2019 FMX Pain Handouts

(PBL) Chronic Pain Management: Taming the Opioid Dragon (CME163-164)

Acute Pain Management: Evaluating and Treating Acute Pain (CME165-166)

Advanced Concepts: When Referral is Not an Option – Advanced Migraine Management (CME167-168)

Chronic Pain Management: Taming the Opioid Dragon (CME169-170)

Fibromyalgia (CME171-172)

Primary Care for Primary Headaches (CME173-174)
(PBL) Chronic Pain Management: Taming the Opioid Dragon

Timothy A. Munzing, MD, FAAFP

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Timothy A. Munzing, MD, FAAFP

Physician, Kaiser Permanente Orange County, Santa Ana, California

Dr. Munzing has been a family physician with Kaiser Permanente Orange County for 31 years and has directed the family medicine residency program for 28 years. He is the 2017 recipient of the Nikitas J. Zervanos Outstanding Program Director Award and the California Academy of Family Physicians (CAFP) Hero of Family Medicine Award. In addition to serving on the Accreditation Council for Graduate Medical Education (ACGME) Review Committee for Family Medicine, he is on the core planning team for the developing Kaiser Permanente School of Medicine in Pasadena, California. Dr. Munzing is a national expert on appropriate opioid prescribing who has served as an expert reviewer for the U.S. Drug Enforcement Administration (DEA) and the Medical Board of California. He has been an invited speaker on the subject of appropriate opioid prescribing for the DEA and other state and federal law enforcement, as well as for prosecutors and physicians.
Learning Objectives

1. Practice applying new knowledge and skills gained from Chronic Pain Management sessions, through collaborative learning with peers and expert faculty.

2. Identify strategies that foster optimal management of chronic pain within the context of professional practice.

3. Formulate an action plan to implement practice changes, aimed at improving patient care.

Associated Sessions

• Chronic Pain Management: Taming the Opioid Dragon
Poll Question #1

Describe your feelings about managing patients with pain on opioids who see you for the first visit

A. It is my passion – I love it
B. It’s difficult, but family physicians take care of patients, even when it is difficult
C. I’m done – I’m no longer going to prescribe opioids
Poll Question #2

Describe your competency level in prescribing opioid medications
A. Very competent – bring it on
B. Competent
C. Probably competent – but not sure
D. Not competent – help!

Poll Question #3

Approximately how many people died in the US in 2018 of a drug overdose?
A. 100,000
B. 70,000
C. 50,000
D. 30,000
Poll Question #4

U.S. prescription opioid drug overdose deaths are:

A. Increasing
B. Decreasing slightly
C. Remaining stable

CASE #1

• 60 year old male with chronic back pain x 10 years, HTN, BMI 27
• New to the area – wants to establish with you
• No recent imaging
• Current Medications – without change x years
  • Hydrocodone-Acet 10-325 mg – 2 tablets qid
  • Fentanyl patch 25 mcg/hour – every 3 days
  • Temazepam 15 mg at bedtime
History – What Do You Want to Know?

Table Discussion

Poll Question #5

MME Calculation of the following medications:
Current Medications – without change x years
  • Hydrocodone-Acet 10-325 mg – 2 tablets qid
  • Fentanyl patch 25 mcg/hour – every 3 days
  • Temazepam 15 mg at bedtime
A. 180
B. 140
C. 125
D. 70
Poll Question #5 - Clarification

MME Calculation of the following medications:
Current Medications – without change x years
• Hydrocodone-Acet 10-325 mg – 2 tablets qid = 80 mg/day +
• Fentanyl patch 25 mcg/hour – every 3 days = 60 mg/day
• Temazepam 15 mg at bedtime

A. 180
B. 140
C. 125
D. 70

Poll Question #6

Which one of the following is NOT a risk for opioid abuse in the future
A. Patient smokes 1-1/2 packs per day of cigarettes
B. Patient’s brother has cocaine use disorder
C. Patient’s sister was laid off her work and is now homeless
D. Patient’s deceased mother had bipolar disease
Poll Question #7

History – What information is least important in managing the patient? (One answer)
A. Drug / alcohol use / history
B. Mental health history
C. Educational history – highest level attained (e.g. high school, college, etc.)
D. Chronic illness listing and status

Additional Information

• Pain level 2/10 with medications; 6/10 without medications
• Exam – tender lumbar muscles, negative straight leg raising, range of motion mildly reduced flexion
• Neuro exam – normal
• Heart, Lung, Abdomen, etc. Exam - normal
Plan

• What do you do next???

Table Discussion

Poll Question #8

The opioid dosage (MME-MED mg/day) known to be safe is:

A. 90
B. 50
C. 20
D. 0
CASE #2

• 25 year old skier comes to your office after falling
• Imaging shows proximal fibular chip fracture
• Pain 8/10 without medications
Poll Question #9

When starting an opioid on a patient you need to do the following except:

A. Discuss potential risks/benefits
B. Start with a low dose and slowly titrate up as needed
C. Formulate a proposed tapering / exit strategy
D. Require an Opioid Contract be signed by the patient
E. Check the PDMP

Poll Question #10

The risk of opioid use in one year increases after _______ of regular use after an injury

A. 3 days or less
B. 1 week
C. 1 month
Next Steps

Table Discussion
Case #3

- Long-time 55 year old male patient
- Chronic low back pain – no red flag symptoms
- Exam with minimal symptoms
- Work – construction – medication allows him to work full-time, tried to cut back and he could not do his work
- No aberrant findings
- Medications
  - Hydrocodone – Acet 10-325 mg qid
  - Robaxin as needed

Poll Question #11

Would you continue the patient’s opioids?
A. Yes  
B. No  
C. Maybe
Poll Question #12

Opioid monitoring recommendations include all the following except:
A. PDMP Check - periodically
B. UDT Check – periodically
C. Periodic updated history / examination
D. LFT / Creatinine lab testing at least twice yearly

Poll Question #13

MME Calculation of the following medications:
Oxycodone – Acet 10-325 mg qid
Hydrocodone – Acet 10 mg bid
Alprazolam 0.5 mg bid
A. 40
B. 60
C. 80
D. 100
Poll Question #14

The patient was started on Selegiline for Parkinson’s disease. On a UDT 3 months later the test was positive for opioids and Methamphetamine. Next action – pick one:
   A. Stop all controlled substance medications
   B. Discuss the results with the patient and document prior to deciding next steps
   C. Ignore the result as Selegiline can turn the UDT positive for Methamphetamine

Poll Question #15

You obtain a UDT one year later that is negative for all drugs tested. The reason of this is:
   A. Patient hoarding
   B. Drug diversion
   C. The patient’s pain improved and the patient skipped some dosages
   D. Unclear
It’s Complicated

• A Urine Drug Test is positive for THC – what do you do???
• TCH use is legal in your state for use recreationally by adults

Table Discussion

<table>
<thead>
<tr>
<th>Date</th>
<th>Medication</th>
<th>#</th>
<th>Pharmacy</th>
<th>Physician</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/4/14</td>
<td>Norco 10/325</td>
<td>240</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>6/4/14</td>
<td>Xanax 2 mg</td>
<td>90</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>6/24/14</td>
<td>Norco 10/325</td>
<td>240</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>6/24/14</td>
<td>Xanax 2 mg</td>
<td>90</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>7/15/14</td>
<td>Norco 10/325</td>
<td>240</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>7/15/14</td>
<td>Xanax 2 mg</td>
<td>90</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>7/15/14</td>
<td>Soma 350 mg</td>
<td>90</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>7/18/14</td>
<td>Percocet 10/325</td>
<td>240</td>
<td>Rite Aid</td>
<td>Jones</td>
</tr>
<tr>
<td>7/18/14</td>
<td>Ativan 2 mg</td>
<td>60</td>
<td>Rite Aid</td>
<td>Jones</td>
</tr>
<tr>
<td>8/5/14</td>
<td>Norco 10/325</td>
<td>120</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>8/5/14</td>
<td>Soma 350 mg</td>
<td>90</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>8/5/14</td>
<td>Xanax 2 mg</td>
<td>90</td>
<td>CVS</td>
<td>Smith</td>
</tr>
<tr>
<td>8/5/14</td>
<td>OxyContin 30 mg</td>
<td>120</td>
<td>Albertsons Pharm</td>
<td>Smith</td>
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<tr>
<td>8/10/14</td>
<td>Percocet 10/325</td>
<td>240</td>
<td>Rite Aid</td>
<td>Jones</td>
</tr>
<tr>
<td>8/10/14</td>
<td>Ativan 2 mg</td>
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</table>
PDMP Exercise

• Early refills
• Multiple doctors
• Multiple pharmacies
• Escalating dosages
• MED > 100 mg/day
• Multiple concurrent opioids
• Opioids and Benzodiazepines
• “Holy Trinity” combination

Poll Question #16

Naloxone prescription is indicated for all but which one of the following:

A. Patient on Oxycodone 30 mg tid
B. Patient using Hydrocodone 10 – 325 mg/day qid + Alprazolam 0.5 mg bid
C. Patient using Hydrocodone 5-325 mb bid
D. 75 yo patient with CAD, COPD on Hydrocodone 10 – 325 mg bid to qid prn pain
Poll Question #17

The following are opioid potentiators except:
A. Ciprofloxacin
B. Gabapenoids
C. Benzodiazepines
D. HIV treatment medications

Poll Question #18

Describe your competency level in prescribing opioid medications
A. Very competent – bring it on
B. Competent
C. Probably competent – but not sure
D. Not competent – help!
Books

- Dreamland: The True Talk of America’s Opiate Epidemic; Author: Sam Quinones
- American Pain: How a Young Felon and His Ring of Doctors Unleashed America’s Deadliest Epidemic; Author: John Temple
- Drug Dealer, MD: How Doctors were Duped, Patients Got Hooked, and Why It’s So Hard to Stop; Author: Anna Lembke

Physician Guide to Appropriate Opioid Prescribing for Noncancer Pain
(Dr. Tim Munzing SCPMG)
May 1, 2017

ORIGINAL RESEARCH & CONTRIBUTIONS

Pharmacist Guide to Appropriate Opioid Prescribing for Noncancer Pain

ABSTRACT
Prescription opioid use, which is now at an all-time high, is nothing new. It has been a part of our lives for decades. However, in recent years, the use of prescription opioids has increased dramatically, with serious consequences for public health and individual well-being. The prevalence of prescriptions for opioid pain relievers has risen sharply in recent years, and the number of deaths from opioid overdoses has also increased. In addition, the misuse of prescription opioids has led to widespread addiction and a rise in the number of people using these drugs in a non-medical setting.

INTRODUCTION
Opioids are a class of drugs that are often used to treat pain. They work by binding to receptors in the brain and spinal cord, which reduces the perception of pain. However, the misuse of opioids can lead to addiction and other adverse effects.

METHODS
This review is based on a comprehensive literature search of peer-reviewed articles, government reports, and other relevant sources.

RESULTS
The misuse of prescription opioids has led to a significant increase in opioid-related deaths. According to the Centers for Disease Control and Prevention (CDC), an estimated 16,000 people died from opioid overdoses in 2016. This is a significant increase from the 6,000 opioid deaths reported in 2010.

DISCUSSION
The misuse of prescription opioids has led to a significant increase in opioid-related deaths. The increase in opioid deaths is a public health crisis that requires a comprehensive approach to prevention and treatment.

CONCLUSION
Prescription opioids are a powerful and effective tool for managing pain, but their misuse can have serious consequences. It is important for healthcare providers to be aware of the risks associated with prescription opioids and to use them only when necessary and in appropriate doses.

SANDRA MARGO MUNZING, PharmD, BCOP
April 30, 2017

https://doi.org/10.1177/0149618217702252
Opioid Prescribing Review

• “Physician Guide to Appropriate Opioid Prescribing for Noncancer Pain”, The Permanente Journal
  • Author – Timothy Munzing, MD
  • https://doi.org/10.7812/TPP/16-169

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  • Medical Board of California
  • DEA, FBI
  • Multiple other law enforcement agencies
Questions
Acute Pain Management:
Evaluating and Treating Acute Pain

Don Teater, MD, MPH

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Don Teater, MD, MPH

Staff physician, Meridian Behavioral Health Services, Waynesville, North Carolina; Owner, Teater Health Solutions, Denver, Colorado

Dr. Teater graduated from Ohio State University College of Medicine, Columbus, and completed his residency in family medicine in Fayetteville, North Carolina, at the Duke/FAHEC program. In 2017, he earned his Master of Public Health (MPH) degree at the University of North Carolina at Chapel Hill's Gillings School of Global Public Health. In 2004, he began prescribing buprenorphine to treat opioid use disorder. From 2013 to 2016, he served as the medical adviser to the National Safety Council, leading its efforts to reduce problem use and overdose from opioid medications. Dr. Teater was lead facilitator for the expert panel during the development of the Centers for Disease Control and Prevention’s (CDC’s) Guideline for Prescribing Opioids for Chronic Pain. He continues to consult for the CDC and several states, educating prescribers on the appropriate treatment of pain and opioid use disorder. He sees patients one day a week by telemedicine, treating opioid use disorder and chronic pain.
Learning Objectives

1. Identify and use evidence-based criteria to diagnose acute pain conditions like low back pain, migraine headaches, neck pain, face pain, and acute postsurgical pain.

2. Identify and use standardized/validated tools and algorithms to manage acute pain conditions.

3. Identify and use standardized collaborative instruments to identifying “drug-seeking patients”.

4. Establish standards for acknowledging patient complaints of pain, including documentation, and treatment effectiveness evaluation.

5. Know and understand the entities of CPSP and acute postoperative pain and the modern principles of treating them using a standardized tool.

Audience Engagement System

Step 1

Step 2

Step 3
Common quote:

“Opioids are the most potent medications we have for treatment of pain.”


Facts

• 1 out of 16 people given a one-day rx for an opioid will become a long-term user – because of the prescription.47
  – c/w 1/250 people who do not get an opioid rx.76
• 1 out of 3 people on opioids for 30 days or more will become long-term users.47
Our Prescribing:

• Medical providers in the U.S. in 2015 prescribed enough opioids for every man, woman and child to get 128 Vicodin tabs!\textsuperscript{48}

U.S. opioid stats, 1999-2010.\textsuperscript{7}
We get very little education on:

1. The current science of pain and pain treatment.
2. Evidence on the efficacy and side effects of opioids.
Goals in **acute** pain treatment

1. Prevent chronic pain
2. Reduce suffering
3. Reduce pain

**Pain**

An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

International Association for the Study of Pain
Pain

An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

International Association for the Study of Pain

Pain evaluation and treatment in 3D
Pain

• Acute pain: Pain < 3 months
• Chronic pain: Pain > 3 months
• Acute pain is a *symptom*
• Chronic pain is a *disease*

4 common types of pain

• Nociceptive
• Neuropathic
• Central Sensitization
  – Also called:
    • Central pain
    • Neuropathic pain
• Opioid withdrawal
AES Question 1

How familiar are you with central sensitization?

