

# **Three Case Studies: How to Distinguish Between Fibromyalgia, Chronic Migraine and Myofascial Pain**

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**Nothing to Disclose**

# Objectives

- Understand how to diagnose Myofascial Pain, Chronic Migraine and Fibromyalgia
- Differentiate between Myofascial Pain, Chronic Migraine and Fibromyalgia
- Learn the most common examination findings and associated symptoms for Myofascial Pain, Chronic Migraine and Fibromyalgia

# Common Features

- **Prevalence- Extremely Common**
  - Chronic Migraine prevalence 1-3%
  - Fibromyalgia prevalence 2-8%
  - Myofascial Pain prevalence
- **Diagnosis- Primarily Clinical History**
- **Central Excitatory Mechanisms**

# Case # 1- Maria

## **History of Present Illness:**

- Maria is a 54 year old Native American with chronic pain for decades. She complains of pain throughout her body, but predominantly in her upper and lower back, neck, arms, and even her legs. Maria complains of forgetfulness and difficulty with sleep.
- She was diagnosed with anxiety and depression fifteen years ago, and sees a Native Medicine Healer in her local community for her complaints

# Case # 1- Maria

## **Past Medical History/Social Hx/ Fam Hx:**

- Denies a history of diabetes, polymyalgia rheumatica, or rheumatoid arthritis. No history of migraine headaches or family h/o rheumatological disorders
- Married to second husband, has four grown children, cannot work due to chronic pain, + history of sexual/physical abuse during childhood (one relative)

**Medications:** Duloxetine 60 mg HS

**Work-Up:** Normal labs, including ANA, ESR, Rheumatoid Factor

# Case # 1- Maria

## Examination:

- **Neurological**- Normal Mental Status Exam except for tearfulness during interview and some mild difficulties with memory recall  
**Normal** Cranial Nerves, Motor (strength, reflexes, fine finger movements), Cerebellar, Gait, Abnormal Sensory exam due to **Allodynia**, but intact primary sensation- LT, PP, Proprioception and Temperature
- Musculoskeletal- Multiple tender points, 13/18 locations

# What is the BEST Diagnosis for Maria?

- A. Myofascial Pain
- B. Fibromyalgia
- C. Chronic Migraine
- D. Somatic Symptom Disorder (DSM-5)



# Why is this “not” Myofascial Pain (or Migraine, or Somatic Symptom Disorder)?

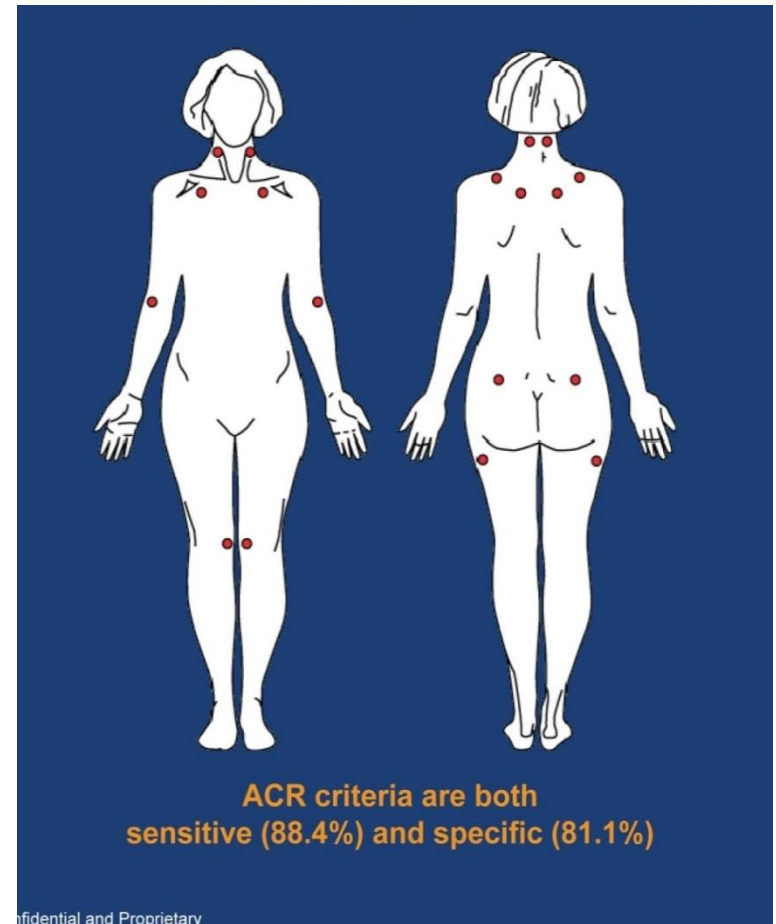
- Maria does have pain throughout her body, but she exhibits many characteristics common for Fibromyalgia. She has:
  - Depression and Anxiety
  - Forgetfulness and Sleep Disturbance
  - Maria’s exam reveals multiple tender points
- No Myofascial trigger points detected
- No other somatic c/o except tender points

