• **Update in Chronic Pain Management**

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Disclosure: Dr. Carter has no financial interest in any of the products or manufacturers mentioned.
What is chronic pain

- According to the International Association for the Study of Pain (IASP) it is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage"
Chronic Pain: Prevalence and Impact

• 35% of Americans have chronic pain
• >50 million Americans are partially or totally disabled by chronic pain
• 50 million lost workdays per year
• $65 to $75 billion per year cost to society in lost productivity and medical costs

(APS, 1999)
Pathogenesis of Chronic Pain

Injury

Pain and inflammation

Injury heals but pain signals continue

Structural CNS changes alter neural transmission

Chronic pain

Hyperalgesia

Allodynia

Spread of pain

(Adapted from Marcus, 2000)
Pain-Sensing System Malfunction in Chronic Pain

Normal pain: Pain-sensing signals are initiated in response to a stimulus
• They elicit a pain-relieving response

Chronic pain: Pain signals are generated for no reason and may be intensified
• Pain-relieving mechanisms may be defective or deactivated

In chronic pain, pain signals are generated without physiologic significance

Chronic Pain Pathophysiology

- The nervous system remolds continuously in response to repeated pain signals
  - Nerves become hypersensitive to pain
  - Nerves become resistant to anti-nociceptive system

- If untreated, pain signals will continue even after injury resolves

- Chronic pain signals become embedded in CNS

(Marcus, 2000)
New Trends in Chronic Pain Management

- Chronic back pain is common reason for adults to seek care
- Evaluation is mainly to rule out serious underlying pathology.
- Watch for red flags.
- Trending away from opioids
Chronic Pain

• Pain and function are key for opioid use
• Use brief validated instruments (doesn’t obviate need/use of condition specific tools)
• Pain interference with function is important - not a direct measure of physical function – 30% improvement in pain/pain interference required for continued use of any medication – including opioids
Chronic Pain

- try to document impact on function as best as possible within limits of practice time/efficiency/reliability

- Patient education is KEY –

- Try and reserve opioids primarily for severe acute pain, e.g. trauma, fractures, post-op; in that setting, use briefly and in lowest effective dose
Treating chronic pain

- Key Point: use opioids only for conditions for which their risk/benefit have been demonstrated or other options exhausted – and monitor efficacy and function closely.
Alternative prescriptions for chronic pain?

- Alternative treatments, particularly programs that take a psycho-physical approach, have a stronger evidence base.
- Opioids generally are deactivating and not activating.
- Reduced prescribing for non-specific back pain would significantly reduce overall prescribing and availability, and thus safety – public health benefit.

*Hill et al. Lancet 2011;378:1560-71*
Chronic back pain and opioids?

- So why do we go on prescribing opioids for chronic non-structural back pain?
- There are better treatments for back pain, with a stronger evidence base, particularly programs that take a psychophysical approach.
- Opioids are deactivating and work against probably the greatest therapeutic benefit in the treatment of non-structural back pain, which is continued activity.
Chronic back pain and opioids?

- Because back pain is common, reduced prescribing for back pain alone would have significant public health benefits.
- Based on the evidence - we should stop prescribing for certain pain diagnoses.
- Future trends: identify diagnoses and circumstances where there is benefit, and delineate how to safely prescribe for such indications.
Example: Risk factors for chronic back pain - none of these directly addressed or treated by opioids

- Obesity
- Smoking
- Weight gain during pregnancy
- Stress
- Deconditioning/sedentary lifestyle
- Non-restorative sleep patterns
Chronic pain (including back pain)

- Very strong evidence for psychosocial risk factors for development of persistent pain
- Pharmacological alternatives - Tylenol, NSAIDs
- Strong evidence basis for use of:
  - Graded exercise
  - Cognitive behavioral Rx
  - Multidisciplinary rehab
In the clinic: evaluate the patient

• Then see what further diagnostic tests are indicated

• ALWAYS review old medical records when treating CHRONIC LBP – do not assume patient remembers work-up or medication history correctly
Office Visits

• At a minimum:
• SOAP:
• pain is 5\textsuperscript{th} vital sign
• Include Four A’s: Analgesia, Activities, Adverse reactions, Aberrant behavior
• Document FUNCTIONALITY
PHARMACOLOGICAL APPROACH TO CHRONIC PAIN

- Targeted Pain Management
- Anti-epileptics
- Anti-depressants
- Cannabinoids
- Opioids
Targeted pain management

- non-steroidal anti-inflammatory medications (NSAIDs) are okay to use periodically for nociceptive pain: do not use long term uninterrupted due to kidney damage.
- Mild/moderate mechanical pain: acetaminophen - do not exceed 3 grams daily due to hepatotoxicity.
Targeted pain management

- Anti-epileptic drugs (AEDS): gamma-amino-butyric acid (GABA) mediators (pregabalin, gabapentin)
- These meds also work for central pain syndromes and may partially help with muscle spasms too
- Most “muscle relaxers” are too sedating to be effective – may help with sleep though
- Cannabis/cannabinoids can be very effective in this setting
Utilize combinations of medications to hit more pain targets