A. Never heard of it or have no significant knowledge
B. I understand the basic concept
C. I have a good understanding of it
D. I can teach others about it

Pain pathways

Nociceptor → Spinothalamic nerve → Thalamus → Amygdala (fear) → Hippocampus (memory)

Somatosensory nerve (pain) → Limbic system (emotion) → Prefrontal cortex (rational thinking)
Central Sensitization

Nociceptor → Spinothalamic nerve → Thalamus → Amygdala (fear) → Hippocampus (memory) → Somatosensory nerve (pain) → Limbic system (emotion) → Prefrontal cortex (rational thinking)

Central sensitization Inventory

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel tired and unrefreshed when I wake from sleeping.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>2</td>
<td>My muscles feel stiff and sore.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>3</td>
<td>I have anxiety attacks.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>4</td>
<td>I grind or clench my teeth.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>5</td>
<td>I have trouble with dizziness and/or unsteadiness.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>6</td>
<td>I wake up in the middle of the night.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>7</td>
<td>I am sensitive to bright lights.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>8</td>
<td>I get tired very easily when I am physically active.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>9</td>
<td>I feel pain in my mouth.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>10</td>
<td>I have headaches.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>11</td>
<td>I feel discomfort in my bladder and/or urinary when I strain.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>12</td>
<td>I do not sleep well.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>13</td>
<td>I have difficulty focusing.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>14</td>
<td>I have dizziness, dizziness, dizziness, or seizures.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>15</td>
<td>Stress makes my physical symptoms worse.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>16</td>
<td>I feel sad or depressed.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>17</td>
<td>I have low energy.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>18</td>
<td>I have muscle tension in my neck and shoulders.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>19</td>
<td>I have pain in my jaw.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>20</td>
<td>Common colds, such as pneumonia, cause me to feel unwell.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>21</td>
<td>I have a square face.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>22</td>
<td>I have difficulty maintaining upright.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>23</td>
<td>I have difficulty maintaining balance.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>24</td>
<td>I feel pain in a child.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
<tr>
<td>25</td>
<td>I have pain in my pelvic area.</td>
<td>Never</td>
<td>Rarely</td>
</tr>
</tbody>
</table>

Scoring key
Never = 0
Rarely = 1
Sometimes = 2
Often = 3
Always = 4

Interpretation
Subclinical = 0 - 29
Mild = 30 - 39
Moderate = 40 - 49
Severe = 50 - 59
Extreme = 60 - 100
Lightness constancy

Pain Contributions

Normal acute pain
- Emotions
- Thoughts
- Tissue input

Chronic pain
- Emotions
- Tissue input
- Thoughts

Central Sensitization
- Emotions
- Tissue input
- Thoughts
Acute to chronic back pain in the workplace\textsuperscript{15,50}

<table>
<thead>
<tr>
<th>Patient-specific factors</th>
<th>Treatment factors</th>
</tr>
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<tbody>
<tr>
<td>1 Anxiety and/or depression prior to injury</td>
<td>Prescribing of opioids for acute pain*</td>
</tr>
<tr>
<td>2 Home and/or work environment</td>
<td></td>
</tr>
<tr>
<td>3 Activity level prior to injury</td>
<td></td>
</tr>
<tr>
<td>4 Severity of injury</td>
<td></td>
</tr>
</tbody>
</table>

*This does not apply to severe trauma when opioids should be used briefly.

Risk of disability – systematic review

- Disability after upper extremity injury was most consistently associated with:
  - depression (21 cohorts)
  - catastrophic thinking (13 cohorts)
  - anxiety (11 cohorts)
  - pain self-efficacy (eight cohorts)
  - pain interference (seven cohorts)
  - Social and demographic
  - Measures of impairment such as ROM and injury severity were least associated with disability

Clinical Practice Guidelines for Pain Management in Acute Musculoskeletal Injury - 2019

“Studies of musculoskeletal injuries, including ankle sprains and fractures, have found no association between pain intensity and degree of nociception (injury severity). Variations in pain intensity and magnitude of limitations are accounted for more by measures of psychosocial aspects of illness than by measures of pathophysiology.”
Key points in pain assessment

• Everyone feels pain differently
  – Our brain changes how we feel pain
• Psychosocial issues and central sensitization are major drivers in pain perception
Treating Acute Pain

Initial assessment

How much of the pain is from:
• Tissue input?
• Thoughts?
• Emotions?
• Social factors?
For most pain:

• Treating the nociceptive (tissue input) aspect of acute pain quickly and effectively will be all that is needed.

For all types of pain:

• Opioids are usually the worst option
The problem with opioids:

- Mentally impairing.\(^8,9\)
- Delay recovery.\(^10,11\)
- Increase medical costs.\(^12\)
- Opioid hyperalgesia.\(^13,14\)
- Double the chance of disability (if prescribed for 7 days or more).\(^15\)
- Increase falls and fractures.\(^16\)
- Cardiac.\(^79,17\)
  - Individuals on opioids have 3 times higher incidence of MI c/w age-matched controls
  - Higher incidence of MI than those on Vioxx or Bextra.
- GI bleeding.\(^18\)
  - Similar to nonselective NSAIDs. More than coxibs.

The problem with opioids:

- They are very calming.\(^86\) (Initially calming but with tolerance, anxiety increases.)
- Treat depression.\(^19\) (Initially depression improves but after one month, depression is worse.)
- Brain changes.\(^20\)
- Diversion (4-24% of prescribed opioids are used non-medically).\(^75\)
- Triple the risk that a family member will overdose.\(^80\)
- Addiction.\(^21,22\)
Acute rx leads to long-term use\textsuperscript{47}

Duration of acute use:
- 1 day - 6\% chance of still using that drug a year later.
- 8 days - 13.5\%.
- 31 days - 29.9\%.

Opioid types:
- Long-acting opioid: 27\%
- Oxycodone: 9\%
- Tramadol 13.7\%

Prescription Opioids in Adolescence and Future Opioid Misuse\textsuperscript{62}

Teens who received a prescription for opioid pain medication by Grade 12 were at 33\% increased risk of misusing an opioid between ages 19 and 25.

Among those with low predicted risk of future opioid use in 12th grade, having an opioid prescription increased their risk of post-high-school opioid misuse three-fold.
Adolescents and young adults who received a dental opioid rx

- Of those that got an rx from a dentist, 6.9% received another opioid rx 3-12 months later.
- Only 0.1% of controls who did not get an opioid got an rx 3-12 months later.
- 5.8% of those that received an opioid had a health encounter with an opioid abuse related dx in the next year c/w 0.4% of those who did not get an opioid.74

Chronic Post-Surgical Pain (CPSP)

- Risk factors:81,82,83,84
  - Preoperative opioid use
    - Withdrawal-associated Injury Site Pain (WISP)85
  - Immediate, severe, postop pain
  - Pain catastrophizing
  - Anxiety
  - Depression
Chronic Postsurgical Pain (CPSP)

• Prevention:
  – ERAS (Enhanced Recovery After Surgery) protocols…

AES Question 2

Which medication is most effective reducing acute pain?

A. Oxycodone 15 mg
B. Oxycodone 10 mg + acetaminophen 1000 mg
C. Ibuprofen 600 mg
D. Ibuprofen 200 mg + acetaminophen 500 mg
Efficacy of pain mediations - acute pain\textsuperscript{26,27,51}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{graph.png}
\caption{Percent with 50\% pain relief (1/NNT)}
\end{figure}

Renal colic

- Cochrane: Opioids no more effective than NSAIDs but more side effects\textsuperscript{73}
- Lancet: IV acetaminophen and IM diclofenac were both more effective than IV morphine\textsuperscript{63}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{line_graph.png}
\caption{Proportion of patients with ureteric calculus who did not achieve a significant pain reduction (>30\% reduction from initial pain score)}
\end{figure}

\textsuperscript{NRS=} Numerical pain Rating Scale score.
Post-op pain

- Enhanced recovery after surgery (ERAS)
- 109 patients having colorectal surgery c/w 98 controls.\textsuperscript{52}
- Protocol includes:
  - Pre-op counseling
  - carbohydrate loading
  - \textit{multimodal analgesia with avoidance of intravenous opioids}
  - intraoperative goal-directed fluid resuscitation
  - immediate postoperative feeding
  - Immediate ambulation
ERAS outcomes

ERAS patients compared to controls:
• Ambulated on POD 0: 77% (0%)
• Total morphine equivalents: 63 (280)
• Any complication: 15% (30%)
• Length of stay in days: 4.6 (6.8)
• Hospital costs: $13,306 ($20,435)
• Press-Ganey patient satisfaction: 98% (43%)

www.ERASsociety.org

After severe trauma:
• Immediate IV opioids reduce the risk of developing PTSD.67
• Opioids for longer periods or higher doses increase the risk of developing depression.68
Low-dose ketamine

- Meta-analysis 2018 – not inferior to morphine.
- Dose: 0.3 mg/kg IV (25 mg max)
  - Most studies use 0.1-0.5 mg/kg.
- Peak effect in 5 min. Pain relief lasts at least 2 hours.

Cognitive Behavioral Therapy after acute trauma

- CBT after acute trauma can lower the risk of a long-term disability developing.\textsuperscript{65}
- Cognitive-behavioral intervention and preventive physical therapy can enhance the prevention of long-term disability after acute trauma.\textsuperscript{66}
Behavioral tx of acute pain

• Brief mindfulness training and self-hypnosis reduces acute pain in the hospital\textsuperscript{69}

Other Tx

• Neuroscience education
• Virtual reality
• Music
• Regional blocks
  – Hip fractures
• Hypnosis
• Nitrous oxide
AES Question 3

According to the CDC guidelines for using opioids to treat chronic pain, how long should you prescribe opioids for acute pain?

A. Usually 1 day or less. 3 days max.
B. Usually 3 days or less. 7 days max.
C. Usually 5 days or less. 7 days max.
D. Usually 7 days or less. 10 days max.

If you use opioids for acute pain:

- They are most helpful for their calming effects.
- Use for 3 days or less.
- Check the PDMP first!
Practice recommendations

• First assess for all aspects of pain contributors
• Use ibuprofen 200mg + acetaminophen 500mg qid for most cases of acute nociceptive pain
• If there is a documented contraindication to an NSAID or acetaminophen, consider using one or the other
• If adding an opioid to NSAID and/or acetaminophen, prescribe for 3 days or less (and use mostly for the calming effects)

Practice recommendations

• Also consider cognitive, behavioral contributors to acute pain
• Mindfulness, CBT, behavioral therapy may be helpful if available (addresses cognitive and behavioral aspect)
• A positive physician attitude will improve pain outcomes (addresses cognitive aspect)
• Return to work ASAP
Practice recommendations

• Do NOT use opioids for:
  – Acute exacerbations of back pain
  – Headaches
  – Routine sprains and fractures
  – Lacerations
  – Office surgical procedures
  – Dental pain

Time permitting…

• Methadone and buprenorphine patients with acute pain.
Resources

www.teaterhs.com/acute-pain-treatment

(all resources on my website are free)

Questions
Don Teater MD, MPH
Teater Health Solutions
teaterhs.com
don@teaterhs.com

References:


References:


References:


References:


References:


References:


Advanced Concepts: When Referral is Not an Option – Advanced Migraine Management

D. Michael Ready, MD, FAHS

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Duren "Michael" Ready, MD
• Consultant or Advisory Board: Alder, Amgen, Allergan, and Springer (Headache).
• Honorarium: Alder, Amgen, Allergan, and Springer (Headache)
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The content of my material/presentation in this CME activity will include discussion of unapproved or investigational uses of products or devices as indicated: As many headache therapies are off label I will be discussing unlabeled uses of products.

D. Michael Ready, MD

Program Director, Central Texas Headache Fellowship at Scott & White/Senior Staff Physician, Headache Clinic, Baylor Scott & White Health, Temple, Texas

Dr. Ready earned his medical degree from Texas Tech University Health Science Center in Lubbock and completed his family medicine residency at the Brazos Valley Family Medicine Residency Program in Bryan, Texas. He is one of the first family physicians to be certified in headache medicine by the United Council of Neurologic Subspecialties (UCNS). In 2014, he was awarded the National Headache Foundation Lectureship Award. He has authored many articles and book chapters on headache topics, and his first book, Discussing Migraine With Your Patients: A Common Sense Guide for Clinicians, was published in 2017 by Springer. Dr. Ready is a fellow of the American Headache Society. In January Dr Ready, his wife, and son completed the Dopey Challenge at Walt Disney World in Orlando.
Learning Objectives

1. Develop a plan for engaging the patient as an active participant in their care.

2. Identify and develop a plan for medication overuse headache.

3. Identify and address risk factors for migraine progress.

Audience Engagement System
AES Question 1

I presently perform local anesthetic injections for Headaches

A. Yes
B. Yes, but I’d like to do more
C. No
D. No. I’m not interested in adding these injections to my practice

AES Question 2

• Bupivacaine because it has a longer duration of action is a superior local anesthetic to Lidocaine

• A. True
• B. False
AES Question 3

When a patient tells you they have “real” pain, behavioral pain management is not appropriate.

A. True
B. False

AES Question 1 Follow up

I am more likely to perform local anesthetic injections for Headaches

A. Already performing them when appropriate
B. Yes
C. No
D. No. I’m not interested in adding these injections to my practice
AES Question 2 Answer

* Bupivacaine because it has a longer duration of action is a superior local anesthetic to Lidocaine

  * A. True
  * B. False

AES Question 3 Answer

When a patient tells you they have “real” pain, behavioral pain management is not appropriate.

  A. True
  B. False
Regional Headache Societies

- Many have blogs or list serves where cases are discussed
- Headache Cooperative of New England
  - [https://hacoop.org/](https://hacoop.org/)
- Headache Cooperative of the Pacific
  - [https://www.hcop.com/](https://www.hcop.com/)
- Southern Headache Society
  - [https://southernheadache.org/](https://southernheadache.org/)
- Great Lakes Regional Headache Society
  - [https://greatlakesheadache.org/](https://greatlakesheadache.org/)

Case #1

- 48 yo CF
- PHx Primary Pulmonary HTN, PE, Hep C, Tobacco abuse
- Enrolled in AMBITION clinical trial PDE5 inhibitor
- Breathing improved but developed HA
- Started on HC/APAP 5/500 1-2 pills a day
- Increased to 40mg / day within 6 weeks
- 120mg / day @ HA Clinic Intake
Case # 2

• 61yo H ♂ TBI /c LOC
• >30y HAs now 25/30 days
• Primarily L sided /c N/V, Allodynia, Neck Pain
• Sleep Non-restorative, Onset delayed 1 hour
• Often awakens with headaches
• No prior preventive meds. Uses APAP

IASP Definition of Pain

• An unpleasant sensory AND emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

• Sensory – Sensory Discriminative pathway
• Emotional – Affective Motivational pathway
Pain Basics

Event  →  Experience

Sensory Discriminative Volts
Transmits signal information (quality/location) to contralateral somatosensory cortex.

Signal

Affective Motivational Amps
Thalamus, anterior cingulate cortex, prefrontal cortex, amygdala, hippocampus, insula and limbic system. Distributed bilaterally throughout the cortex.

