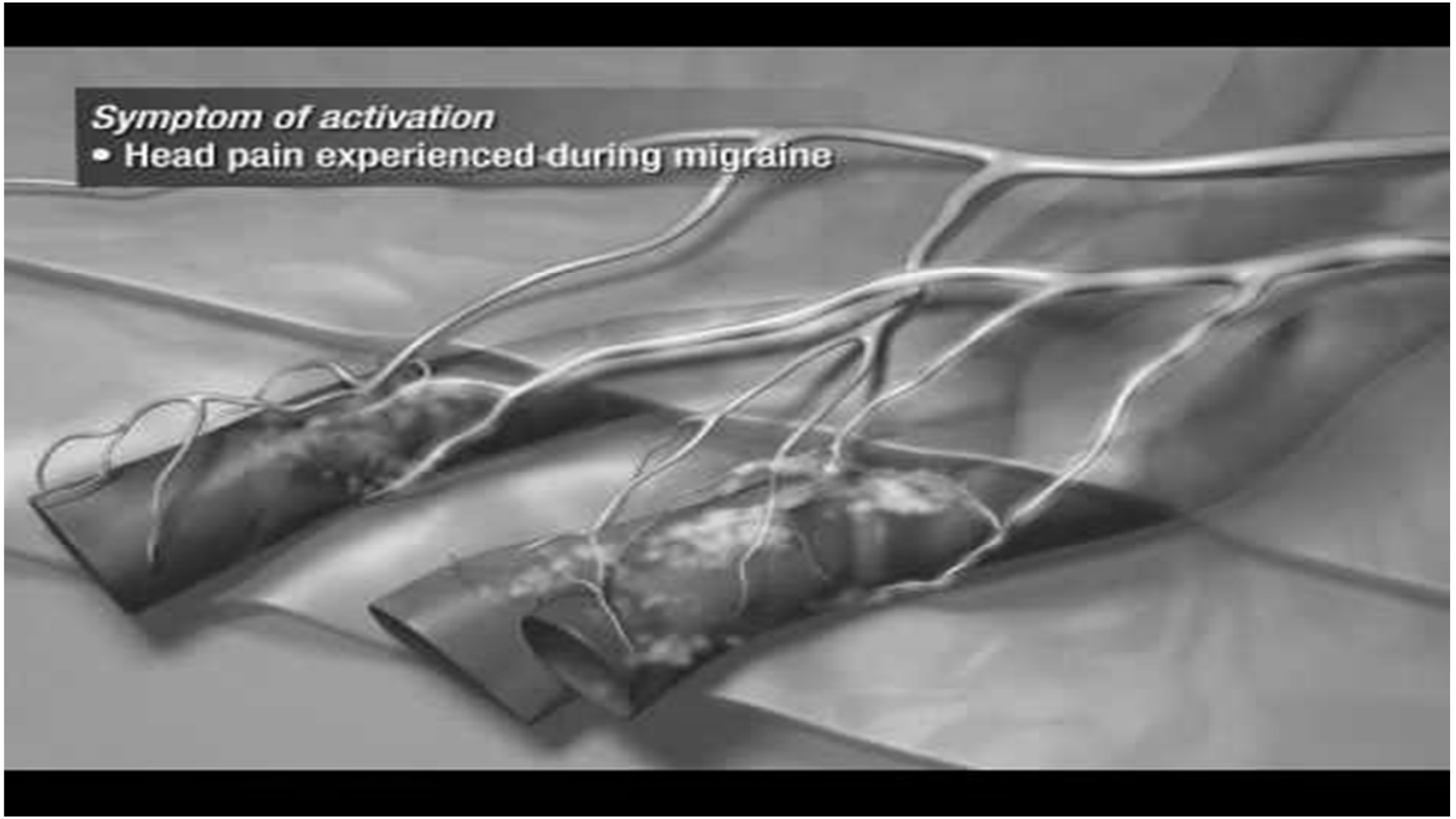
Migraine Pathogenesis: Hypotheses

- 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

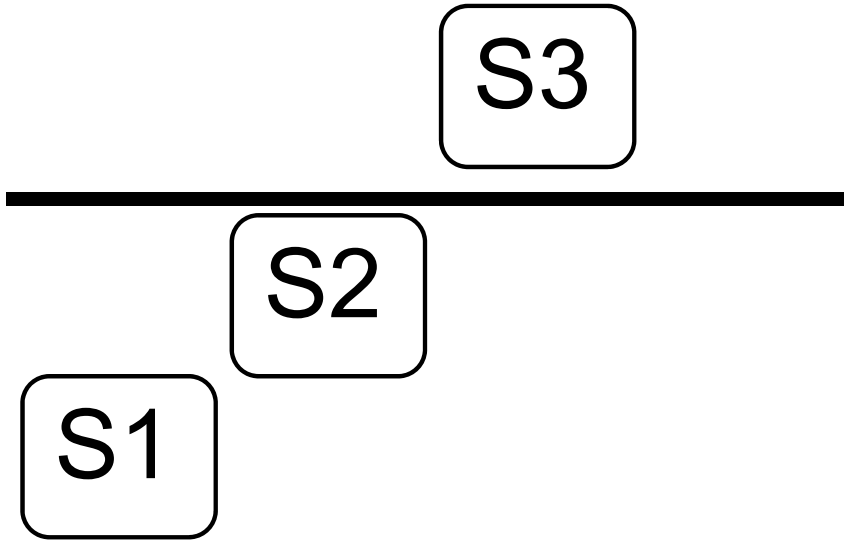


http://www.cgrpinmigraine.com/cgrpmig/cgrpinmigraine/hcp/pathophysiology/sensitization_perpetuation.jsp?WT.svl=2