- **BRAIN**
  - Descending Inhibition
    - NE/5HT
    - Opiate receptors
  - TCAs
  - SSRIs
  - SNRIs
  - Tramadol
  - Opiates

- **PNS**
  - Peripheral Sensitization
    - Na⁺
    - GBP
    - OXC
    - CBZ
    - TCA
    - TCA
    - TPM
    - LTG
    - Mexiletine
    - Lidocaine

- **SPINAL CORD**
  - Central Sensitization
    - Ca²⁺: GBP, OXC, LTG, LVT
    - NMDA: Ketamine, Dextromethorphan, Methadone
    - Others
      - Capsaicin
      - NSAIDs
      - Cox inhibitors
      - Levodopa
Depression and Chronic Pain

- Anti-depressants work locally in rat model of nerve pain
- Also help improve sleep
- Chicken or egg? Pain/sleep/depression all inter-related in a complex manner
- Analgesic effects appear independent from effect on mood
### Tri-cyclic Antidepressants in Chronic LBP

<table>
<thead>
<tr>
<th>Study</th>
<th>n</th>
<th>Response</th>
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<tbody>
<tr>
<td>Amitriptyline vs placebo</td>
<td></td>
<td>P: 5%</td>
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<tr>
<td>Amitriptyline vs placebo</td>
<td></td>
<td>P: 8%</td>
</tr>
<tr>
<td>Kishore-Kumar et al (1980)</td>
<td>19</td>
<td>D: 63%</td>
</tr>
<tr>
<td>Desipramine vs placebo</td>
<td></td>
<td>P: 11%</td>
</tr>
<tr>
<td>Amitriptyline vs maprotiline</td>
<td></td>
<td>M: 18%</td>
</tr>
<tr>
<td>Watson and Evans (1985)</td>
<td>15</td>
<td>A: 60%</td>
</tr>
<tr>
<td>Amitriptyline vs zimeldine (SSRI)</td>
<td></td>
<td>Z: 7%</td>
</tr>
</tbody>
</table>

## Common Side Effects Associated With Tricyclic Antidepressants

<table>
<thead>
<tr>
<th></th>
<th>Sedation</th>
<th>Anti-cholinergic effects</th>
<th>Hypotension</th>
<th>Cardiac effects</th>
<th>Seizures</th>
<th>Weight gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
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<tr>
<td>Clomipramine</td>
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<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
<td>+</td>
</tr>
<tr>
<td>Desipramine</td>
<td>0/+</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

0/+ = minimal; +/- mild; ++ = moderate; +++ = moderately severe. From Goodman and Gilman’s, *The Pharmacological Basis of Therapeutics*, 9th edition.
Treating Depression in the setting of chronic LBP

- Older anti-depressants better studied but...
- Newer agents have less side effects, thus have better compliance
- Newer agents appear just as effective for pain
- Duloxetine 60 mg PO daily (FDA approved for Fibromyalgia)
- Venlaflaxine extended release 150 mg PO Daily
- If sexual side effects add buproprion 75 mg PO daily
Muscle relaxers?

- Very sedating
- Do not actually "relax" muscle
- Cyclobenzaprine initially marketed as an anti-depressant
- Carisoprodol (Soma) is a BAD ACTOR: metabolized into meprobamate
Medicinal Cannabis and Chronic Pain

• Educational program available on-line

• http://adai.uw.edu/mcacp/

• Developed through University of Washington Alcohol & Drug Abuse Institute and funded by the Washington State Office of the Attorney General

• Provides science-based training and education in the area of chronic pain management and medicinal cannabis use.
FINALLY OPIOIDS: Pros/Cons/Risks/Benefits

- Good analgesia vs dependence
- Dosing ceiling vs toxicity
- Risk for addiction
- Drug-drug interactions
Opioid related morbidity and mortality

- Opioid related deaths have increased dramatically since the late 1990s, constituting a national epidemic and public health emergency.
- The number of opioid related deaths in the US (100,000 between 1999 and 2010) far exceeds the number of US military causalities in the Vietnam war – Franklin 2014.
- Chronic opioid therapy is associated with significant risk of non-fatal adverse outcomes.
- Costs from pain are estimated to be around 560-635 billion dollars annually (IOM, Relieving Pain in America).
Unintentional Prescription Opioid Overdose Deaths
Washington 1995-2013

Source: Washington State Department of Health, Death Certificates
Unintentional Opioid Overdose Deaths Washington 1995-2013

Source: Washington State Department of Health, Death Certificates

29% Decrease since 2008
Patients receiving high doses of opioid pain relievers account for disproportionate share of overdoses.
AMDG opioid dosing guideline

• 120 mg/day MED as a “yellow-flag” threshold was a consensus best guess among our clinical experts