Meaning of the Signal
Identifying the Pattern

Tease out patterns: Primary or Secondary HA
Is there more than one HA?
What would super-imposed HA look like?
  Secondary / Primary Headache
  Migraine / New Daily Persistent Headache
  Cluster / Episodic Migraine
  Episodic Migraine / Idiopathic Intracranial HTN
  Hemicrania Continua/Medication Overuse HA

The Daily Headaches

• New Daily Persistent Headache (NDPH)
• Hemicrania Continua (HC)
• Trigeminal Neuralgia (TN)
• Chronic Migraine (CM)
• Medication Overuse Headache (MOH)
New Daily Persistent Headache

Headache that with 72 hours of onset becomes 24/7
Symptoms must be present > 3months to make diagnosis
≈ 30% preceded by minor viral illness
Two variants – 1 lasts several years 2 Forget about it
May have many migraine-like characteristics
More often bilateral
Tends to be one of the most refractory headache clinicians treat

Hemicraniapia continua (HC)

Under-recognized cause of chronic daily headache
Characterized by continuous unilateral headache of mild to moderate severity
Superimposed exacerbations of pain lasting minutes to days occur and are associated with one or more ipsilateral autonomic features typical of cluster headache
Exacerbations may also be associated /c migrainous features of nausea, vomiting, photophobia, & phonophobia,
Hemicrania continua (HC)

Patients report stabbing “ice pick” like headaches or foreign body sensation in the ipsilateral eye.
Indomethacin is the treatment of choice.
25mg TID increase 25mg Q 3 days until relief. May take 225mg/day – Use GI protection & Watch Renal fxn
Melatonin (10-20mg QPM), Boswellia (300mg TID) & topiramate may relieve the pain
• should be tried in patients who are intolerant of or prohibited from taking indomethacin

Trigeminal Neuralgia

Trigeminal neuralgia - short-lasting unilateral attacks of severe lancinating pains affecting in V1, V2, or V3
• On rare occasions /c mild ipsilateral/bilateral cranial autonomic symptoms.
• Distinguished from SUNCT/SUNA by individual attack duration, V2 & V3 involvement in 95% of cases
• Mild cranial autonomic symptoms
• Presence of a refractory period
• Trigger zones
**Trigeminal Neuralgia Treatment**

**Carbamazepine** (CBZ)
- Start @ 100-200mg BID increase 200mg
- Maintenance dose 600 – 1200mg /day
- Auto-induction of CYP3A4 reduces T ½ to 10-12 hours. Therapeutic blood level of 4 to 12 ug/ml.
- Screen Asian population for (HLA)-B*15:02 allele - Risk of Stevens-Johnson syndrome
- Common AE’s: drowsiness, dizziness, nausea.
- Severe AE’s: aplastic anemia, hyponatremia, and abnormal liver function tests.
- Monitor CBC, LFTs, Na⁺. May develop tachyphylaxis

**Oxcarbazepine** (CBZ analog) greater tolerability, predictable metabolism, ↓drug interactions
- Serum sodium levels should be periodically monitored in patients taking OXC.
- Small, open-label studies pregabalin, gabapentin, topiramate, levetiracetam, valproic acid

---

**The 1st Question to Answer**

**Passive**
- Oral Medications
- Procedures
  - Occipital Nerve Blocks
  - Sphenopalatine Ganglion Block
  - Pericranial Bupivacaine Injections
  - Peripheral Nerve Blocks
  - Onabotulinumtoxin A
- CGRP Antibodies
- Migraine Sunglasses
- Transcranial Magnetic Stimulation

**Active**
- Need to know where you are and where you’re going!
- Answer these Questions
  - How are your Headaches affecting your life?
  - What would you be able to do if your Headaches were better controlled?
  - What would your life look like if your Headaches worsened
Mapping Migraine

The Way the Patient see what they need

What do I take for my Migraine?

The Way the Clinician sees what the Patient needs

What is making you vulnerable for so many attacks?

Mapping Migraine

The Way that it Really is

The More Days a Month with Headache the More You will Need to Do!
Expectations

Patient
No headaches – Not realistic
Less often, less intense, responding better to your right now medication -- Realistic

Provider
Diaries
Appointments
Phone Calls
Must engage your life

Expectations

There will be pain
Focus on what’s important – Prevention! You’re fighting a war, not a Battle!
Learning to Live (Well/Better) with the Pain
Have to use Behavioral Interventions
Start at the Beginning – Simple no longer an option!
Migraine preventive therapy
Education

- www.Managingmigraine.org
- www.Severe-Headache-Expert.com
  - Sign up & receive about 10 emails
  - Refers to The Headache Friendly Lifestyle
  - Download free for Kindle Unlimited
- https://www.bontriage.com/
  Does a HA Hx for you. Written by HA experts

The Woman’s Migraine Toolkit – Dawn Marcus
The Woman’s Guide to Managing Migraine – S. Hutchinson
Knock Out Headache - Gary Ruoff

Modifiable Progression Factors
Template for the Map

<table>
<thead>
<tr>
<th>Modifiable Progression Factors</th>
<th>Education</th>
<th>Pharmacological Prevention</th>
<th>Pharmacological Acute</th>
<th>Behavioral</th>
<th>Exercise</th>
<th>Diet</th>
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<tbody>
<tr>
<td>Headache Frequency</td>
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<td>Acute Treatment</td>
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<td>Stress Past Present</td>
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<td>Obesity</td>
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<tr>
<td>Medication overuse</td>
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<td>Caffeine</td>
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</tbody>
</table>
Migraine Progression Risk Factors
Attack Frequency

Them that gots, gets!
The Brain learns Pain
Inflection point starts at about 5 attacks a month
Use a Bridge Therapy to suppress Headaches
  Naproxen BID X 30 days
  Steroids burst or taper
  Repeated Blocks
  Methergonivine 0.2mg 1-2 PO TID X 14 – 28 days

Migraine Progression Risk Factors
Poor Acute Migraine Treatment

Results from AMPP study
Progression from EM to CM 3.1%/1 year
Acute treatment evaluated as
  • Moderately effective, Poor, Very Poor

Moderately effective  2.7% progressed
Poor              4.4% progressed
Very Poor         6.8% progressed

Neurology. 2015 Feb 17; 84(7) 688-695
Migraine Progression Risk Factors
Poor Acute Migraine Treatment

Use Stratified Care
Suit the treatment to the attack
- Mild – distract, ignore, eat, rest, ice, …
- Moderate – NSAID +/- Triptan
- Severe – Nasal or Parental; bypass the gut.
  Olanzapine 10 or 20mg PO & go to bed
Augment with Magnesium, Metoclopramide, Prochlorperazine.

Migraine Progression Risk Factors
Obesity/Dietary

Weight loss shown ↓ HA frequency; intensity, disability & acute med usage @ 60 months/c improvement thru 12 months.
Improvement also seen /p bariatric surgery.
Calorie restricted diets enhance neuroplasticity affecting pain sensation & cognitive function
  • Believed to stimulate neuroplasticity & increased resistance to oxidative stress
Migraine Progression Risk Factors
Obesity/Dietary
Diet as Medicine- Prevention

Chronic Migraine pts randomized to
  Diet high on Omega 3
  Diet low in Omega 6
Both groups improved but Omega 3 group better 8.8 days vs 4.6 days.

30% improvement in HA days/attacks /c IgG elimination diet

Small trial in pts /c comorbid migraine & IBS showed improvement with
IgG elimination diet was observed antibodies were eliminated.

The Case for Activity

Decreased activity grt physical deconditioning, decreased flexibility, and decreased endurance

Diminished endurance impairs resilience provoking pain in previously painless activities

Worsening pain mistakenly attributed to disease progression

Progressing pains continue to diminish activity
Pursuing Function

Decrease in function associated /c decreased endogenous endorphins.
Leads to increased pain

Focus on function not pain relief

Develop written functional goals: Desirable, measurable, achievable

Goals should be specific (increase walking) not general (reduced pain)

Follow up at every visit -- Emphasize measurement —consider wearable technology
Sleep, Awake/active time, Exercise, Work

Pursuing Function

Pain is not an excuse for inactivity or avoidance of responsibilities
encourage effort
acknowledge accomplishments
Identify specific behaviors appropriate to pain treatment
Taking medications as directed
Increasing physical activity
Keeping appointments
Reading educational information
Pursuing Function

Watch out for splitting redirect when necessary
"Let's stay focused on our work today"
Minimize conversation that focuses on pain
"How are you feeling today?“ instead of "How’s your pain?"
Focus on function - “What have you done since the last appointment?”
If they reply "nothing," look confused and ask "So where did the day go? How did you spend your time?“

Staying Still is Staying Ill

Migraine Progression Risk Factors
Stressful life events

Above all, do not lose your desire to walk.

Everyday, I walk myself into a state of well-being & walk away from every illness.

I have walked myself into my best thoughts, and I know of no thought so burdensome that one cannot walk away from it.

But by sitting still, & the more one sits still, the closer one comes to feeling ill. Thus if one just keeps on walking, everything will be all right.”

-- Kierkegaard

Walking ≥ 3 Kilometers a day is associated with positive neuroplastic changes!
Instead of Headache Diary
Use an Activity Diary

Record activity for 2 weeks
Fill through the day - Not at the end of the day
Total amount of active time
Average active time – Provides average
  • Encourage this as “floor” even during flares
  • Addressing maladaptive behavior of diminished activity in response to pain
Once stabilized goal to increase 15 min/day intervals each week
Max 15/24 hours
  • Allows for 8 hours sleep
  • Relaxation or other productive activities

Never Underestimate the Power of a Goal!

Walt Disney World January 2017
Walt Disney World January 2019
After finishing the Dopey Challenge
Migraine Progression Risk Factors
Sleep Disorders

Poor sleep (not rested most mornings)
  • worsen additional migraine comorbidities
    • Depression/anxiety/fibromyalgia

May mean the difference between success & failure

Simple behavioral instructions provided to chronic female migraineurs
  • 58% remission to episodic migraine @ 12 weeks
  • No remission in sham group @ 6 weeks, then crossover
  • Crossover 43% remission to episodic migraine @ 6 weeks
  • Improvement correlated /c adherence to instructions

Simple Sleep Hygiene

Eliminate stimulants (caffeine, nicotine). Initially, no caffeine after 13:00. If still with sleeping difficulties then keep moving back the last caffeine intake.

Discontinue naps

Regular exercise improves sleep. However, exercise within 5 hours of bedtime may raise core body temperature & delay sleep. If that is the only time you can exercise then take a cool shower to cool off.

Move dinner to at least 4 hours before bedtime.

Curtail liquids within 2 hours of bedtime. Limit alcohol intake.

Prepare a dark sleeping environment. Limit nocturnal light. If nightlights are needed to prevent falls, use the dimmest light possible.
Simple Sleep Hygiene

Schedule an initial consistent bedtime and awakening that allows for eight hours in bed, seven days a week—weekdays & weekends.
The bed is only for sleep and adult intimacies.
No distractions while in bed. No television, reading, smartphones, pets or other children while in bed.
White noise such as a fan or relaxing music is OK.
Search www.youtube for “Weightless” by Marconi Union.
This song has been shown to help people fall asleep faster.
Use visualization technique (guided imagery), autogenic phrases, or progressive muscle relaxation to start to get to sleep.

Autogenic Training Exercise for Sleep

My mind is quiet and at peace.
I am calm and at peace.
It is time to sleep and restore.
My right arm is heavy.
My left arm is heavy.
I am calm and at peace.
My shoulders are heavy.
My jaw is heavy and relaxed.
I am calm and at peace.
My right leg is heavy.
My left leg is heavy.
It is time to sleep and restore.
I am calm and at peace.
Sleep Restriction Therapy
Not for Bipolar!

Do not nap
Use bed only for sleep and adult intimacies.
Go to sleep only you are likely to fall asleep within 10 - 20 minutes. Repositioning twice trying to fall asleep is equivalent to 20 minutes.
Don't watch the clock. Face clock away from your vision.
If unable to fall asleep in 20 minutes, leave the bedroom & come back only when sleepy again.
Get up at the same time every day. Do not “snooze”.

Migraine Progression Risk Factors
Stressful life events

Leading Single Migraine Trigger
Adverse Childhood Experiences increase risk
What is Stress? - anything that acts on you to provoke a response
Goal of “Stress Management” is to build resilience
Timex watch
Migraine Progression Risk Factors

Stressful life events

They Can't Find Anything Wrong – David Clarke MD
www.stressillness.com

Breathe2Relax app
- No Charge
- Available in multiple formats
- ≥ 10min/Day associated with ↓ BP
DawnBuse.com
- Relaxation exercises download for free

Hypnotize Yourself Out of Pain now! – Bruce Eimer Ph.D.
The Relaxation and Stress Reduction Workbook- M. Davis

Symptomatic Medication Overuse

AKA "Rebound" – not best term
- Overuse isn’t much better
- Migraine frequency ↑ /c increasing acute medication use

HA that occurs in an individual with a pre-existing 1’ HA when in the presence of MO develops a new type of HA or a marked worsening of their pre-existing HA – ICHD IIIβ

Patients do not understand this condition
- See usage as a direct response to their headaches

Incidence in Primary Care Clinic ≈ 21%
- Much higher in specialty clinic
## Defining Symptomatic Medication Overuse

Typical doses of commonly used migraine drugs that have been linked with worsening migraine and medication overuse headache.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Typical treated days/month for at least 3 months</th>
<th>Average # of doses/month among those /c MOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analgesics</td>
<td>15</td>
<td>114</td>
</tr>
<tr>
<td>Barbiturates (butalibital combinations)</td>
<td>5</td>
<td>Not reported</td>
</tr>
<tr>
<td>Opioid</td>
<td>8–10</td>
<td>Not reported</td>
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<tr>
<td>Triptans</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Ergotamine</td>
<td>10</td>
<td>37</td>
</tr>
</tbody>
</table>

Diener and Limbroth 2004; Diener 2001; Bigal 2008

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## Migraine Progression Risk Factors

Symptomatic Medication Overuse

SMO ↑cerebral cortex/trigeminal neuronal excitability.

Hyper excitability makes the migraine brain more susceptible to cortical spreading depression

Shares similarities with addiction

- Genetic basis
- Continued use despite harm
- See use as restoring order / relieving pain
The Problem with Butalbital

- Five doses a month associated with migraine progression
- Banned in the E.U. because of this (triptans OTC there)
- Causes cognitive impairment which can be long lasting
- High degree of patient satisfaction (80%)
  - So people who are likely to get into trouble with it get into trouble
- If on ≥ Butalbital 150 mg/day, transition to phenobarbital
  @ 30 mg per 100 mg of butalbital & titrate down 30 mg/day until discontinued.

Medication Overuse Headache:

Tastes Great! Less Filling

Medication Overuse Headache: an entrenched idea in need of scrutiny.
Scher, Rizzoli, Loder Neurology 2017;89:1296–1304

Weak current evidence for causal relation between med use & ↑ HA frequency
Confounded by Chicken / Egg
Medication Withdrawal studies typically uncontrolled /c a high dropout rate.
Medication withdrawal or limitation may benefit some.
What are the ethics of withholding symptom relieving medication?
Risk with simple analgesics (ASA, ibuprofen, Naproxen) is especially weak.