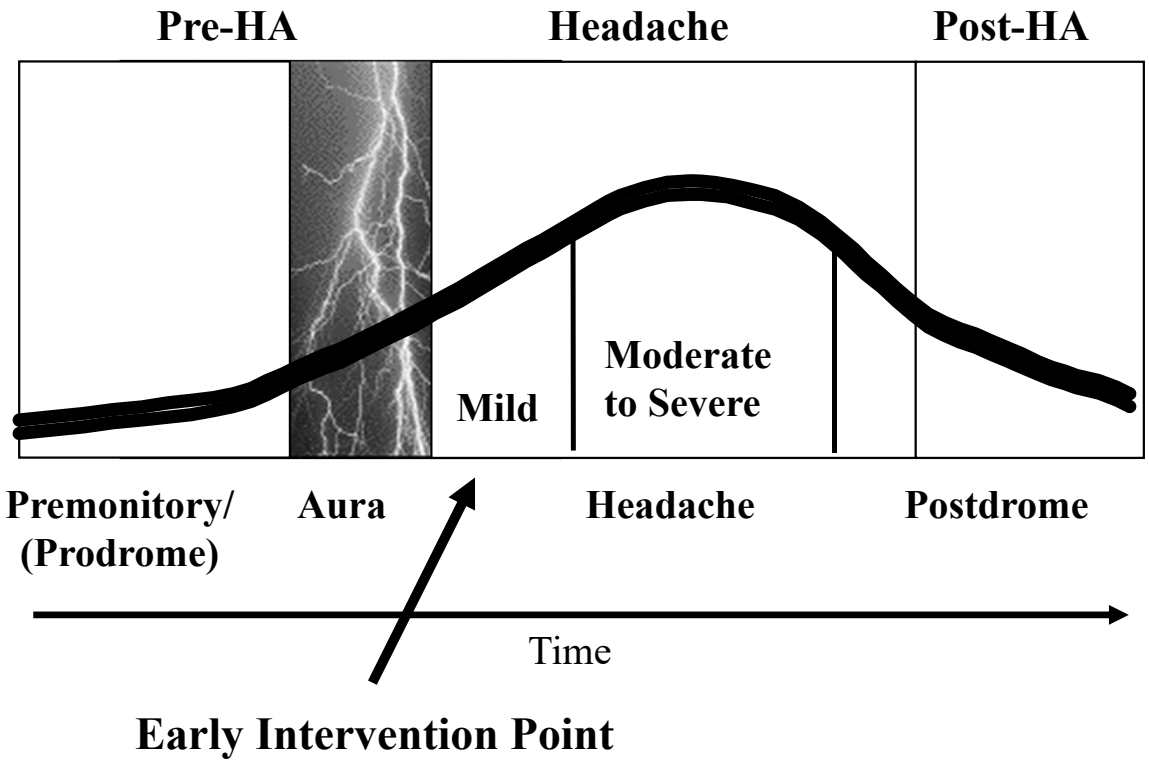


https://www.youtube.com/watch?v=SJW7rz2d-ak

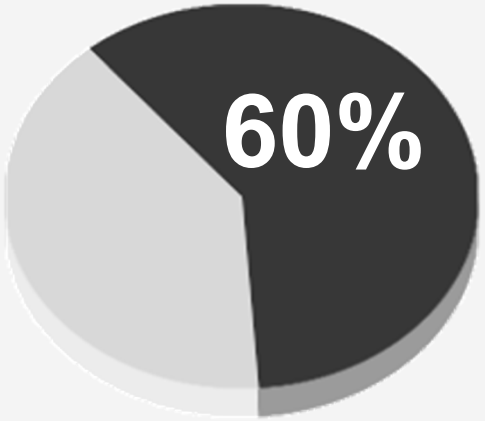
Clinically, migraine is a loss of central inhibition and ability to accommodate various stressors