# American College of Rheumatology (ACR) Criteria for FM

- ACR Criteria
  - History of chronic widespread pain > or equal 3 months
  - Patients must exhibit >11 of 18 tender points
- Widespread pain was found in
  - 97% of patients with FM, compared with 70% in controls
- FM can be identified from among other Rheumatologic conditions with use of ACR Criteria

Criteria need further refinement as knowledge about FM evolves

Wolfe et al. Arthritis Rheum, 1990; 33: 160-172



# Newer Fibromyalgia Diagnostic Criteria- Symptom Based

- **Do Not Require Tender Points**
- **Risk Factors Include:**
  - Headaches
  - Dysmenorrhea
  - TMJ dysfunction
  - Chronic Fatigue
  - Irritable Bowel
  - Functional G-I Disorders

# Fibromyalgia

- Common chronic widespread pain condition
- Heightened Sensitivity to Pain (Hyperalgesia)
- Nonnoxious Stimuli may result in pain (Allodynia)
- Additional Symptoms common: sleep disturbances, fatigue, morning stiffness, cognitive c/o, depression and anxiety

# FMS and Mood Disorders

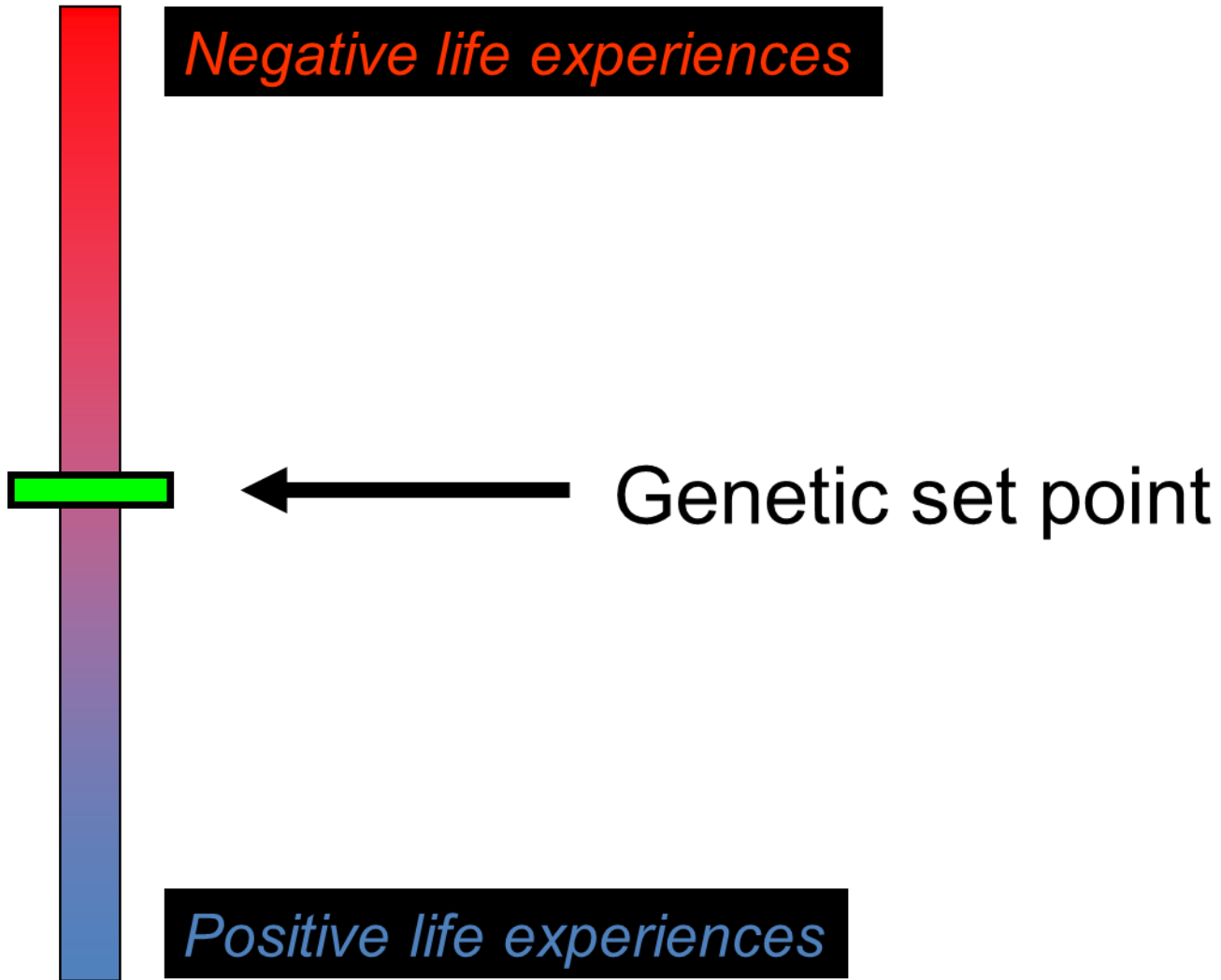
- At the time of FMS diagnosis, mood disorders are present in 30-50%, primarily depression.
- Increased prevalence of mood disorders is primarily in tertiary-referral patients.
- Increased lifetime and family history of mood disorders in FM vs RA (Odds = 2.0).
- FMS aggregates in families and co-aggregates with mood disorders. Odds of having FMS in relatives is 8.5 in FMS vs RA proband (Arnold, et al 2003).