The concept of MOH should be viewed with more skepticism. Until the evidence is better, we should avoid dogmatism about the use of symptomatic medication. Frequent use of symptom-relieving headache medications should be viewed more neutrally, as an indicator of poorly controlled headaches, and not invariably a cause.
SMO/MOH Real World

• Not everyone who uses frequently develops MOH
• I have two patients that I prescribe Butalbital for
  • I limit them to four pills a month
• I have three patients on daily Sumatriptan
  • There usage is not escalating & no increase in Migraine frequency
• I have four patients on daily Buprenorphine
  • There usage is not escalating & no increase in Migraine frequency

Migraine Progression Risk Factors
Symptomatic Medication Overuse

Patient must be educated about limits on acute medications.
  Average monthly goal 10-12 d/m
Need to know that HAs unlikely to get better if continue to overuse
May need to withdraw in a controlled setting
Headaches worsen during withdrawal
  • Use a “Bridge” therapy
SMO Bridge Therapies

Non-steroidal bridge therapy
- Naproxen 500 mg BID 7-10 days
- Ketorolac 60 mg IM BID X for 5 days (should use PPI or H2 blocker if using ketorolac).

Steroidal bridge therapy
- Dexamethasone 4 mg BID X 7 days or
  4 mg BID X 4 days, then 4 mg daily X 4 days, then stop.
  Dose packs typically are not effective.
- Prednisone taper 60 mg daily for 2 days, then 40 mg daily
  for 2 days, then 20 mg daily for 3 days, then stop.

Triptan bridge therapy
- Short acting: sumatriptan 25 mg TID X 10 d or until the patient is pain free for 24 hours.
- Long acting: naratriptan 2.5 mg BID X 7 days

Ergotamines bridge therapy
- DHE 1 mg sub Q BID 7-10 days (likely to be most effective).
- DHE NS BID/TID X 7-10 days (more available than injections but less effective).
- Methylergonovine 0.2 mg 1-2 pills TID X 14d – Expensive
SMO Bridge Therapies

- Prochlorperazine 10 mg ± diphenhydramine 25-50 mg TID.
- Metoclopramide 10 mg ± diphenhydramine 25--50 mg TID (do not take with prochlorperazine).
- Olanzapine 10-20-mg PO QHS times 5-7 days. Start dosing with 10 mg, repeating the dose in 1 hour if not sleepy.
  - 20mg dose is often needed if there is significant anxiety or insomnia.

Buprenorphine

Partial mu-receptor agonist
Considered an alternative to full mu agonists
Demonstrated efficacy in chronic pain
FDA indicated for Pain & outpt txt disease of addiction
  - Pain: Schedule III
  - Addiction: Need special DEA # (= 8 hour CME course)
Increased interest 2’ to thought that it could control pain and reduce risk of addiction
Injection, SL Tablet, SL Film, and compounded /c naloxone
Buprenorphine Cautions

Serious & fatal drug interaction can occur in individuals who are concurrently taking buprenorphine /c BZD

- BZD also cleared by CYP 450
- Increase drug metabolites
- Caution /c other CYP 450meds fluconazole clarithromycin, fluoxetine

If You Have to Prescribe…

Pre-prescribing conversation how meds will be started, used, & if necessary, d/c’d. Patients at this point often believe these meds are essential for their survival

- Episodic
- Use is to keep out of Urgent care & E.D.
- Limit to 7 days / month Max

- Continuous Opiate Therapy
- Typical COT prescribing protocol
- Function should be maintained or improved
- Migraine frequency should not be progressing
Case # 1

• Started on Buprenorphine 4mg SL BID
• Titrated to 8mg SL BID
• Stable for the past 5 years

Migraine Progression Risk Factors
Caffeine overuse

• Just say no!
• Taper off to minimize withdrawal headache
• If you must…
  • Limit to two servings a day
  • ≤ 200mg/day
Procedures

Lower Cervical Intramuscular Injections
Occipital Nerve Block
Sphenopalatine Ganglion Block
Pericranial Injections
Peripheral Nerve Blocks

Lower Cervical Intramuscular Injections

Headache 10/06
417 ED Pts / 1 yr
65% relief in 15m
Repeat injection brought additional relief
Worsened HA in 1%
Lower Cervical Intramuscular Injections

3mL bupivicane 0.5%

25g 1.5" / 27g 1.25"

2-3cm lateral to the spinous processes between C6 & C7

AE /CI - Vasovagal, Neck stiffness, usual injection risks

Occipital Nerve Block

Local anesthetic (bupivacaine ).5% xylocaine 1%

-- Duration of anesthesia doesn’t correlate to duration of relief
Steroid (triamcinolone 40mg/mL) evidence doesn’t support general use

3mL total per side
25 or 27 gauge needle
May place as a “ridge” or point of maximum tenderness.
Occipital Nerve Block

Marcus DA, Ready DM. Discussing Migraine. Springer 2017

Occipital Nerve Block Prevention

44 CM / 2 groups GON weekly X 4
Followed @ 4weeks, 2 months, 3 months

<table>
<thead>
<tr>
<th></th>
<th>Baseline HA Frequency</th>
<th>One Month</th>
<th>Two Months</th>
<th>Three Months</th>
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</thead>
<tbody>
<tr>
<td>Bupivacaine</td>
<td>21.0 +/- 4.4</td>
<td>10.9 +/- 7.1</td>
<td>6.1 +/- 2.4</td>
<td>6.3 +/- 1.9</td>
</tr>
<tr>
<td>Saline</td>
<td>20.9 +/- 5.0</td>
<td>15.5 +/- 7.3</td>
<td>18.2 +/- 6.1</td>
<td>19.1 +/- 6.3</td>
</tr>
</tbody>
</table>

No serious AEs

Bupivacaine – significant ↓months 1,2,3
Saline – decrease @ month 1 only

Occipital Nerve Block Prevention

PGON: 25 Chronic Migraine patients on oral prophylaxis
GON: 53 Chronic Migraine patients medically refractive to oral medications

<table>
<thead>
<tr>
<th></th>
<th>Baseline HA Days</th>
<th>Month 3 HA Days</th>
<th>Δ</th>
<th>Baseline HA Severity</th>
<th>Month 3 HA Severity</th>
<th>Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGON-25</td>
<td>13.76±8.07</td>
<td>3.28±2.15</td>
<td>10.48</td>
<td>8.08±0.90</td>
<td>5.96±1.20</td>
<td>2.12</td>
</tr>
<tr>
<td>GON-53</td>
<td>15.73±7.21</td>
<td>4.52±3.61</td>
<td>11.21</td>
<td>8.26±1.32</td>
<td>5.16±2.64</td>
<td>3.10</td>
</tr>
</tbody>
</table>


Occipital Nerve Block

Adverse Events / Contraindications

Prior hx of craniotomy over injection site
AEs primarily related to steroid- fat atrophy, alopecia, pigment change
Vagal response – Happened to me X 4 in over 12K blocks
Pericranial Bupivacaine Injections
Robert Kaniecki, MD University of Pittsburgh

218 Subjects
34 sites – 0.25% Bup
Q 12 weeks
87.1% Female
Age – 40.4 years
Migraine for 18.5 years
21.4 / 28 days /c HA
15.5 Severe HA days
18.3 Treatment days

55.2 % > 50% reduction
• 35.3% achieved by 4 wk
↓HA days 22.8d to 9d
↓ Severe 15.9d to 6.1d
↓ Treatment 18.1d to 7.9d
11.5% no response/Lost-FU
Pericranial Bupivacaine Injections
Robert Kaniecki, MD University of Pittsburgh
Sphenopalatine Ganglion Block

• Over 100 years old
• Fell into disfavor
• Reemerged in ‘80s
• Patients may self administer
• Lidocaine
• May use cannula

Sphenopalatine Ganglion Block
Disease Modifier?

ICHD Chronic Migraine > 3 months
Could remain on preventive meds if stable
41 subjects randomized 2:1 bupivacaine /saline
Biweekly SPG block X 6 weeks
Treated irrespective of pain @ time of visit
Measured: Pain, Activity, Mood, & Work Interference.
Sphenopalatine Ganglion Block Disease Modifier?

HA reduction 5.7 day vs 1.9 @ 1 month
(similar to Onabot & topiramate)
Study was underpowered – Limits conclusions
Collective data suggests potential disease modification

Sphenopalatine Ganglion Block
Sphenopalentine Ganglion Block

Sphenopalentine Ganglion Block
Sphenopalantine Ganglion Block
Sphenopalatine Ganglion Block
Patient Self Administered

• Using Viscous Lidocaine 2% 0.5mL
  Insert a 1 ml syringe as far as they can comfortably as tolerable
  Point towards the lateral side of the bridge of the nose
  Tap in 0.1 - 0.2 ml at a time to a total of 0.5 ml
  With each tap the patient takes a sharp sniff after each instill

If burning or numbness occurs around the eye -- the lidocaine is where it needs to be.

May try with the patient lying on their side allowing the Lidocaine to pool in the SPG fossa.

Patients may perform at home as often as they like - pragmatically up to qid.

Peripheral Nerve Blocks for Trigeminal Neuralgia

• Retrospective
  • 9 Urgent Care pts Classic TN
  • Pain > 8/10 over V2-3 distribution
• Injections
  • 0.5mL (0.25 bupivacaine, 1.0 lidocaine
  • Suprorbital, Infraorbital, Mental
  • 1.0mL injected in auriculotemporal
• All 9 had >50% pain improvement
  • 7/9 pain free
  • 6/9 sustained pain relief 1-8months
  • 3 tolerated pain /c currents meds
  • 2 pain free
  • Only 1/6 who responded had surgery
Peripheral Nerve Blocks for the Tx of HA in Older Adults:
A Retrospective Study

Single center, retrospective chart review

Pts > 65 PNB / 6yr period. Average age 71
CM-50% / EM-12.5% / TAC 9.4% / ON – 7.8%
Average HA Days 23 / month
89% had 1 Beers criteria medication
PNB thought to be effective in 73% for all headaches
No AE’s reported


Peripheral Nerve Blocks
What to Inject?

Again no consensus – Local Anesthetics often mixed
Lidocaine 1-2%
  • Advantage quicker onset of action & can be buffered (Lidocaine/Sodium Bicarb 9:1)
Bupivacaine 0.25 – 0.5%
Both Amide-- less allergenic than Esther LA
Typically 1.5 – 3.5mL per nerve
Inhibit nerve conduction by reversibly inhibiting Na+ channels
Preferentially act on C-fibers & Aδ fibers that mediate pain.
Methemoglobinemia has been reported with LA treatment
  rarely with those used routinely for ONB
Peripheral Nerve Blocks
Review Articles

• Expert Consensus Recommendations for the Performance of Peripheral Nerve Blocks for Headaches – A Narrative Review
• Trigger Point Injections for Headache Disorders: Expert Consensus Methodology and Narrative Review

Case # 2

• Initial placed on Magnesium, Tizanidine
• Placed B ONB
• ↓ Freq 3/7 days, + Memantine (NMDA receptor blocker)
• @ 1 yr HAs 1/7 days mild
• Severe HAs 1/60 days responds to ONB
Our Patients Speak

Behavioral Pain Management
Reframing the Pain

How did you “happen”? 

Pain Basics

• Sensory Discriminative
  • Spinothalamic tract to Somatosensory cortex
• Motivation Affective
  • Parabrachial tract to Limbic system

If you can’t change the signal then you have to change how you respond to it

Rating Your Pain

Doctor: On a scale of 1 – 10, with 10 being the most pain you can image, how would you rate your pain today?

Patient: 20!
Graphic Representation of 20/10 Pain

You get a 12oz Coke & An 8oz Mess
Behavioral Pain Catastrophizing

Predicts poor response to minimally invasive procedures
Predicts persistent pain @ two years.
Affects supra spinal endogenous pain inhibition in pain processing
Associated with the dysfunctional cortisol response
May be linked to altered neuro-immunologic responses to pain
5 Coping Skills for Chronic Pain Patients

• Understanding
  • Educate, Hurt ≠ Harm, Prognosis, Plan
• Accepting – William James
  • Why Me?, Stop Catastrophizing, Don’t “Should” on yourself
• Calming
  • Dial back fight/flight. What ever works
• Balancing
  • In & Out, Don’t overdo, get good sleep
• Coping
  • Plan for pain, Distraction

Jones T. Practical Pain Management. 2014: 14 (1)

Youtube Pain Videos

Allison Carr
22 Things I learned about Chronic Pain

Understanding Pain and What to do About it in 5 Minutes
Books You Should Know

- Relaxation & Stress Reduction Workbook
- Martha Davis, Ph.D
- ****1/2 - 191 reviews
- Also available in Children’s version
- Stock this book in your exam rooms instead of People

Books You Should Know

- Unlearn Your Pain
- A “how to” book on how to become more comfortable with being uncomfortable
- *****1/2 69 Reviews
- 1st 5 chapters free on Amazon Prime for Kindle
Books You Should Know

• Say Goodnight to Insomnia
• Gregg Jacobs, Ph.D
• ****1/2  217 reviews
• Benson Mind-Body Institute
• www.cbtforinsomnia.com

Books You Should Know

• Quiet Your Mind & Get to Sleep
• Colleen Camey
• ****1/2  - 28 Reviews
• Deals with Insomnia driven by comorbidities
Books You Should Know

- The Post Traumatic Insomnia Workbook
  - ****1/2 - 4 Reviews
  - Karin Thompson Ph.D.

- ***** 12 reviews
  - 12 Step approach to Chronic Pain

- ****1/2 5 reviews
  - Might not do it for themselves, but...
Best Practices Recommendations

• The greater the headache burden, the more the patient needs to participate
• Consider HC diagnosis for a continual unilateral headache with autonomic signs
• Get comfortable sticking needles in peoples head
• Learn home to use Buprenorphine
• Don’t Ignore Behavioral Pain Management

Questions
Chronic Pain Management: Taming the Opioid Dragon

Timothy A. Munzing, MD, FAAFP

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Timothy A. Munzing, MD, FAAFP

Physician, Kaiser Permanente Orange County, Santa Ana, California

Dr. Munzing has been a family physician with Kaiser Permanente Orange County for 31 years and has directed the family medicine residency program for 28 years. He is the 2017 recipient of the Nikitas J. Zervanos Outstanding Program Director Award and the California Academy of Family Physicians (CAFP) Hero of Family Medicine Award. In addition to serving on the Accreditation Council for Graduate Medical Education (ACGME) Review Committee for Family Medicine, he is on the core planning team for the developing Kaiser Permanente School of Medicine in Pasadena, California. Dr. Munzing is a national expert on appropriate opioid prescribing who has served as an expert reviewer for the U.S. Drug Enforcement Administration (DEA) and the Medical Board of California. He has been an invited speaker on the subject of appropriate opioid prescribing for the DEA and other state and federal law enforcement, as well as for prosecutors and physicians.
Learning Objectives

1. Assess patients with chronic pain to determine the mechanisms of pain.

2. Utilize appropriate/evidence-based clinical/specialty/regulatory guidelines and tools including State-based controlled medication utilization databases or prescription monitoring programs (PMP’s)

3. Develop collaborative treatment plans emphasizing physical and psychological modalities, prescription of non-opioid analgesics, treatment of comorbid mood disorders, and restoration of sleep utilizing patient-based and physician-based data collection and documentation tools/instruments

4. Establish plans to coordinate referral to a multidisciplinary team or pain specialist where first-line therapies are ineffective, complex patient management, and there is poor patient adherence to treatment plans.