The Phases of a Migraine Attack



Migraine Characteristics
Premonitory/Prodrome



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

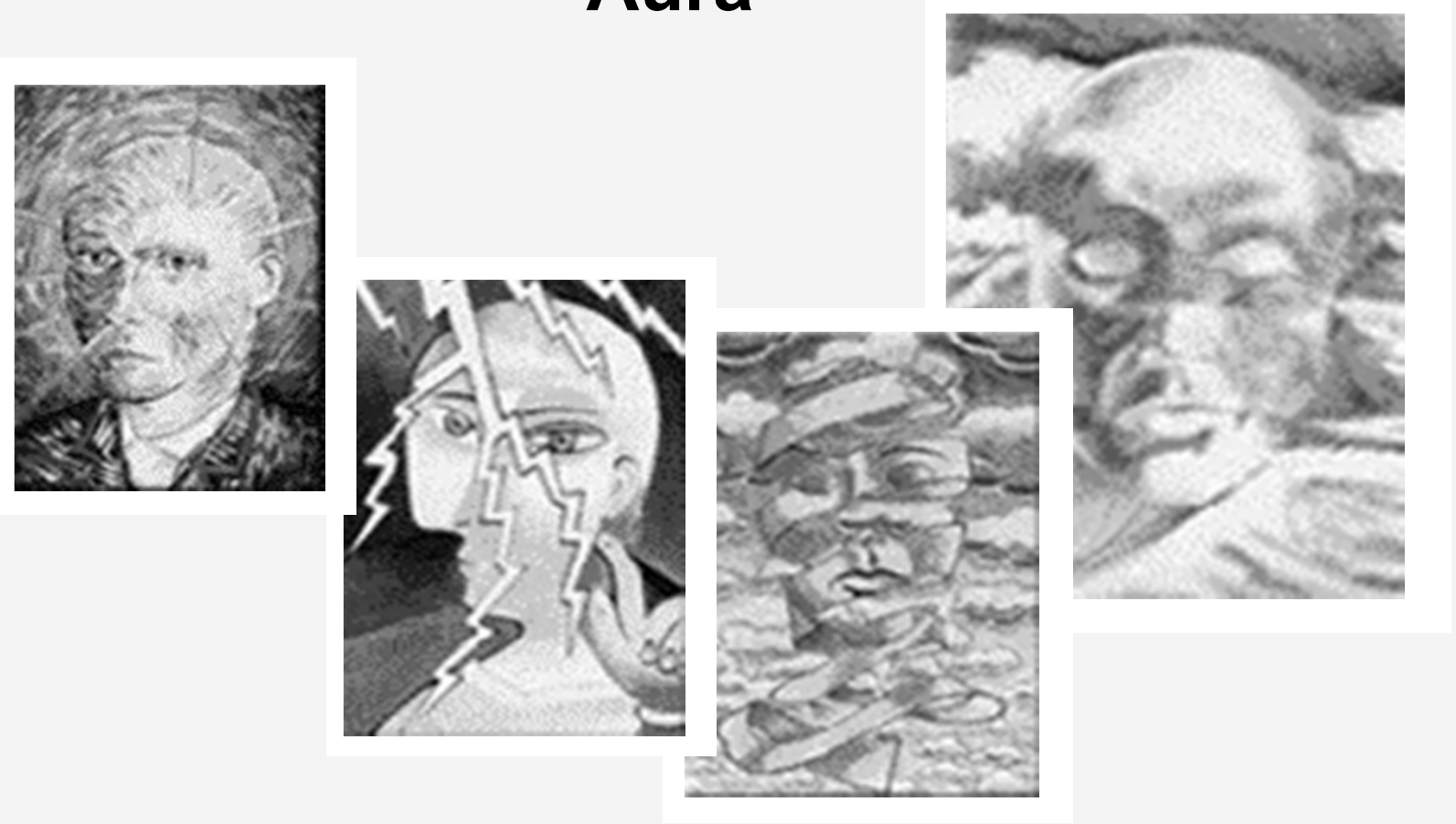
Migraine Aura

- 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

Adapted from Pryse-Phillips WEM, et al. *Can Med Assoc J.* 1997

Resolution (Postheadache) Phase

Adapted from Blau JN. *JNNP.* 1982;45:223-226

Diagnosis of Migraine

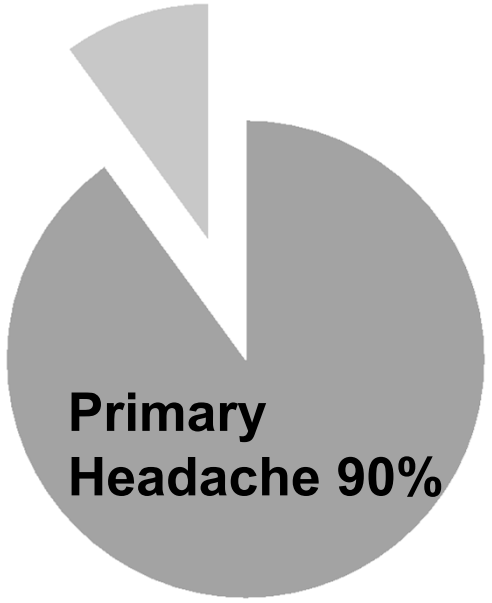
Headache Classification and Diagnosis

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)
  - **I**ntensity mod to severe
  - **U**nilateral
  - Pulsatile or **T**hrobbing
  - Aggravated w/ **A**ctivity
- In addition (1 of 2)
  - **N**ausea &/or vomiting
  - **S**ensitivity 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:
  - **A**ctivity aggravates the headache
  - **U**nilateral location
  - **S**ensitivity to light and/or sound
  - **T**hrobbing
  - **I**ntensity moderate/severe
  - **N**ausea/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)

SOURCE: Adapted by Meldrum Helen from Quilter-Wheeler S, Windt JH. Telephone Triage: Theory, Practice, and Protocol Development*, 1993.*

SCHOLAR

- ***S***ymptoms
  - What are the main **AND** associated symptoms?
- ***C***haracteristics
  - Specific questions to characterize symptoms
    - On a scale of 1 to 10…(pain, nausea)? MIDAS Score
- ***H***istory
  - 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

- ***O***nset
  - When did it start? (time, age) How fast was the onset?
- ***L***ocation
  - Describe where the pain is located
- ***A***ggravating factors
  - What makes it worse? (Triggers)
- ***R***emitting 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? ____ days
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? ____ days
3. On how many days in the last 3 months did you not do household work because of your headaches? ____ days
4. How many days in the last 3 months was your productivity in household work reduced by half or more because of your headaches? ____ days
5. On how many days in the last 3 months did you miss family, social or leisure activities because of your headaches? ____ days