# FMS and Mood Disorders

- Familial predisposition
  - Arnold<sup>1</sup> found that if an individual has fibromyalgia there is >8 odds ratio (OR) for first-degree relatives to develop fibromyalgia
  
- Candidate Genes
  - 5-HT<sub>2A</sub> receptor polymorphism T/T phenotype<sup>2</sup>
  - Serotonin transporter<sup>3</sup>
  - Dopamine D4 receptor exon III repeat polymorphism<sup>4</sup>
  - COMT (catecholamine o-methyl transferase)<sup>5</sup>
  - Heterozygous beta-3 adrenergic receptor allele<sup>6</sup>

1. Arnold et al. *Arthritis Rheum.* 2004;50:944-952; 2. Bondy et al. *Neurobiol Dis.* 1999;6:433-439; 3. Offenbaecher et al. *Arthritis Rheum.* 1999;42:2482-2488; 4. Buskila et al. *Mol Psychiatry.* 2004;9:73; 5. Gursoy et al. *Rheumatol Int.* 2003;23:104-107. 6. Clauw 2007 ACR

# Stress Susceptibility



# Problems in Defining Fibromyalgia

- “Real” if no clear pathophysiologic basis?
- Gold standard is “expert opinion.”
- Tender points, symptoms are subjective.
- Fewer than 11 tender points?
- Symptoms are not dichotomous.
- Same diagnostic criteria and dilemma for any illness lacking objective biologic markers (depression, migraine, IBS, CFS).



# Management of Fibromyalgia

- Education/ Cognitive Behavior Therapy
- Exercise
- Tricyclic Antidepressants
- Gabapentin
- Pregabalin
- Serotonergic-Noradrenergic Reuptake Inhibitors
- Naltrexone

# Case #2- David

## **History of Present Illness:**

- David is a 48 year old Hispanic male with chronic pain in his upper and lower back, shoulders, and buttocks.
- David has intermittent pain into his proximal lower extremities. He complains of weekly headaches and has been evaluated for an operation on his lumbar spine.