Audience Engagement System

Step 1

Step 2

Step 3
Goals:
Participants will be able to:

- Discuss and Apply Standards of Care for Controlled Substance Prescribing
- Identify and Analyze “Red Flags” for Potential Controlled Substance Abuse / Diversion
- Implement multimodal chronic pain management

Munzing Background
- Family Physician – 34 years – KP
- Family Medicine Residency Director – 31 years
- Medical Expert – opioid prescribing
  - >200 case reviews
  - >130 overdose deaths reviewed
  - >25 criminal convictions
Undercover states this is his “Back MRI”
What Do You See???

Conviction – 17 counts – 3 years in prison – September 2016

Stranger than Fiction: High Profile and Salacious Case

- Dr. Kim Case – ABC News Clip
- 17 Felony Convictions
- Sentence – 3 years
Dangerous / Common Combinations
Don’t Get on the Radar

• “Holy Trinity” –
  • Oxycodone, Benzodiazepine, Carisoprodol (or Stimulant)

• “Purple Drank, Sizzurp, Lean” –
  • Promethazine with codeine cough syrup, Jolly Ranchers candy or similar, fruit flavored cola – made popular by hip hop culture

Avoiding Falling off the Cliff:
Potential Consequences

• Patients
  • Addiction
  • Overdose
  • Death

• Physicians
  – Loss of Medical License
  – Prison
Outdated Information - WRONG

“The risk of addiction is much less than 1%”


Pain = 5th Vital Sign
1990’s Physicians encouraged to increase medications to eliminate pain (Assumed no harm)


CDC Data: National Vital Statistics Reports

![Graph showing opioid overdose deaths from 2009 to 2017.](image)

CDC Data: National Vital Statistics Reports

Overuse of Prescription Medications: Scope of the Problem

Nearly 2 million Americans, aged 12 or older, either abused or were dependent on opioids

# Rx Medication Prices and Street Value

<table>
<thead>
<tr>
<th>DRUG</th>
<th>RETAIL PRICE</th>
<th>STREET VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Schedule II</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxycodone SR 40 mg (Brand)</td>
<td>$5.66 / tablet</td>
<td>$20 - $40 / tablet</td>
</tr>
<tr>
<td>Oxycodone 40 mg</td>
<td>$4.54 / tablet</td>
<td>$6 - $8 / tablet</td>
</tr>
<tr>
<td>Morphine 100 mg</td>
<td>$4.16 / tablet</td>
<td>$60 / tablet</td>
</tr>
<tr>
<td>Fentanyl Loz 400 mg</td>
<td>$26 / lozenge</td>
<td>$30 - $40 / lozenge</td>
</tr>
<tr>
<td>Fentanyl 50 mg</td>
<td>$24 / patch</td>
<td>$25 - $40 / patch</td>
</tr>
<tr>
<td>Methadone</td>
<td>$0.19 - $0.23 / tablet</td>
<td>$10 - $20 / tablet</td>
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<tr>
<td>Methylphenidate</td>
<td>$1.11 / tablet</td>
<td>$8 - $15 / tablet</td>
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<tr>
<td>Dextroamphetamine and Amphetamine</td>
<td>$4.23 / tablet</td>
<td>$5 - $7 / tablet</td>
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<tr>
<td><strong>Schedule III</strong></td>
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<tr>
<td>Hydrocodone/ APAP (Brand)</td>
<td>$1.47 / tablet</td>
<td>$6 - $10 / tablet</td>
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<tr>
<td>Hydrocodone/APAP</td>
<td>$0.43 / tablet</td>
<td>$6 - $10 / tablet</td>
</tr>
<tr>
<td><strong>Schedule IV</strong></td>
<td></td>
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<tr>
<td>Diazepam</td>
<td>$3.30 / tablet</td>
<td>$4 / tablet</td>
</tr>
<tr>
<td>Phentermine</td>
<td>$2.13 / tablet</td>
<td>$3 - $6 / tablet</td>
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<tr>
<td>Alprazolam 2 mg (Brand)</td>
<td>$3.28 / tablet</td>
<td>$4 / tablet</td>
</tr>
<tr>
<td>Alprazolam</td>
<td>$0.42 / tablet</td>
<td>$4 / tablet</td>
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<tr>
<td><strong>Schedule V</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promethazine with Codeine</td>
<td>$3.35 / fluid ounce</td>
<td>$7.50 - $10 / fluid ounce</td>
</tr>
</tbody>
</table>

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**Poll Question #1:** Which of the following predict misuse of prescription opioids?

A. Race  
B. Disability  
C. Literacy  
D. Socioeconomic status  
E. All of the Above  
F. None of the Above
Cultural Competence

- Gender
- Race
- Literacy
- Disability
- Socioeconomic status

Do Not Predict

- Hx EtOH/drug abuse*
- Hx EtOH/drug-related criminal conviction
- FHx EtOH/drug abuse
- Psychiatric disorder
- Includes nicotine

Predict

Challenges for Physicians, Law Enforcement and Prosecutors

General Principles

• Act like a doctor
• 90- day cliff (or much shorter - 3-5 days???)
• Non-pharmacologic alternatives and adjunct treatments
• Start low and go slow – very limited prescription numbers
• Trust but verify
• Documentation – be thorough!

Pain Management Basics

• Multiple strategies
  • Non-pharmacologic
  • Pharmacologic
  • Procedures
  • Opioids
  • Devices
Poll Question #2 – Opioid Prescribing

A patient receives and takes an opioid prescription for an injury. Of patients taking the medication for 8 days, what percent will be on the medication one year later?

• A) 1.5%  
• B) 6.5%  
• C) 13.5%  
• D) 20.5%

Likelihood of Chronic Opioid Use

• Increased - 3rd day of Rx and each additional day after the 3rd day  
• Sharpest increase – after 5th and 31st day  
• 2nd refill  
• 700 morphine mg equiv. cumulative dose  
• Initial 10-day or 30-day supply  
• Opioid Use 1 year later  
  • 1 day – 6%  
  • 8 days – 13.5%  
  • 31 days – 29.9%  

CDC MMWR – March 17, 2017 / 66(10); 265-269
Poll Question #3

The 2016 CDC Guidelines are now the Standard of Care for prescribing opioid medications
A. Yes  
B. No  
C. Unsure

Poll Question #4

The 2016 CDC Guidelines recommend taking added precautions when prescribing opioids strengths with Morphine Milligram Equivalents (mg/day) over:
A. 20
B. 50
C. 75
D. 90
2016 CDC Guidelines for Controlled Substances

- Avoid benzodiazepines with opioids [increases risk of overdose death ten-fold versus only opioid use]
- Periodic benefit / risk evaluation, including PDMP and Urine Drug Screen
- Non-pharmacologic and non-opioid tx – first line
- Chronic pain – avoid opioids – risk outweighs benefits for most
- Discuss risk / benefits with patients and document

2016 CDC Guidelines for Controlled Substances Con’t

- Establish realistic goals – prior to opioid starts
- Start immediate release – avoid Methadone as first line – higher risk
- Additional precautions if dose exceeds 50 MME mg/day
- “Generally avoid” increasing the dosage >= 90 MME mg/day
2016 CDC Guidelines for Controlled Substances Con’t

- Should only give 3 days max for acute pain for most non-traumatic, non-surgical pain
- Avoid combinations – short and long acting opioids
- Concerns – may limit opioids for some for whom they may benefit

CDC Prescribing Guidelines (2016)- Published JAMA – March 15, 2016
Safe Prescribing Strategies

- Hardwire office safe prescribing
- Team commitments – patient well-being
- Pain agreements
- Multiple modalities
- Monitoring
- Referrals
- Tapering strategies
Poll Question # 5 – Red Flags

Which red flags confirm opioid abuse / diversion?

A. Early Refill
B. Escalating Dosing
C. Multiple pharmacies used
D. Driving a long distance for the appointment
E. All of the above
F. None of the Above

Identify Potential Red Flags

- Early Refills
- MED > 100 mg / day
- Multiple concurrent prescribers
- Multiple pharmacies
- Combinations (i.e. Opioid, Benzodiazepine, Soma)
- Escalating dosing by provider
- Escalating prescriptions by patient
Additional Potential Red Flags

- Inconsistent UDT results
- Younger age - <45 years old
- Patients driving a long distance for care
- Multiple family members – identical or similar meds
- Drug overdoses
- Buy/ give / sell meds
- Use of THC – even with Marijuana Card

High Dose Opioids

- Dosing > 100 mg Morphine Equivalent
- Dosing per day
- Overdose increases 8 fold
- Annual overdose risk ~ 2% per year
- Specific informed consent
- Close monitoring – UDS, PDMP
- Subspecialty consultation
- Weigh potential benefit / risk ratio

*Opioid Prescriptions for Chronic Pain and Overdose: A Cohort Study*; Annals of Internal Medicine, Kate Dunn, PhD, et al; January 19, 2010 [MED dosing information / risks]
## Morphine Milligram Equivalent (MME) / Morphine Equivalent Dosing (MED)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Brand</th>
<th>Relative Strength</th>
<th>100 mg/d MED Equiv</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morphine</td>
<td>Methadose</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>Norco, Vicodin</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>OxyCodone</td>
<td>1.5</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Roxycodeone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxymorphine</td>
<td>Opana</td>
<td>3</td>
<td>33</td>
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<tr>
<td>Hydromorphine</td>
<td>Dilaudid</td>
<td>4</td>
<td>25</td>
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<tr>
<td>Methadone</td>
<td></td>
<td>4 to 12</td>
<td>10</td>
</tr>
<tr>
<td>Fentanyl (transdermal)</td>
<td>Duragesic</td>
<td>100</td>
<td>42</td>
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</tbody>
</table>

Adapted from Opioid Calculator - Available at [http://agencymeddirectors.wa.gov/mobile.html](http://agencymeddirectors.wa.gov/mobile.html)

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## Poll Question # 6
### Physician Drug Monitoring Program (PDMP)

PDMP review is required in my state?

- A) Yes  
- B) No  
- C) Sometimes  
- D) Unsure
Poll Question #7
MED Calculation Challenge

Calculate the MME / MED (mg/day)

- **Oxycodone 30 mg – 4 times/day**
- **Hydrocodone-Acet 10/325 mg – 4 times/day**

- A) 180 mg/day
- B) 220 mg/day
- C) 240 mg/day
- D) 260 mg/day

Physician Drug Monitoring Program (PDMP)

• Information includes:
  • Date
  • Physician prescriber
  • Drug, strength, dosage, quantity, refills
  • Pharmacy
  • Patient address
  • Payer type
How to Say “NO”

- Doctor – Patient therapeutic relationship
- Risks – Benefits
- Alternatives
- It’s worth the time and effort

Opioids Are Ineffective For ...

- Fibromyalgia
- Headaches
- TMJ
- Many chronic pain syndromes
Special Circumstances & Topics

• Naloxone – High risk patients
• Patients with substance use disorder
• Response to potential aberrant behavior
• Renal, liver, lung co-morbidities
• Dangerous drug combinations
• Tapering strategies

Benzodiazepine and Opiate Tapers

• Taper at the appropriate speed
• Negotiate with patient: what rate are they willing and able to tolerate; 5%-10% per week can be preferable
• Successful tapers are similar to healthy weight loss strategies; any abrupt physiologic change forced too quickly on the body will likely result in failure due to body’s ability and evolutionary drive to sustain homeostasis
• Real, sustained change takes ongoing effort and gradual reductions over time
Practice Recommendations

- Thorough evaluation prior to prescribing – Document well
- Individualize treatment – Function > Pain Improvement – Multi-modal tx
- Avoid opioid and benzodiazepine combination
- Document MME, UDS, PDMP

[***All Above Expert Consensus***]

Improving Patient Safety and Outcomes
References

• Centers for Disease Control and Prevention (CDC) – Guideline for Prescribing Opioids for Chronic Pain, 2016 - https://www.cdc.gov/drugoverdose/prescribing/guideline.html
• Opioid Prescribing for Chronic Pain; AAFP Clinical Practice Guidelines, April 2016
• Medical Board of California Guidelines for Prescribing Controlled Substances for Pain: 2007, and 2014
• Washington State Agency Medical Directors’ Group – in conjunction with the Interagency Guideline on Opioid Dosing for Non-cancer Pain

• World Health Organization – Guidelines for Pain Management
• American Pain Society – Guidelines for Pain Management
• American Academy of Pain Medicine Pain Management Guidelines
• Drug Enforcement Administration
• Centers for Disease Control - Overdose and Overdose death statistics
• “Opioid Prescriptions for Chronic Pain and Overdose: A Cohort Study”; Annals of Internal Medicine, Kate Dunn, PhD, et al; January 19, 2010 [MED dosing information / risks]
Physician Guide to Appropriate Opioid Prescribing for Noncancer Pain  
(Dr. Tim Munzing SCPMG)  
May 1, 2017
Opioid Prescribing Review

• “Physician Guide to Appropriate Opioid Prescribing for Noncancer Pain”, The Permanente Journal
  • Author – Timothy Munzing, MD
  • https://doi.org/10.7812/TPP/16-169

Tim Munzing, M.D.

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  • Medical Board of California
  • DEA, FBI
  • Multiple other law enforcement agencies
Associated Sessions

- (PBL) Chronic Pain Management: Taming the Opioid Dragon

Questions
Fibromyalgia

Suraj Achar, MD, FAAFP

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Suraj Achar, MD, FAAFP

Professor, Department of Family Medicine and Public Health, Department of Orthopaedics, University of California, San Diego (UCSD); Professor, Department of Orthopedics, Rady Children’s Hospital, San Diego, California; Team Physician, UCSD Varsity Teams, San Diego Sockers, United States Olympic Training Center

Dr. Achar earned his medical degree from State University of New York (SUNY) Buffalo School of Medicine and Biomedical Sciences. He completed his residency and fellowship at the University of California, San Diego (UCSD). He is board-certified in family medicine and sports medicine, practicing at UCSD and Rady Children’s Hospital. His specialty topics include pediatric sports medicine and the legal aspects of medicine. At UCSD, Dr. Achar cares for a wide variety of patients, including professional and Olympic athletes. He is the editor of The 5-Minute Sports Medicine Consult and is consistently named a top doctor by the San Diego County Medical Society.
Learning Objectives

1. Use validated criteria, symptom scores, and presence of chronic widespread pain with fatigue and sleep symptoms for diagnosis of fibromyalgia syndrome.

2. Evaluate patients with diagnosed fibromyalgia for comorbid conditions and treat or refer accordingly.

3. Follow an evidence-based, algorithm based on appropriate guidelines, for the pharmacologic management of chronic pain, including fibromyalgia.

4. Develop collaborative treatment to avoid opioids for fibromyalgia, taper off/refer opioid legacy patients, and use opioids appropriately for acute pain incidents.

Audience Engagement System
Controversial!