TOTAL ____ days

A. On how many days in the last 3 months did you have a headache? ____ days

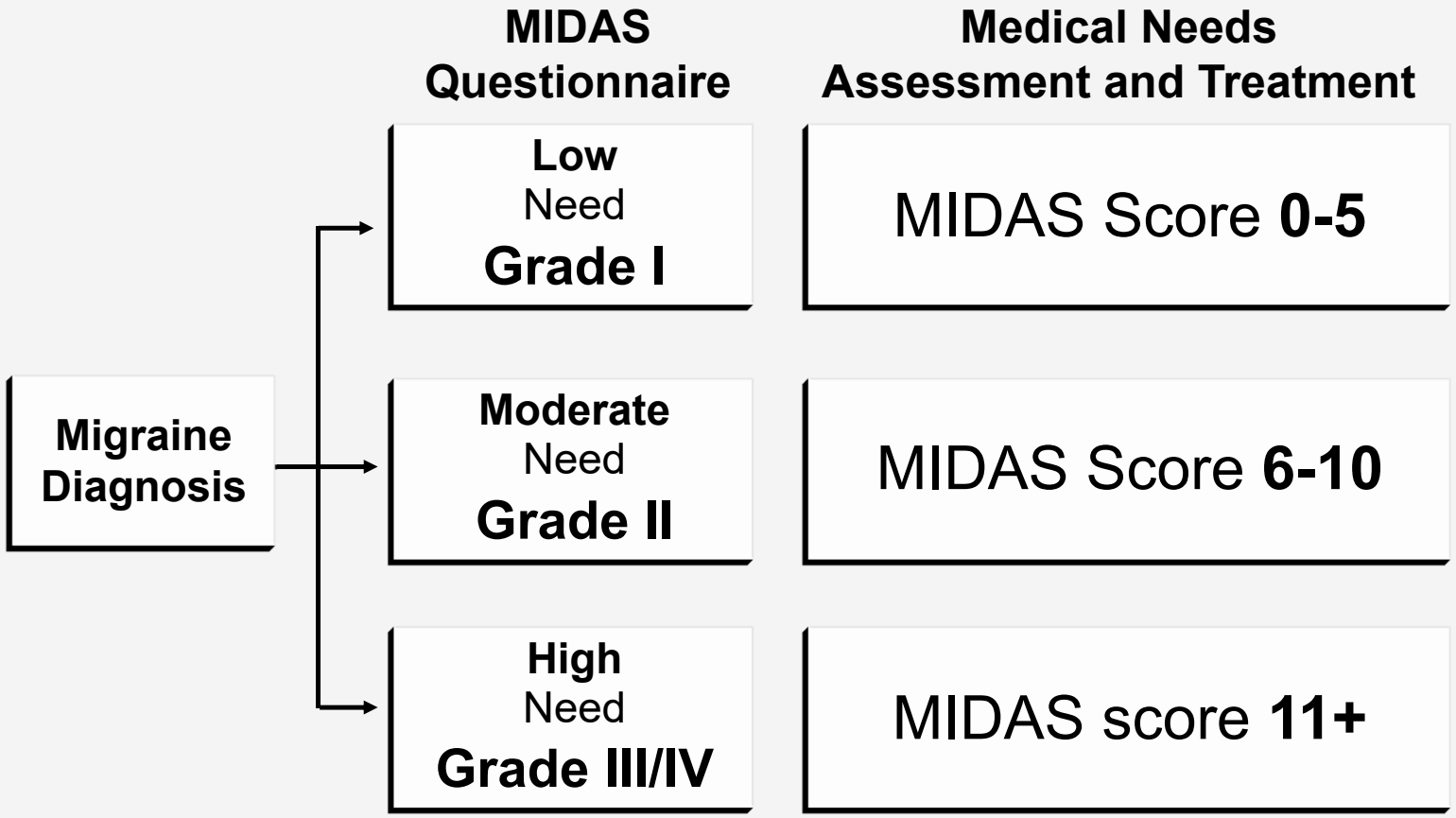
B. On a scale of 0-10, on average how painful were these headaches? (0=no pain, 10=pain as bad as it can be) ____

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.