**Triggers include:** heavy lifting, sitting for long periods and driving, worse after awakening and with immobility

# Case # 2- David

## **Past Medical History/ Social Hx/ Family Hx:**

- History of MVA 5 years prior with whiplash
- History of diabetes and obesity
- Married with four children
- On temporary disability

**Medications:** Baclofen 10 mg tid, Trazadone 50 mg at night for sleep, Celebrex 200 mg q day

**Work-Up:** C-Spine Plain Film- straightening of normal cervical lordosis; MRI L-Spine- multilevel facet arthropathy, Laboratory Studies- within normal limits (CBC, Chem 10, ANA, Rheumatoid Factor)

# Case # 2- David

## Examination:

- **Normal Neurological Exam-** Mental Status, Cranial Nerves, Motor- nl except (pseudo- weakness; no atrophy), Sensory, Strength, Gait
- **Musculoskeletal Exam-** multiple trigger points noted in muscles of upper and lower back:

Significant spasm in paraspinous muscles, no allodynia, focal tenderness at the trigger point; Referred pain with pressure on several trigger pts, some limited range of motion

# What is the Best Diagnosis for David?

- A. Fibromyalgia
- B. B) Chronic Migraine
- C. C) Myofascial Pain
- D. D) Rheumatoid Arthritis

# Why not Fibromyalgia (or Chronic Migraine or Rheumatoid Arthritis)?

- David's predominant pain complaints are located in his upper and lower back, as well as his shoulder girdle.
- He has reproducible trigger points with referred pain, and cervicogenic headaches
- David's sx's are worse with immobility

# Why not Migraine, FM or RA?

- Migraine Headaches worsen with activity
- Fibromyalgia presents with tender points and allodynia. David doesn't have either sx's.
- Rheumatoid Arthritis has positive laboratory findings (ANA, Rheumatoid Factor, etc)

# Myofascial Pain

- Chronic Myofascial Pain (CMP) – characterized by chronic pain from multiple trigger points and fascial constrictions
- The most common etiology for cervical and lumbar back pain
- One of the most common causes of disability in the United States today



# Myofascial Pain

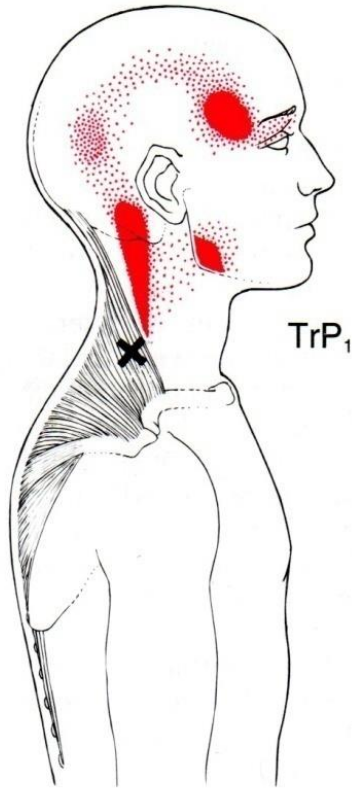
Features include:

1. Focal Point Tenderness/ Taut Band/ Twitch Response
2. Referred Pain on continuous pressure (about 5 seconds) over trigger point
3. Limited Range of Motion following 5 seconds of sustained pressure
4. Reproduction of pain complaint by Trigger Point palpation
5. Often pseudo-weakness of the involved muscle

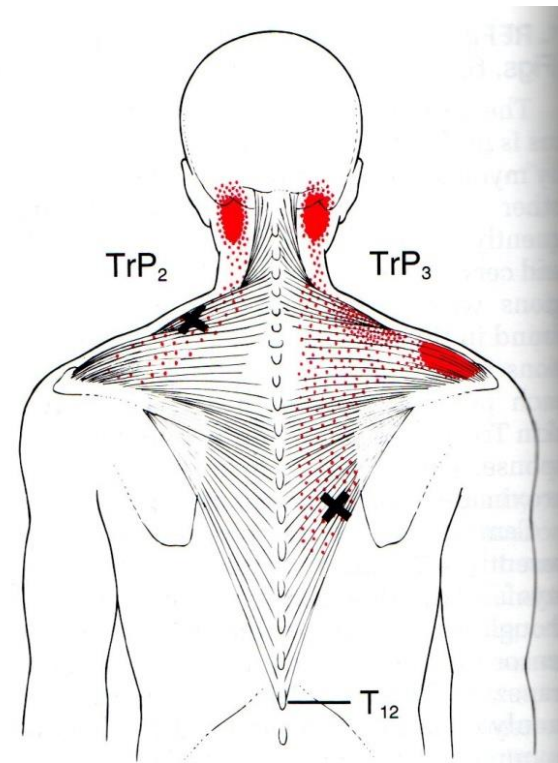
# TRAVELL

A TrP is a “hyperirritable spot, usually within a taut band of skeletal muscles or in the muscle’s fascia, that is painful on compression and that can give rise to characteristic phenomena.”