- Pts look well
  - Miss Pennsylvania 2001 (fibromyalgia aware)
- NL Vital signs $ PE nl except TTP
- Laboratory and radiologic studies are nl
- Organic vs Psychosomatic?
- Research → disorder of pain regulation form of CSS

History

- Defined first in France late 20th Century (Fibrositis)
- Discussed in Medical Literature 17th century
- Ancient Hx: Referenced in book of Job
- Now accepted
  - WHO
  - AMA
  - NIH
Fibromyalgia=CSS (new lat., fibro-, fibrous tissue, Gk. myo-, muscle, Gk. algos-, pain)

- Is the name correct?
  - **Muscle Disease?** Φ pathologic or biochemical abnormality in muscle
  - Muscle pathology is secondary to pain and inactivity rather than primary in nature

Central Sensitivity Syndromes (CSS)

Dysregulation spectrum
Triad

- Pain
- Fatigue
- Sleep disturbance

Other common symptoms

- Cognitive
- Psychiatric
- Headache
- Paresthesia's
- Other symptoms and disorders
  - IBS, IC, Pelvic pain
Cognitive Disturbance: Majority “fibrofog”

Attention and difficulty doing tasks that require rapid thought changes.

Subjective cognitive deficits >> than changes on objective measures, either by brain imaging or validated instruments.

A meta-analysis of 23 case-control studies found significant cognitive impairment in FM patients compared with healthy controls that were explained in part by levels of pain and depression.

Large effect sizes were found in learning/memory and attention/psychomotor speed ($g = 0.94, p < 0.01; g = 1.22, p < 0.01$, respectively).

Medium effect sizes were reported in executive function and working memory ($g = 0.72, p < 0.001; g = 0.75, p < 0.001$, respectively).

Depression and anxiety scores were associated with the effect size of group differences in cognitive function ($p < 0.001$, 95% CI = 0.01-0.02).


Psychiatric symptoms

Depression and/or anxiety are present in 30 to 50%

RF’s—Younger, unmarried, food insecurity, # of chronic conditions, limitations in activity

In a Canadian general population sample of 127,000 (3x likelihood of depression)

2/5 with depression had not discussed with health provider in the previous year

Anxiety disorders, bipolar disorder, post traumatic stress disorder, and traits such as catastrophizing and alexithymia are more common

Paresthesia

Numbness, tingling, burning, or creeping/crawling sensations, especially in BL arms & legs

Detailed neurologic evaluation or formal electrophysiologic testing is usually unremarkable

Overview

• Prevalence/Genetics?
  • 3.4% women vs 0.5% men⁴
    • Europe > USA > China
  • Most common cause of generalized MSK pain in women 20-55
    • 40% of all pts referred to a Pain clinic
    • 15% Rheumatology clinics
    • 8% family medicine patients

Pathophysiology

- **Flouroquinolone Link?**
- **Neuroendocrine Axis?**
  - Sleep encephalogram-abnormalities in deep sleep → Pain
  - Low HGH/IGF at night

**Research Findings**

- Elevated substance P in CSF
- Low serum Cortisol, serotonin in CNS
- Dopamine
- Skin biopsies → small fiber neuropathy

**Misc**

- Allergic reaction: Fluoroquinolone toxicity (FQAD)
  - 1.63 (95% CI: 1.41-1.87)
- Lyme disease
- Emotional or physical trauma

Pathophysiology?

- A single event “causes” FM?.
- Rather, many physical and/or emotional stressors may trigger or aggravate symptoms
  - Allergic reaction: Fluoroquinolone toxicity (FQAD)
    - 1.63 (95% CI: 1.41-1.87)
  - Lyme disease
  - Emotional or physical trauma

Genetics?

• 1° relatives of patients with FM
  • 8.5 times more likely
  • Familial aggregation of lowered thresholds for pressure-induced pain
• No candidate Gene so far?

---

### Characteristic features and diagnostic evaluation for fibromyalgia

<table>
<thead>
<tr>
<th>History</th>
<th>PE</th>
<th>Labs NL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widespread pain</td>
<td>TTP multiple sites</td>
<td>CRP/ESR</td>
</tr>
<tr>
<td>&gt;3 month</td>
<td>Absence of joint swelling, redness or passive loss of motion</td>
<td>CBC</td>
</tr>
<tr>
<td>Fatigue, sleep disturbance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other symptoms</td>
<td>cognitive disturbances, headaches, bowel irritability</td>
<td></td>
</tr>
</tbody>
</table>
History of Dx

- 1st: ACR 11/18 TTP
- ACR 2010 (WPI/SSS)
- DX
  - ~15 physicians ~ 5 years
  - > 50% of cases are misdiagnosed
  - unnecessary surgery or costly Rx without benefit
  - Most patients “nothing is medically wrong” → imaginary.

Diagnosis: (ACR) in 1990

- Widespread pain in all four quadrants of the body
- Duration ≥ 3 months

- TTP > 11 of the 18 specified tender points (only consistent PE finding)
  - 4 sec → 4 kg of force (blanch thumbnail)
Problems with tender point examinations

- Only ~ 85% S/S (other rheumatic diseases?)
- Not intended for use in clinical practice.
- Focused on specific TP locations despite the evidence that FM is a central pain disorder.
- Impossible to standardize & not performed, even by rheumatologists.
- Neglected multiple somatic symptoms of FM.

2010 ACR preliminary diagnostic criteria

New Dx instruments

**WPI**
Measure of the # of painful body regions from a defined list of 19 areas.

**SSS**
Estimate of fatigue, waking unrefreshed, & cognitive symptoms, and the # of somatic symptoms in general.

**ACR 2011 modification:**
Self administered

- 1990 → 2010, or the 2011 modified FM criteria ↑ estimates of the prevalence by fourfold
- 1990, 2010 ~ 1.5% → 2011 = 5.4%

Modified criteria identified >men & more influenced by somatic symptoms than by pain

WPI: Check each area you have felt pain in over the past week

<table>
<thead>
<tr>
<th>L, R</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder Girdle</td>
<td>Chest</td>
</tr>
<tr>
<td>Lower arm</td>
<td>Abdomen</td>
</tr>
<tr>
<td>Hip (buttock)</td>
<td>Neck</td>
</tr>
<tr>
<td>Upper leg</td>
<td>Upper back</td>
</tr>
<tr>
<td>Lower leg</td>
<td>Lower back</td>
</tr>
<tr>
<td>Jaw</td>
<td>None of these areas</td>
</tr>
</tbody>
</table>

Symptom Severity Score (Part 2a)

Fatigue
0. No problems
1. Mild: It comes and goes.
2. Moderate: You usually have or feel it.
3. Severe: It seriously affects your daily life.

Waking unrefreshed (still tired)
0. No problems
1. Mild: It comes and goes.
2. Moderate: You usually have or feel it.
3. Severe: It seriously affects your daily life.

Thinking problems/cognitive symptoms
0. No problems
1. Mild: It comes and goes.
2. Moderate: You usually have or feel it.
3. Severe: It seriously affects your daily life.
## Symptom Severity Score (Part 2b)

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>WPI/SSS</th>
<th>Severity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle pain</td>
<td>Nervousness</td>
<td>Loss/change in taste</td>
</tr>
<tr>
<td>IBS</td>
<td>Chest pain</td>
<td>Seizures</td>
</tr>
<tr>
<td>Fatigue/tiredness</td>
<td>Blurred vision</td>
<td>Dry eyes</td>
</tr>
<tr>
<td>Thinking or remembering problems</td>
<td>Fever</td>
<td>Shortness of breath</td>
</tr>
<tr>
<td>Muscle weakness</td>
<td>Diarrhea</td>
<td>Loss of appetite</td>
</tr>
<tr>
<td>Headache</td>
<td>Dry mouth</td>
<td>Rash</td>
</tr>
<tr>
<td>Pain/cramps in abdomen</td>
<td>Itching</td>
<td>Sun sensitivity</td>
</tr>
<tr>
<td>Numbness/tingling</td>
<td>Wheezing</td>
<td>Hearing difficulties</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Raynaud's</td>
<td>Easy bruising</td>
</tr>
<tr>
<td>Insomnia</td>
<td>Hives/welts</td>
<td>Hair loss</td>
</tr>
<tr>
<td>Depression</td>
<td>Ringing in ears</td>
<td>Frequent urinations</td>
</tr>
<tr>
<td>Constipation</td>
<td>Vomiting</td>
<td>Painful urination</td>
</tr>
<tr>
<td>Pain in upper abdomen</td>
<td>Heartburn</td>
<td>Bladder spasms</td>
</tr>
<tr>
<td>Nausea</td>
<td>Oral ulcers</td>
<td></td>
</tr>
</tbody>
</table>

### Scoring WPI/SSS

- WPI 0-19
- SSS 2a 0-9
- SSS 2b
  - 0 = 0
  - 1-10 = 1
  - 11-24 = 2
  - >24 = 3
- SSS = 2a + 2b

### + Fibromyalgia

- 1a: WI ≥7 and SS ≥5
- 1b WPI 3-6 & SSS ≥ 9
- Duration > 3 months
- No other disorder explains the pain
Poll Question 1

What labs should be ordered initially?

A. CRP/ESR, CBC
B. TSH and Cortisol
C. CBC, RF & ANA
D. Vitamin D level

Potential tests to consider?
(controversial not cost effective)

- TSH
- 25-Hydroxy vitamin D level: Low levels can cause muscle pain and tenderness.
- Vitamin B-12 level: Very low levels can cause pain and fatigue?
- Iron studies
  - Iron deficiency is common. May cause or worsen fatigue, poor sleep, and depressive symptoms.
  - RLS $\rightarrow$ > 20% transferrin saturation Ferritin $> 50$ ng/mL.
- Magnesium: Low levels $\rightarrow$ muscle spasms $> 2$ mEq/L
Other self report questionnaires

- Modified Health Assessment Questionnaire
- Fibromyalgia Impact Questionnaire
- Checklist of current symptoms
- Scales for helplessness and cognitive performance
- The Physician Health Questionnaire–9 for depression
- The Generalized Anxiety Disorder–7 questionnaire for anxiety
- The Mood Disorder Questionnaire to screen for bipolar disease

Goals: Reduce symptoms

- Chronic widespread pain
- Fatigue
- Insomnia
- Cognitive dysfunction
Poll Question 2

Which should you recommend first?

A. Herbal supplements
B. Weight lifting
C. Running 3 miles, 5 days a week
D. Acupuncture
E. Walking around the block
Prescribed exercise in people with fibromyalgia: parallel group randomized controlled trial

• Selwyn C M Richards and David L Scott
  BMJ 2002; 325: 185

• Exercise type:
  • Treadmill and cycle ergometry

• Exercise duration
  • 6 minutes x 2 class/week
  • 25 minutes x 2 class/week

• Intensity
  • sweat while able to talk comfortably

Results: Intention to treat
Exercise group vs. relaxation group

<table>
<thead>
<tr>
<th>Improvement at 3 months</th>
<th>35% vs 18%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year follow up:</td>
<td>(% who fulfill criteria for fibromyalgia)</td>
</tr>
<tr>
<td></td>
<td>31/69 v 44/67</td>
</tr>
<tr>
<td>Reductions in tender point counts</td>
<td>4.2 v 2.0</td>
</tr>
<tr>
<td>Scores: fibromyalgia impact questionnaire</td>
<td>4.0 v 0.6</td>
</tr>
</tbody>
</table>
2017 update on exercise

Cochrane systematic review found moderate-quality evidence that aerobic exercise improves health-related quality of life and low-quality evidence that aerobic exercise decreases pain and improves physical function.

European League Against Rheumatism (EULAR) report found that the only "strong" therapy recommendation was exercise.


Strength and flexibility?

Evidence of benefit from strength training in some small trials:
- reduced pain severity with comparable results to those of an aerobic exercise program
- improved exhaustion in fibromyalgia subjects
- A systematic review found that water exercises and swimming lessened pain and improved function in patients with fibromyalgia

Tai Chi

  - 66 pts, 1 hour BIW
  - Control: wellness education & stretching
  - FIQ scores: baseline/12weeks
    - 63/35 vs 68/59

Poll Question 3

Which of the following is not FDA approved for Fibromyalgia?

A. Amitriptyline
B. Duloxetine
C. Pregabalin
D. Minacirpan
Poll Question 4

Which of the following is true?

A. The majority of patients experience a substantial improvement with the FDA approved antidepressants (amitriptyline, duloxetine and milnacipran)
B. Systematic reviews and meta-analyses conclude that low dose amitriptyline should be the first agent used in FM
C. Evidence suggests that the best dose of cyclobenzaprine should be 1-4mg
D. Pregabalin may be preferred in patients with depression


A randomized, double-blind crossover trial of fluoxetine and amitriptyline in the treatment of fibromyalgia.

- Fluoxetine 20mg/day & amitriptyline 25mg/day
  - 30% improvement alone
  - 50% improvement together

- Julius Axelrod → Nobel
- Are You Ready to be Happy?
  No matter what things in life upset you, there is a Prozac-Pez Dispenser for you
Polypharmacy are there risks?

- JAMA 1997
  - 36 y/o man
  - Recurrent major depression
- Rx: Amitryptyline 150mg/day & Fluoxetine 40mg/day
- What happened?
  - Cytochrome P450 enzyme CYP2D6

Combination therapy?

- SSRI/SNRI am + TCA pm
- SNRI (duloxetine) am with anticonvulsant (pregabalin) pm
- > compliance combination therapy or monotherapy?

Dual reuptake inhibitors

<table>
<thead>
<tr>
<th>Medication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duloxetine, Minacipran</td>
<td>Similar efficacy as pregabalin</td>
</tr>
<tr>
<td>Venlafaxine</td>
<td>(limited data???)</td>
</tr>
</tbody>
</table>
| Duloxetine | Pts not tolerant to amitriptyline
| | ↓pain by 30%
| | 60mg -120mg/day
| | 6month data
| | Benefit noted in 1st three months
| | Continues >1 year
| | SE: nausea, headache, dry mouth |

**Poll Question 5**

Should we ever use traditional opioids to treat pain from Fibromyalgia?

A. Yes  
B. No
Oxycodone for neuropathic pain and fibromyalgia in adults
Cochrane Database Syst Rev. 2014

- RCT’s (double blind), Intention to treat, >200 participants
- NNH= 4.3
- No convincing, unbiased evidence suggests that oxycodone (as oxycodone CR) is of value
  - diabetic neuropathy
  - postherpetic neuralgia
  - other neuropathic pain conditions
  - Fibromyalgia
- Department of Clinical Geratology, Oxford University Hospitals NHS Trust
- AAN: 2014 position paper: COAT therapy risks> benefits

Tramadol

- Pharmacology
  - monoaminergic vs opioid?
- The development of tolerance and dependence
  - Uncommon
  - Abuse liability?
  - NNTs of 3.4 (95% CI, 2.3 to 6.4).
- Schedule?
- August 18th 2014
- Dosing
  - 25-400mg/day
- SE:
  - seizures?
  - Pts with addiction
CBT

- Address maladaptive thoughts
- Stress reduction
- Catastrophizing/helplessness
- Balance meaningful work and leisure

Acupuncture?

- A 2013 systematic review and meta-analysis
  - 395 patients/0 randomized trials
  - Improvement in pain and stiffness
  - Sham Rx works as well in pain, fatigue, sleep, or global well-being
  - Electro > regular
Injection therapies and other modalities?