• The threshold was linked to improvement in pain and function

• Now in state regulation
Dosing policies

- 2009: CDC recommends 120 mg/day MED threshold
- 2012: CT workers comp-90 mg/day MED
- 2013: OH State medical Board-2013-80 mg/day MED
- American College of Occupational and Environmental Medicine-50 mg/day MED
- CA work comp 80-120 mg/day MED*

*currently still in evaluation
Risk – 4 studies

Risk of adverse event

Risk Ratio

Dunn 2010
Bohnert 2011
Gomes 2011
Zedler 2014

Dose in mg MED

<20 mg/day
20-49 mg/day
50-99 mg/day
>=100 mg/day
Opioid Poisonings in WA Medicaid

- < 50% have chronic opioid use (> 90 days supply)
- 75% of opioid poisonings occurred in cases with prescribed doses < 120 mg MED
- About 45% have sedative-hypnotics in prior month
- 45% have another medication poisoning diagnosis on the same day
- 10-15% have an alcohol diagnosis on the same day
- Most poisoning cases have additional opioid prescriptions after poisoning event-
- Over 60% of methadone poisonings occurred in cases that did not have a prescription for methadone in the prior year

Fulton-Kehoe et al. Draft
Misuse Potential of Opioids: A 3-Year Retrospective Review

(Mironer, 2000)
Summary

- Risk of adverse and or overdose event increases at >50 mg MED/day
- Risk increases greatly at ≥100 MED/day
- Evidence in high quality studies are consistent: increasing opioid doses is strongly related to an increase risk of overdose event or death.
The Physician-Patient Agreement

- Build trust by using a patient agreement that defines what behaviors constitute responsible drug-taking:
  - Get medicine from only one prescriber and one pharmacy
  - Take medications only as prescribed
  - Refills for lost medicine cannot be given by staff or over the phone but require a visit to the prescribing physician
  - Do not take other non-prescribed medications or share your medications with others
  - Keep all appointments, including those with other professionals (psych, PT, marriage counselor)
  - Set and progress toward goals that improve your life
  - Specify the possibility of random urine screens. If illicit drugs are identified, note that police will be notified.
Additional risk mitigation strategies

- Select opioids with lowest abuse potential
- Document all concerns in the medical record
- Use screening tools: Opioid risk screening tool
- Consider buprenorphine for pain
- Utilize random drug screens
- Utilize PMPs
Worth noting that:

- Screening for high risk patients, treatment agreements, and urine testing have not reduced overall rates of opioid prescribing, misuse, or overdose.*

Newer strategies for reducing risks include:

- more selective prescription of opioids and lower doses
- use of prescription monitoring programs
- avoidance of co-prescription with sedative hypnotics
- and reformulations that make drugs more difficult to snort, smoke, or inject.
OPIOID RISK SCREENING TOOL

- Check if positive, then mark female or male

  1. Family History of Substance Abuse

- Alcohol [ ]: if yes, then 1 point if female 3 points if male

- Illegal Drugs [ ] 2 3

- Prescription Drugs [ ] 4 4
OPIOID RISK SCREENING TOOL

- 2. Personal History of Substance Abuse Alcohol [ ] 3 3
- Illegal Drugs [ ] 4 4
- Prescription Drugs [ ] 5 5
- 3. Age (Mark box if 16 – 45) [ ] 1 1
- 4. History of Preadolescent Sexual Abuse [ ] 3 0
OPIOID RISK SCREENING TOOL

- 5. Psychological Disease
  - Attention Deficit Disorder [ ] 2 2
  - OCD [ ] 2 2
  - Bipolar [ ] 2 2
  - Schizophrenia [ ] 2 2
  - Depression [ ] 1 1

- TOTAL [ ] Points Low Risk 0 – 3 Moderate Risk 4 – 7 High Risk > 8
If you choose to use an opioid...

- Always screen the patients *
- Use one with low abuse potential
- Use one with good efficacy
- Use one that provides long-term relief
- Use a route that minimizes side effects

• **Prescription Monitoring Program:**
  – Chris Baumgartner, Program Director
  – Gary Garrety, Operations Manager

• **Contact Info:**
  – Phone: 360.236.4806
  – Email: prescriptionmonitoring@doh.wa.gov
  – Website: [http://www.doh.wa.gov/pmp](http://www.doh.wa.gov/pmp)
Precription Monitoring Program (PMP)

- DOH and other state agencies are moving towards mandated participation in the state-wide health information exchange (HIE)
  - DOH has several health systems that will be accessed via the HIE
  - Website: www.doh.wa.gov/healthit
UW TelePain Case Conferences every Wednesday

- 12.00pm to 1.30pm led by David Tauben, MD, Director of Pain Division
  Clinical Update & Presentation - You may present a chronic pain case to the UW panel of pain specialists.

- UW School of Medicine grants 1.5 AMA PRA Category 1 Credits per session
For more information Contact:

- Cara Towle, RN MSN
- Director, Telehealth Services; University of Washington School of Medicine
- 206-459-7956 or ctowle@uw.edu
Ilicet...

- Thanks for attending