# Upper Body Example: Trapezius



**Figure 6.1.** Referred pain pattern and location (X) of central trigger point 1 in the middle of the most vertical fibers of the upper part of the trapezius muscle. *Solid red* shows the essential referred pain zone while the *stippling* maps the spillover zone.



**Figure 6.2.** Left side of figure shows referred pain pattern and location (X) of central trigger point 2 in the middle of the more horizontal fibers of the **upper** part of a left trapezius muscle. Right side of figure shows referred pain pattern and location (X) of central trigger point 3 in a right **lower** trapezius; this is likely to be a key TrP that induces satellite TrPs in the region to which it refers pain in the upper part of the trapezius muscle. (Conventions are as in Fig. 6.1).

# Myofascial Pain

## *Treatment Options:*

- Chiropractic/ Manual Therapy
- Physical Therapy to increase mobility, range of motion, posture correction, decrease spasm
- Trigger Point Injections
- Acupuncture
- Light Exercise
- Medications (NSAIDs, muscle relaxants, topicals)

# Case # 3- Jane

## **History of Present Illness:**

- Jane is a 42 year old perimenopausal female with complaint of migraine headaches more than 20 times per month. Although the headaches are almost daily, the use of a specific medication usually relieves the head pain for several hours.
- Patient has occasional nausea, photophobia, and rare vomiting. Jane also states that her neck and shoulders hurt with her headaches.

# Case # 3- Jane

## **Past Medical History/Social Hx/Family Hx:**

- History of migraine since puberty
- No history of head or neck injury
- Significant family history of migraine in Mother and Maternal grandmother
- Unmarried, 1 daughter, age 13 with headaches

**Medications:** Topiramate 50 mg bid, Zolmitriptan ZMT 5 mg prn- 5 days per week, oxycodone- prn “rescue” 5-7 days per week

**Work-Up:** Normal MRI Brain- Five Years ago

# Case # 3- Jane

## Examination:

- **Neurological Exam- Normal** -Mental Status, Cranial Nerves (including fundi), Motor, Sensory, Cerebellar, Gait
- **Musculoskeletal Exam-** + trigger points in trapezius and levator scapulae bilaterally, no trigger points in low back or limbs:  
Decreased Range of Motion- neck in flexion, extension and lateral rotation; increased pain w/ axial loading of cervical spine;

**NO tender points**

# What is the Best Diagnosis for Jane?

- A. Fibromyalgia
- B. Myofascial Pain
- C. Chronic Migraine (secondary to medication overuse)
- D. Anxiety



# Why is this not Fibromyalgia (Myofascial Pain or Anxiety)?

- Although Jane may have a component of myofascial pain in her upper back (with trigger points noted in her trapezius and levator scapulae bilaterally), her **diagnosis is most consistent with common migraine** headache.
- Jane has no cognitive, sleep, or depression sx's c/w Fibromyalgia
- But, **Jane could have some anxiety** as seen with patients with medication overuse and chronic migraine