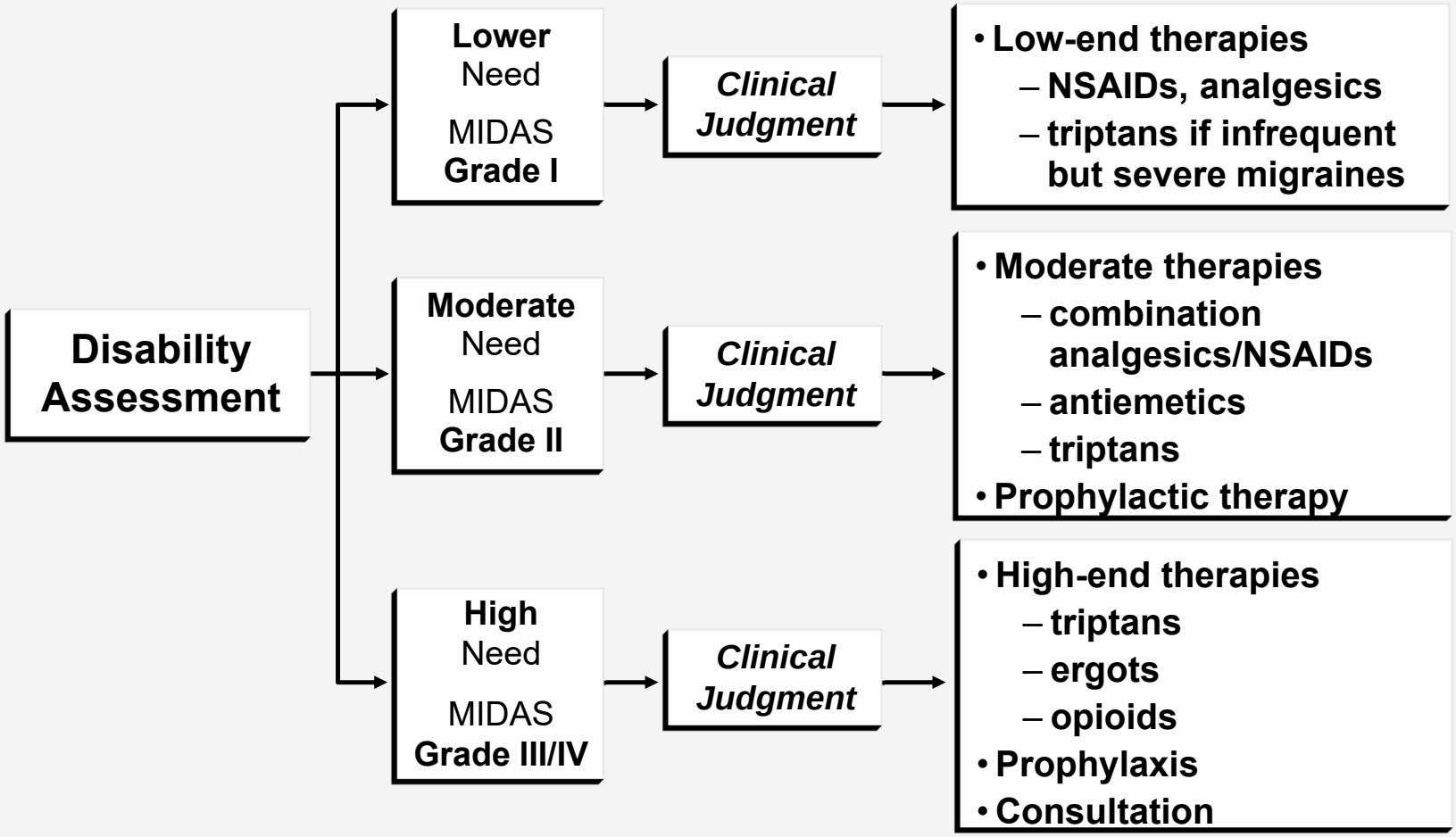
Comparing Systematic Approaches to Acute Care: Step vs Stratified Care

- *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 → increased cost of care
  - Discouraged and lapse from care

Stratified Care with Disability Assessment



Stratified Care Provides Tailored Treatment Options



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.