Brain Neuromodulation

- Positive results
  - Transcranial direct current stimulation (tDCS)
  - Transcranial magnetic stimulation (TMS)
- Mixed results
  - Occipital and C2 nerve stimulation
  - Transcutaneous electrical nerve stimulation (TENS)

Pharmacologic Rx with Limited/Mixed Data

- Naltrexone: Pilot data → satisfaction & mood, no improvement with sleep/fatigue
- Memantine – Improved pain & pain thresholds (NMDA) receptor antagonist available for Rx dementia dementia.
- Pramipexole: Improved pain however studied on opioids?
- Quetiapine – (Seroquel) dual diagnoses of both fibromyalgia and major depressive disorder
- GH: 1 small RCT → improved with low IGF Expense is prohibitive
- Canabinoids: Systematic review of Nabilone no better than placebo?
- Creatinine: Muscle strength no other improvement
- Vit D: Improved mood, pain and quality of life scores

Rx in Children

- Pharmacotherapy is generally not indicated or recommended.
- Psychotherapy, exercise, relaxation techniques, and education
- 12 week RCT
  - Exercise
  - Qigong
Complications of fibromyalgia

- Extreme allodynia with high levels of distress
- Opioid or alcohol dependence
- Marked functional impairment
- Severe depression and anxiety
- Obesity and physical deconditioning
- Metabolic syndrome

Prognosis?

- 10 outpatient visits/year & 1 hospitalization q 3 years.
- Pain & disability → Metabolic syndrome
- 15-44% disability
- 1/3 modify work to keep job
- 10 x suicide, 6x cirrhosis, 3x CVD

Practice Recommendations

- Use WPI and SSS to evaluate and monitor
- 1st line and strongest Rx = exercise → monitor with technology
- Avoid opioids & benzodiazepines
- Low dose amitriptyline 10mg to 25mg may be a good first choice

Summary

- Common: Dx WPI/SSS self report
- Pathophysiology--> Dysregulation
- Significant effects
  - QOL
  - Disability
  - Co-morbidities
Summary: sachar@ucsd.edu

Best management
- SE’s
- Exercise
- HEP → PT
- Medications
  - Avoid Opioids
  - TCA/SNRI/Anticonvulsants
  - CBT!
- Alternative Rx
  - (Tai Chi/Yoga)
  - Accupuncture
  - Neuromodulation

Pt education

- Arthritis Foundation
- MedlinePlus Health → US National Library of Medicine
- American College of Rheumatology
- National Fibromyalgia & Chronic Pain Association
- The American Fibromyalgia Syndrome Association
- FamilyDoctor.org: AAFP
  - “Be sure to take all medicines according to your doctor’s instructions”
Questions
Primary Care for Primary Headaches

D. Michael Ready, MD, FAHS

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The following individual(s) in a position to control content for this session have disclosed the following relevant financial relationships

Duren "Michael" Ready, MD
- Consultant or Advisory Board: Alder, Amgen, Allergan, and Springer (Headache).
- Honorarium: Alder, Amgen, Allergan, and Springer (Headache)
- Speakers' Bureaus: Amgen, Teva, and Lilly (Headache)

All other individuals in a position to control content for this session have indicated they have no relevant financial relationships to disclose.

The content of my material/presentation in this CME activity will include discussion of unapproved or investigational uses of products or devices as indicated: As many headache therapies are off label I will be discussing unlabeled uses of products.

D. Michael Ready, MD

Program Director, Central Texas Headache Fellowship at Scott & White/Senior Staff Physician, Headache Clinic, Baylor Scott & White Health, Temple, Texas

Dr. Ready earned his medical degree from Texas Tech University Health Science Center in Lubbock and completed his family medicine residency at the Brazos Valley Family Medicine Residency Program in Bryan, Texas. He is one of the first family physicians to be certified in headache medicine by the United Council of Neurologic Subspecialties (UCNS). In 2014, he was awarded the National Headache Foundation Lectureship Award. He has authored many articles and book chapters on headache topics, and his first book, Discussing Migraine With Your Patients: A Common Sense Guide for Clinicians, was published in 2017 by Springer. Dr. Ready is a fellow of the American Headache Society. In 2019, Dr. Ready, his wife, and son completed the Dopey Challenge at Walt Disney World.
Learning Objectives

1. Utilize evidence-based strategies to diagnose patients presenting with headache.
2. Evaluate novel therapies for the prevention of migraines.
3. Utilize comprehensive practice guidelines to reduce inappropriate neuroimaging.
4. Identify associated conditions (e.g., depression), and red flags for potentially life-threatening causes of headache.
5. Develop collaborative management plans, emphasizing patient education on avoiding triggers that cause headache, and adherence to prescribed treatment therapies.

Audience Engagement System

Step 1

Step 2

Step 3
AES Question 1

Migraine may be most clearly differentiated from Cluster Headache by which of the following?
A. Non-Specific White Matter Lesions on MRI
B. Migraine by definition is Unilateral. Cluster is often bilalteral
C. Cluster Headaches are shorter duration than Migraine
D. Cluster Headaches and not Migraine have Autonomics signs.

AES Question 2

What should guide decision making for Imaging choices in Headache?
A. Headache intensity
B. Headache duration
C. Family history of Cerebral Aneurysm
D. What Secondary Headache disorder is suspected
AES Question 3

The Acute Treatment of Migraine includes all of the following except?

A. Treating at mild pain.
B. Including Triptans to treat every Migraine
C. Basing route of administration on Migraine Severity
D. Poor Acute Migraine Treatment is a risk factor for Migraine progression.

AES Question 4

How comfortable am I offering in – clinic acute migraine treatment (rescue) for my established Migraine patients with their typical migraine?

A. Very Comfortable
B. Comfortable
C. Uncomfortable
D. Very Uncomfortable
E. I’m not sure
Brain Basics

• Wired for Action not thought
  • If you have to think about running away from the tiger you are already lunch
  • Can’t think when it’s acting
• The Brain doesn’t like distress
  • When distressed, the Brain wants to distract
• Will focus on Pain above all else
  • Only understands pain as a threat to survival
  • Doesn’t distinguish among pain types
  • This focus reinforces pain as “What you pay attention to grows”

Limbic Influences in Pain
All Pain has meaning

The Sorrow that hath no vent in tears may make organs weep
Henry Maudsley

(When) the mind is hurt the body cries out
Italian Proverb

The body remembers what the mind forgets
J.L. Moreno
Not All Pain is Nociceptive

San Francisco Spine study 1992

Five childhood traumas: loss of parent, emotional neglect, substance abuse, physical abuse, sexual abuse

No risk factors = 95% chance surgical cure
1-2 risk factors = 73% chance surgical cure
3 or more risk factors = 15% chance of a surgical cure

Increased incidence of Chronic Migraine in victims of Sexual Abuse.

First things First
Primary or Secondary Headache

**Primary** – nervous system you are born with or acquire (trauma)
& the environment you are in
Migraine, Cluster, Tension Type

**Secondary** – headaches that are caused by something else
Infection, Mass, Vascular, Trauma
SNOOP4
Ruling Out Secondary Headaches

Systemic symptoms and signs
Neurologic symptoms or signs
Onset: peak at onset or <1 minute
Older: after age 50 years
Previous headache: pattern change
Postural, positional aggravation
Precipitated by Valsalva, exertion, etc.
Papilledema

When & How to Image: ACR Guidelines

<table>
<thead>
<tr>
<th>Clinical Features /Red Flags that may indicate need for imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache associate with trauma</td>
</tr>
<tr>
<td>New, worse, or abrupt onset or headache</td>
</tr>
<tr>
<td>Thunderclap (sudden onset of severe headache)</td>
</tr>
<tr>
<td>Pain radiating to the neck</td>
</tr>
<tr>
<td>Pain due to trigeminal autonomic cephalgia</td>
</tr>
<tr>
<td>Persistent and positional pain</td>
</tr>
<tr>
<td>Temporal pain in older individuals</td>
</tr>
</tbody>
</table>

IIH: Idiopathic Intracranial Hypertension
RCVS: Reversible Cerebral Vasoconstriction Syndrome
### When & How to Image ACR Guidelines

<table>
<thead>
<tr>
<th>Suspected Condition</th>
<th>Imaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunocompromised</td>
<td>MRI /c &amp; /s Contrast</td>
</tr>
<tr>
<td>HA onset / Change in pts ≥ 60yoa</td>
<td>MRI /c &amp; /s Contrast</td>
</tr>
<tr>
<td>Meningitis</td>
<td>CT / MRI /s Contrast</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>CT / MRI /s contrast</td>
</tr>
<tr>
<td>Unilateral HA 2’ Arterial Dissection</td>
<td>MRI /c &amp; /s Contrast or MRA or CTA Head &amp; Neck</td>
</tr>
<tr>
<td>Sudden Onset / Thunderclap HA</td>
<td>CT /s Contrast or CTA /C Contrast or MRI /c &amp; /s Contrast</td>
</tr>
</tbody>
</table>

Remember a Radiologist is talking
Non specific White Matter Lesions – Freckles on a Red Head

### Consider imaging patients who are…

- Pregnant
- Immunocompromised
- Cancer
- Papilledema
- Systemic illnesses (including hypercoagulable disorders)
- Headache associated with Cough, Exertions or Sex
- Structural etiology: Inferior occiput HA, rhinogenic, odontogenic or maxillofacial origin
Primary Headaches in Primary Care

Tension Type Headache
Cluster Headache
Migraine

Cluster Headache – The Challenge

Principal problem is mean time to dx & use of alternative and complementary medicine
Mean time to correct diagnosis in the 1960's been > 20yr
In Europe mean time 1st presentation to dx 4.9 - 5.3 years
US Cluster HA Survey 42% required 5 years to receive correct dx
55% suicidal thoughts, 2% reported suicide attempt
Cluster Headache

One of the most painful conditions Humans can experience
Most pain behind the eye. May radiate to the ipsilateral temple, jaw, upper teeth, neck
Described as boring/stabbing (hot poker in the eye)
Attack lasts between 15 - 180 minutes
During cycles attacks range from QOD – 8X/day
Typically recur same time each day
Often awaken from sleep (≈ 2hours after falling asleep)

Cluster Headache - Treatment

Most treatment “off-label”

Acute sq Sumatriptan & sq DHE are FDA approved
Recently external Vagal Nerve stimulator FDA cleared -- $$$$

Galcanezumab-gnlm 300mg sq monthly for prevention

Acute therapies must work quickly and consistently (bypass gut)
Cluster Headache – Acute Treatment

O₂ 10-15 LPM via non rebreather mask – 1st line therapy (not Medicare approved)
Breathe normally while seated & leaning forward (in some pts may delay & not abort attack)
Sumatriptan 3-6 mg SQ (12mg/day limit), 20mg IN
Zolmitriptan NS
DHE ½ - 1mg SQ/ IM/ IN
External Vagal Nerve Stimulator approved for Acute CH

Cluster Headache – Bridge Therapies

Short-term treatment to suppress attacks until preventive meds start working
Start with preventive (Steroids AND Verapamil)
Steroids Burst therapy (5 – 7 days) or taper over 2 weeks
  • Prednisone 60-80mg X 5-7 days
  • If taper reduce by 10mg Q 2 days following 5- 7-day course
  • “Dose Pack” likely to be ineffective as dose is too low
May use Ipsilateral Occipital Nerve Block with triamcinolone (40mg) or methylprednisolone (40mg) + local anesthetic of choice
Cluster Headache: Verapamil

Verapamil 360mg/d only PCDB prophylactic treatment

Start 40-80mg TID ↑ 80mg Q wk til 120mg TID. May require 480mg/d.
Some up to 720mg/d. My max dose was 1080mg/d

Treating Cluster not BP – balance cardiac safety & fast attack relief
• In 29 CH pts 877mg (+/- 227mg)
• 38% (11/29) had EKG changes
• 7 pts had clinically “not relevant” bradycardia
• 14% (4/29) had serious arrhythmia (R BBB, complete heart block with junctional rhythms)
• ECG changes associated /c higher verapamil dose (1003mg +/- 295mg) vs. normal ECG 800mg +/- 143mg/d.

Cluster Headache – Verapamil Pearls

Use IR formulation Start BID then TID

For a recurrent ECH episode
  May initiate the maximum efficacious Verapamil dose at the beginning as long as the baseline ECG is WNL

Patients on verapamil should be cautious with grapefruit.
Migraine: more than a Headache

Tension Type HA & Migraine 2nd & 3rd most prevalent medical disorder worldwide
Migraine accounts 30% of global burden of disability & 50% of all Neuro disability
4th leading cause of disability in women & 7th overall
Lancet 2012

Why Migraine?
Why Should I Care?

6% ♂, 18% ♀, 33-37% reproductive ♀, 4% CDH
Returning armed forces 38% ♂, 58% ♀, 20% CDH
Most common 25 – 55yr (most productive years)
Why Should I Care?

Battle of the Migraine Screens

P.O.U.N.D.
- Pulsatile quality
- One day duration (4 – 72hrs)
- Unilateral location
- Nausea or vomiting
- Disabling intensity

ID Migraine
- Has a HA limited your activities for a day or more in the last three months?
- Are you nauseated or sick to your stomach when you have a HA?
- Does light bother you when you have a HA?

Disability + nausea = IHS migraine = 80%
Disability + 2 of 3 associated symptoms (Nausea, photo, or phonophobia) = IHS migraine = 95%

Movement* -- LOE -- SIMU

CC: Headache -- Its Migraine

Patients seen in primary care
IHS diagnosis based on diary review

- **Migraine-type**: 94%
- **Episodic Tension-type**: 3%
- **Unclassifiable**: 3%

N = 377


---

Staging Migraine

Developed by Lipton, Cady, Farmer, & Bigal

1\textsuperscript{st} doctor/patient book

Based on Migraine frequency not severity

www.managingmigraine.org
# Migraine Stages

<table>
<thead>
<tr>
<th>Stage 1 – Infrequent Episodic ≤ 1 Migraine/month</th>
<th>Education plus effective acute treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 2 – Frequent Episodic 2 - 6 headache days/month</td>
<td>Education plus effective acute treatment with back up; medications limits; preventive measures</td>
</tr>
<tr>
<td>Stage 3 – Transforming Migraine 7 - 14 headache days/month</td>
<td>Education; preventive pharmacology; acute pharmacology with back up &amp; rescue; behavioral interventions</td>
</tr>
<tr>
<td>Stage 4 – Chronic Migraine - ≥ 15 headache days/month</td>
<td>Education; preventive pharmacology; judicious acute pharmacology with back up and rescue; behavioral interventions</td>
</tr>
</tbody>
</table>

## Migraine Frequency

![Bar chart showing Migraine Frequency](chart.png)

### Headache, days/month

<table>
<thead>
<tr>
<th>Headache, days/month</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>22.5%</td>
</tr>
<tr>
<td>2-3</td>
<td>39.3%</td>
</tr>
<tr>
<td>4-6</td>
<td>14.0%</td>
</tr>
<tr>
<td>7-9</td>
<td>8.4%</td>
</tr>
<tr>
<td>10-11</td>
<td>3.9%</td>
</tr>
<tr>
<td>12-14</td>
<td>1.5%</td>
</tr>
<tr>
<td>15-18</td>
<td>1.8%</td>
</tr>
<tr>
<td>19-21</td>
<td>1.4%</td>
</tr>
<tr>
<td>22-24</td>
<td>0.6%</td>
</tr>
<tr>
<td>25-27</td>
<td>0.7%</td>
</tr>
<tr>
<td>28-31</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

2.5% progress per year

26% revert / 2 years

Headache Treatments

**Preventive** – reduce frequency, intensity and improve response to acute meds

**Abortive** – pain freedom in 2 hours

**Rescue** – when the stop medicine didn’t

Risk Factors for Progression

<table>
<thead>
<tr>
<th>Modifiable</th>
<th>Not Modifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Attack frequency</td>
<td></td>
</tr>
<tr>
<td>• Poorly treated acute HA</td>
<td></td>
</tr>
<tr>
<td>• Obesity</td>
<td></td>
</tr>
<tr>
<td>• Snoring/OSA</td>
<td></td>
</tr>
<tr>
<td>• Stressful life events</td>
<td></td>
</tr>
<tr>
<td>• Medication overuse</td>
<td></td>
</tr>
<tr>
<td>• Caffeine overuse</td>
<td></td>
</tr>
<tr>
<td>• Age</td>
<td></td>
</tr>
<tr>
<td>• Female sex</td>
<td></td>
</tr>
<tr>
<td>• Low education or SES</td>
<td></td>
</tr>
<tr>
<td>• Genetic factors</td>
<td></td>
</tr>
<tr>
<td>• Head injury</td>
<td></td>
</tr>
</tbody>
</table>

OSA=obstructive sleep apnea
### American Migraine Prevalence & Prevention

**Should Offer**
- ≥6 HA days/month;
- ≥4 HA days /c some impairment;
- ≥3 HA days /c severe impairment / bed rest

**Should Consider**
- 4-5 migraine days/month /c nl fxn
- 2-3 migraine days/month with some impairment;
- 2 migraine days /c severe impairment.