# Chronic Migraine

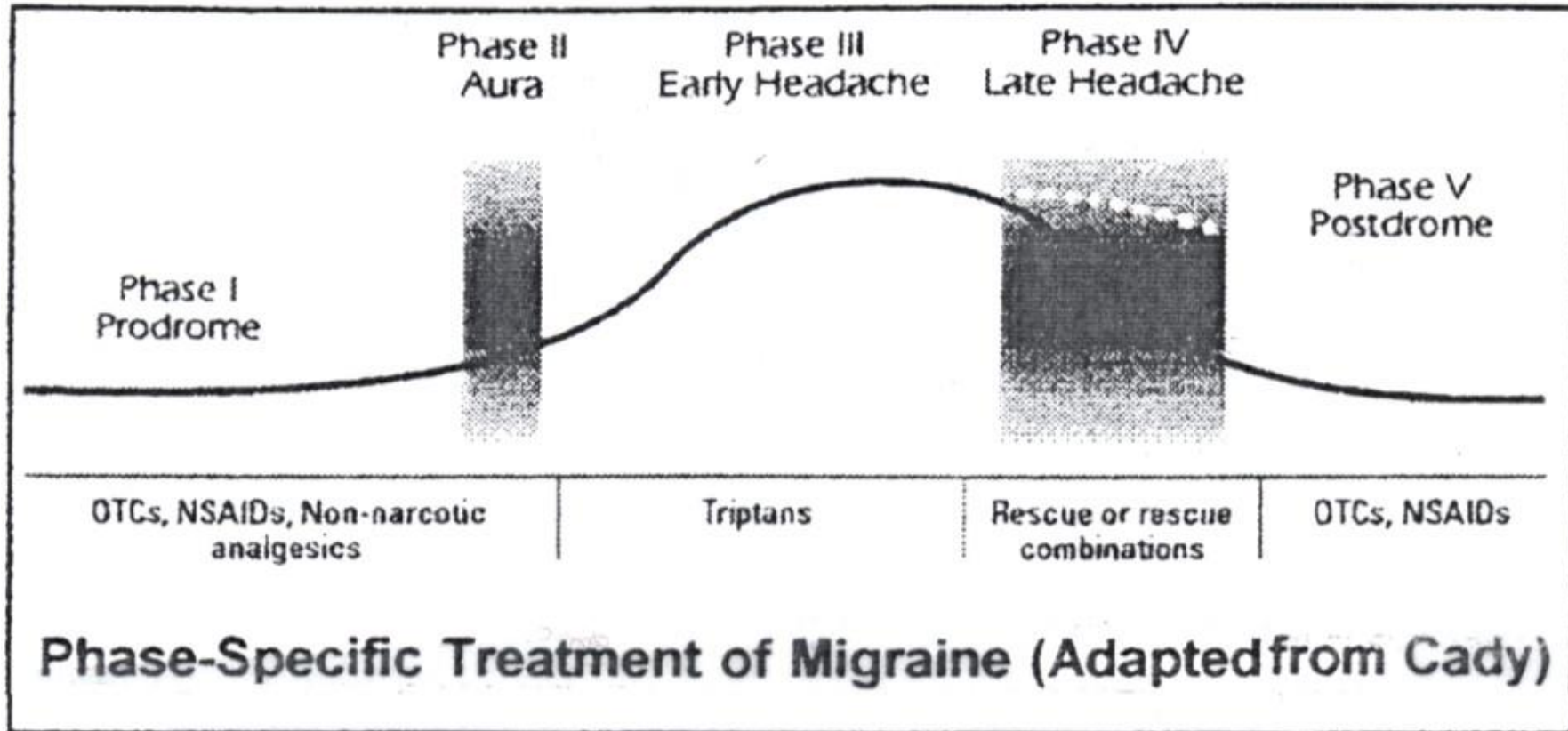
- Chronic Migraine headaches on 15 or more days per month > three months
- Not attributable to another disorder
- At least two of the following:
  - Unilateral location
  - Pulsating quality
  - Moderate/severe intensity
  - Aggravation by routine physical activity

# Chronic Migraine - continued

At least one of the following:

1. Nausea and or vomiting
2. Photophobia and Phonophobia

# PHASE-SPECIFIC TREATMENT OF MIGRAINE

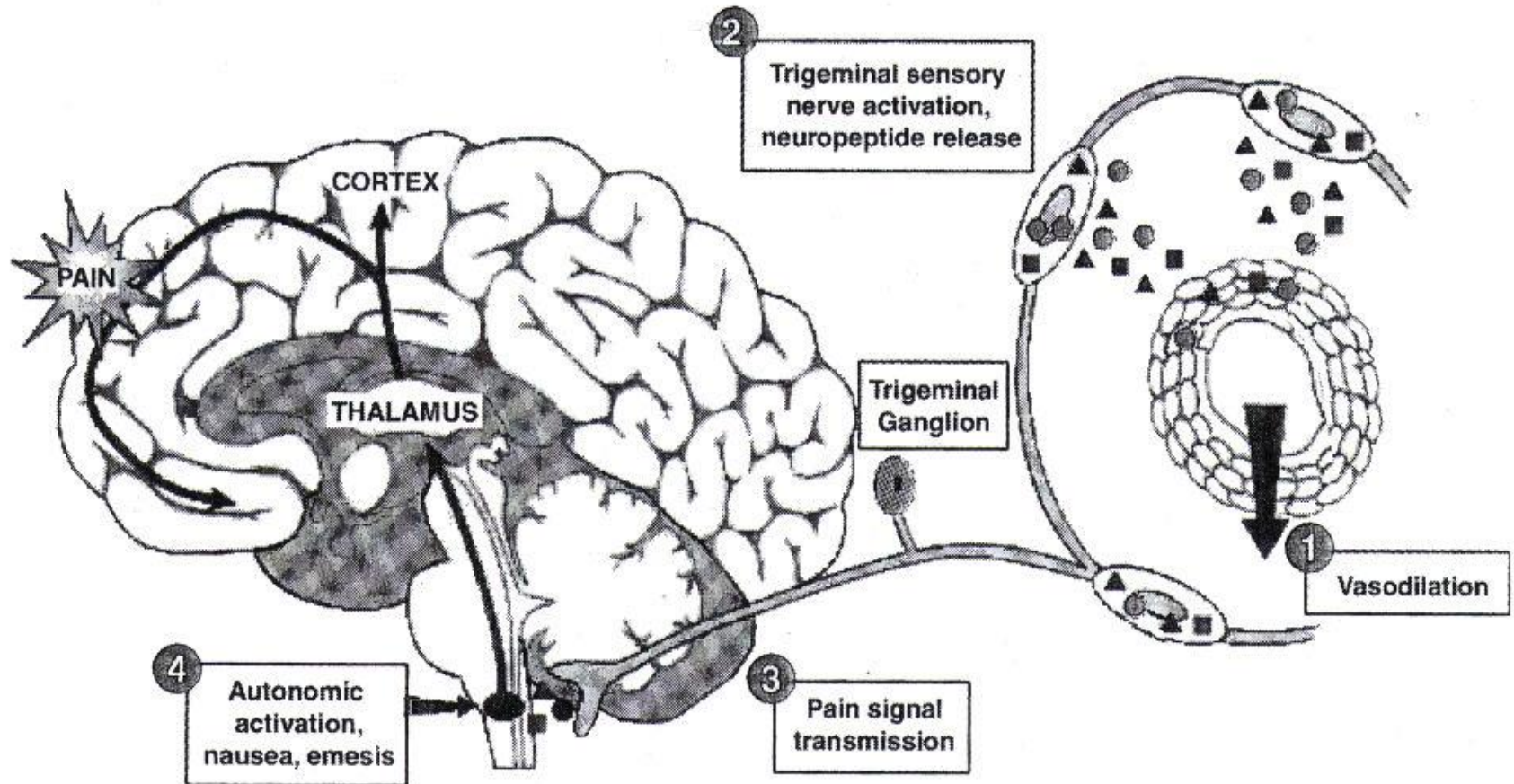


# MIGRAINE PATHOPHYSIOLOGY

## Pain Syndrome

- Trigeminal nucleus activated
- Calcitonin gene – related peptide (CGRP) released by trigeminal nerve
- CGRP release causes vasodilation
- Plasma protein extravasation causes sterile inflammation in the dura matter

# The Trigeminovascular Theory



*Adapted from Lancet 1998;351:1045*

# MEDICATION OVERUSE/REBOUND

## Analgesic-rebound headache

- Opiates
- Caffeine-containing combination analgesics
- Acetaminophen, NSAIDS

## Triptan medication overuse

- Treatment includes taper off offending agent(s) and placement on daily prophylaxis

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# Project ECHO®

*... promotes care in underserved areas*

The mission of **Project ECHO** (Extension for Community Healthcare Outcomes) has been to develop the capacity to safely and effectively treat chronic, common, and complex diseases in rural and underserved areas, and to monitor outcomes of this treatment.

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