**Not indicated**
- ≤4  HA days & no impairment or 1 HA day/month regardless of impairment

### Migraine Preventive Therapy

**Education**

- [https://www.bontriage.com/](https://www.bontriage.com/)
- Does a HA Hx for you. Written by HA experts.
- [www.Managingmigraine.org](http://www.Managingmigraine.org)
  - Sign up & receive about 10 emails
  - Refers to The Headache Friendly Lifestyle
  - Download free for Kindle Unlimited

The Woman’s Migraine Toolkit – Dawn Marcus
The Woman’s Guide to Managing Migraine– S. Hutchinson
Knock Out Headache - Gary Ruoff
Migraine Prevention Utilization

53% of Migraneurs meet disability and frequency criteria for prevention

<5% of Migraneurs are on preventive therapy


Prevention Saves You Money!

18-month comparison study
Acute vs acute/preventive therapies
  • Office visits ↓ 51%
  • ED visits ↓ 82%
  • CT scans ↓ 75%  MRI scans ↓ 88%
  • Medication costs ↓ $48 - $138/month/patient

AAN/AHS Preventive Recommendations

**Level A**
- Divalproex Sodium
- Sodium valproate
- Topiramate
- Metoprolol
- Propranolol
- Timolol
- Frovatriptan (MRM)

**Level B**
- Amitriptyline
- Venlafaxine
- Atenolol
- Nadolol
- Naratriptan (MRM)
- Zolmitriptan (MRM)

Prevention – Pound of Cure
Start low & go slow

Supplements – Mg++ 500mg, Riboflavin 400mg, CoQ-10 200mg BID, Butterbur (should be PA free - HA docs starting to avoid Butterbur) Melatonin 3 – 5mg

Membrane Stabilizing medications-Valproate, Topiramate, Gabapentin…

Anti-HTN Beta Blockers, ACE, Candesartan 16mg, CCB,

TCA (off label) most data is with amitriptyline – SSRIs not thought to be effective

OnabotuliniumtoxinA -- FDA approved for Chronic Migraine Oct 2010

Enurenumab CGRP ab approved for EM/CM in May 2018

Frenunezumab CGRP ab approved in Sept 2018

Galcanezumab CGRP ab approved in Sept 2018 Migraine June 2019 Cluster
Calcitonin Gene Related Peptide (CGRP) / Migraine

- CGRP levels are increased during migraine
- CGRP infusions can trigger migraine
- CGRP inhibitors block migraine progression
  - Reduces migraine frequency, intensity, duration
- CRRP inhibition allows brain to recover more fully from a migraine event
  - A brain which has not fully recovered from a migraine attack is more reactive. Leaving it more vulnerable for a subsequent attack.

Pain. 2003;106:461–47

CGRP Ab Episodic Migraine Phase 3 Trials

1. Saper et.al. Cephalalgia 2017; 47(1s):377
2. Goadsby et. al., NEJM 2017; 377:2123
3. Dodick et. al., Cephalalgia 2018; 38: 1026
4. Stalffer et al., JAMA Neurol 2018; 75:1080
5. Skljarevski et al., Cephalalgia 2018; 38: 1442
# CGRP Antibodies

<table>
<thead>
<tr>
<th></th>
<th>Erenumab</th>
<th>Galcanezumab</th>
<th>Fremanezumab</th>
<th>Eptinezumab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amgen</td>
<td>Lilly</td>
<td>Teva</td>
<td>Alder</td>
</tr>
<tr>
<td>Pharmacologic Target</td>
<td>CGRP Receptor</td>
<td>CGRP Ligand</td>
<td>CGRP Ligand</td>
<td>CGRP Ligand</td>
</tr>
<tr>
<td>Condition</td>
<td>EM CM</td>
<td>EM CM ECH</td>
<td>EM CM ECH</td>
<td>EM CM</td>
</tr>
<tr>
<td>Dosing</td>
<td>70mg / 140mg</td>
<td>120mg / 240mg</td>
<td>675mg → 225mg X 2</td>
<td>100mg / 300mg</td>
</tr>
<tr>
<td>Notes</td>
<td>EM 140mg 50% ↓ 50% 75% ↓ 22.0% CM 140mg 50% ↓ 41.2% 75% ↓ 21.0%</td>
<td>EM months 1-6 120mg 50% ↓ 20.5 240mg 50% ↓ 19.2 @ month 6 – 50%↓</td>
<td>EM 50% ↓ 40.8</td>
<td>CM 100mg ↓ 57.6% 300mg ↓ 61.4% 75% ↓ 33.1% Shown to ↓ from 1d</td>
</tr>
</tbody>
</table>

---

# Who Should Get CGRP Antibodies

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Consider for Pts /c</td>
<td>Safety concerns are outweighed by the possibility that treatment will be effective.</td>
</tr>
<tr>
<td>Severe disability with lack of benefit from existing alternatives or inability to tolerate existing alternatives</td>
<td>The long duration of action and monthly or quarterly administration obviates the need for daily pills.</td>
</tr>
<tr>
<td>Difficulty adhering to regimens requiring daily medications.</td>
<td>Antibodies offer a low risk of drug interactions.</td>
</tr>
</tbody>
</table>

---

Loder EW, Burch RC. *JAMA Neurology* 2018
## Who Should Get CGRP Antibodies

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid in Pts /c</td>
<td>Infrequent headaches that respond to abortive treatment. These patients are not candidates for prophylaxis, and it is safer to treat headaches individually.</td>
</tr>
<tr>
<td></td>
<td>Existing pregnancy or likelihood of becoming pregnant. The levels of CGRP are lower in women with preeclampsia than normal pregnancy.</td>
</tr>
<tr>
<td></td>
<td>Known cardiovascular disease or high risk of cardiovascular disease. CGRP may have a cardioprotective effect and be a vasodilatory fail-safe mechanism during vasoconstrictive or ischemic emergencies.</td>
</tr>
</tbody>
</table>

Loder EW, Burch RC. JAMA Neurology 2018

## Who Should Get CGRP Antibodies

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise Caution for Pts who are</td>
<td>Doing well on current treatments with acceptable tolerability. The long-term safety risk is not worth taking.</td>
</tr>
<tr>
<td></td>
<td>Members of a group that was excluded from clinical trials. Trial findings have uncertain generalizability.</td>
</tr>
<tr>
<td></td>
<td>Concomitantly, regularly exposed to vasoconstrictive drugs or substances associated with the development of reversible cerebral vasoconstrictive syndrome. Use in the context of prolonged CGRP blockade may be risky</td>
</tr>
</tbody>
</table>

Loder EW, Burch RC. JAMA Neurology 2018
Headache Treatments

**Preventive** – reduce frequency, intensity and improve response to acute meds

**Abortive** – pain freedom in 2 hours

**Rescue** – when the stop medicine didn’t

Abortive Therapy

Goal is pain freedom in 2 hours
Treat at mild pain (prior to central sensitization)
May use polypharmacy
Treating at Mild Pain Improves Outcome

2 Hour Pain Free Response

<table>
<thead>
<tr>
<th>Pain Intensity When HA Treated</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td>58%</td>
<td>35%</td>
<td></td>
</tr>
</tbody>
</table>


Which Oral Therapies?

Non-triptan
- NSAIDS
- Combinations
  - APAP/ASA/caffeine
  - Analgesics
  - Antiemetics

Triptans / Ergotamines

When to consider
- First-line therapy
- Adjunctive therapies

There is no medication that is perfect for all migraine attacks or all circumstances in which treatment is needed.
Choosing Triptans

Early GI Symptoms
Augment with antiemetic
Metoclopramide
Prochlorperazine
Bypass Gut
IN spray or powder
Injectable

Rapid onset of Pain
Fast acting PO Ele/Riza/Zolmi
Bypass gut
IN – Suma liquid/powder
Subcut Suma
Antiemetic PO/PR

Migraine Recurrence
Long Duration Migraine
Polypharmacy
NSAID/Antiemetic
Long ½ life Nara/Frova
Scheduled Dosing

Choosing Triptans
Failure to one doesn’t predict response to other
Use over at least 3 attacks
Limit to 10 days/Month

Triptan Nonresponder
Start Migraine Preventive
Use Max dosage
Alternate triptan/formulation
Polypharmacy

Stratified Care

1st Question: Is this an attack I need to treat?
If Yes, then use the therapy that is most likely to Kill the Headache
…but not overkill.

Mild Disability → Non Steroidals
Moderate Disability → NSAIDs + Neuroleptics
Severe Disability → Triptans & Parenteral
What I do

Soooooo Off-Label & Remember my patients aren’t yours
3 tablets Effervescent ASA + Mg 500mg or
Ibuprofen (liquid gels better) 1000-1200mg + Mg
Naproxen 500mg + Mg
Augment /c Metoclopramide or Prochlorperazine
Tizanidine 2- 4mg – it is sedating so advise appropriately
Triptan – All generic now use them!
  • Generic Sumatriptan ≤$2/pill  GoodRX.com

Headache Treatments

Preventive – reduce frequency, intensity and improve response to acute meds
Abortive – pain freedom in 2 hours
Rescue – when the stop medicine didn’t
Why should I treat Acute Headaches?

Have to keep these people out of the ED

Primary Headaches are not an emergency

Not the best place – too bright, too loud, often ignored

Can’t risk exposure to opiates

More likely to V.O.M.I.T. in ED

No Opiates for Headaches

Major risk factor for Medication Overuse HA

Once established it’s a self fulfilling prophesy

Jakubowsk, et al. 2005  Wolfe Award paper

64%-71% Migraine pts pain-free 1’/p ketorolac iv

Only factor that predicted ketorolac failure: hx of opioid txt in the nonresponders

Rewires the brain to perpetuate the HA state by inhibiting the breakdown of glutamate
Clinical Headache Rescue
Assoc. Neurologist of S. CT AHS Scientific Assembly Poster

Drop in HA Clinic – 9/05 - 8/07 500 pts

Time to Present = 104 hours (8-240h)

VAS pain: Entry 8.5 Discharge 1.5

Txt: IVF (94%), Ketoralac (84%), Suma sq (78%), Prochlorperazine (52%), Metoclopramide (21%), DHE (8%), Mg++ (4%)

Clinical Headache Rescue
UAB experience

200 pts. Randomized Optimal Self Admin or Optimal Self Admin + Optional in-clinic Headache rescue

<table>
<thead>
<tr>
<th>Optimal Self Adm</th>
<th>Clinic Rescue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>423 visits</td>
</tr>
<tr>
<td></td>
<td>33.6K ($80)</td>
</tr>
<tr>
<td>73</td>
<td>ED Visits 27</td>
</tr>
<tr>
<td>147.9K($2027)</td>
<td>ED Direct Cost 45.3K ($1609)</td>
</tr>
<tr>
<td></td>
<td>79% no d/a &gt; 24'</td>
</tr>
</tbody>
</table>
Clinical Headache Rescue
UAB experience

89% very satisfied

<table>
<thead>
<tr>
<th>Drug</th>
<th>#</th>
<th>Drug Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Droperidol 2.75mg</td>
<td>218</td>
<td>3.00</td>
</tr>
<tr>
<td>Diphenhydramine 50mg</td>
<td>201</td>
<td>1.25</td>
</tr>
<tr>
<td>DHE 1mg</td>
<td>167</td>
<td>42</td>
</tr>
<tr>
<td>Prochlorperazine 5-10mg</td>
<td>141</td>
<td>11.5</td>
</tr>
<tr>
<td>Promethazine 50mg</td>
<td>68</td>
<td>4</td>
</tr>
<tr>
<td>Ketoralac 30mg</td>
<td>38</td>
<td>9 + 11 (saline)</td>
</tr>
</tbody>
</table>

Rescue Headache Interventions

IV >> IM >> PO
Sumatriptan 6mg IM/SC
Dihydroergotamine 1mg IM/SC/IV
Ketorolac 30mg IV / 60mg IM
Neuroleptics – Dopamine Antagonists (Droperidol, Metoclopramide, Prochlorperazine)
Steroids
Others – Mg++, Valproic Acid, Diphenhydramine
Procedures – Occipital Nerve Block, Lower Cervical Intramuscular Injections
Lower Cervical Intramuscular Injections

Headache 10/06
417 ED Pts / 1 yr
65% relief in 15m
Repeat injection brought additional relief
Worsened HA in 1%

3mL bupivacaine 0.5%
25g 1.5" / 27g 1.25"
2-3cm lateral to the spinous processes between C6 & C7
AE /CI - Vasovagal, Neck stiffness, usual injection risks
Potpourri

Migraine Sunglasses FL-41 tint only
- Indoor / Outdoor tints available
- May use Flex Spending Account
- $ 100 – 200. Money back guarantee available

Headache Hat $40 on Amazon – really great for patients who cold helps

Timoptic % 1 drop OS/OD
- Eye exam 1st but...
- Not needed is used sub lingual
- Clinical trial underway
- https://clinicaltrials.gov/ct2/show/NCT02630719

Migraine in 4 Sentences or less

It is Neurological
Its is Genetic
It is Highly Disabling
It is infinitely treatable
And it is by far the most fascinating neurological condition you can treat!

Peter Goadsby, MD
Why I Do It

• Add video here

Best Practices Recommendations

If its Headache in your office, its not a tumor, its migraine

Cluster is 1 in a 1000. Being able to recognize is life changing

Let Migraine frequency not intensity direct treatment plan.

Acutely treat migraine at mild pain with the most appropriate intervention that resolves the attack
Best Practices Recommendations

Make opiates and Butalbital containing medications rare for acute headache, best if VERY rare.

Provide interested patients with self administered parental medications for self administered rescue. They'll thank you.

Keep your patients out of the ED. Offer rescue interventions for your established patients with their usual headaches.
Questions