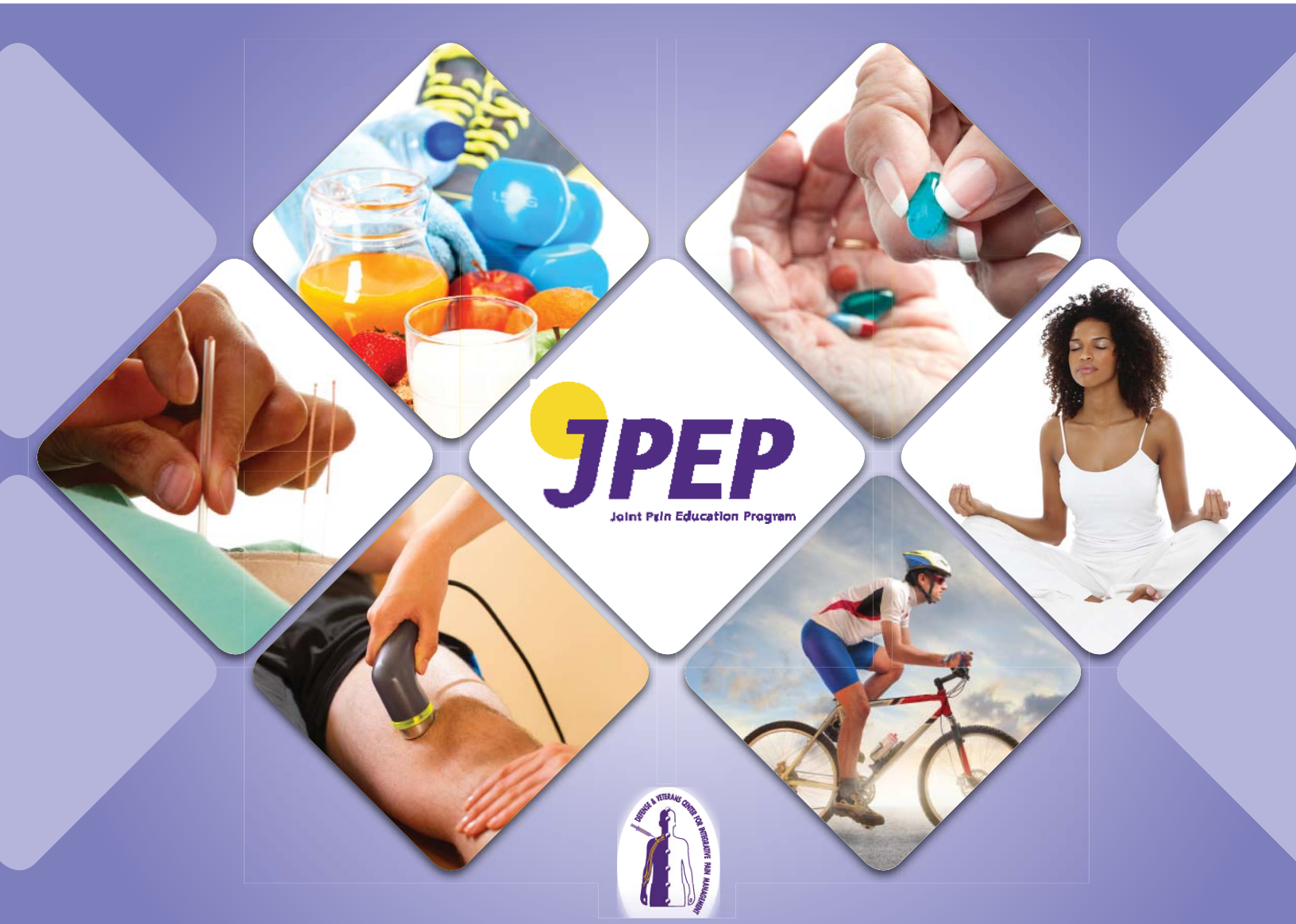
Pain Management for Primary Care

DoD/VHA
JOINT INCENTIVE FUND (JIF)
PROJECT



Series: Four

Pharmacologic Approach to Pain Manangement

Module 4-1

Acetaminophen, NSAIDs and Opioid Basics

Module 4-1

Acetaminophen, NSAIDs and Opioid Basics

By the end of the module, you will be able to:

- Describe four recommendations that prevent acetaminophen liver toxicity
- Given a patient case, select NSAIDs based on patient risk factors
- Describe the role of opioids in short-term pain care
- Explain how to perform conversions of different opioids

We will review:

Topic One: Topic One: Acetaminophen

Topic Two: Non-steroidal Anti-inflammatory drugs (NSAIDs)

Topic Three: Opioid Basics

Lead Authoring Subject Matter Experts

Veterans Health Administration
Dr. Francine Goodman

Department of Defense
LCDR Robert Sylvester, USN

Topic One

Acetaminophen

Acetaminophen is the first line of treatment for most types of mild to moderate pain.

- Analgesic, antipyretic; is not anti-inflammatory or antiplatelet
- PROS: Very safe in therapeutic doses and is a treatment alternative for patients with GERD, peptic ulcer disease, bleeding disorders or renal impairment
- CONS: Main concern is hepatotoxicity
    - Leading cause of acute liver failure (ALF)
    - One of leading causes of death due to ALF
    - Unintentional 'chronic' and intentional overdoses
    - Over consumed as prescription or over the counter (OTC) preparation

Notes

Acetaminophen (paracetamol in other countries) is one of the most commonly used analgesics, with more than 25 billion doses used annually as a nonprescription, over-the-counter (OTC) medication.

Over 200 million acetaminophen-containing prescriptions, usually in combination with an opioid, are dispensed annually.

>25 billion OTC doses, >200 million Rxs annually

First-line tx for most types of mild/moderate pain

Less effective than NSAIDs for osteoarthritis

Ineffective for neuropathic pain

Lacks clinically useful peripheral anti-inflammatory effects

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Notes - Continued

- Very safe in therapeutic doses
- Better GI and renal safety than NSAIDs; often preferred in the elderly for these reasons.

Main concern is hepatotoxicity

- Leading cause of acute liver failure (ALF)
- One of leading causes of death due to ALF
- Unintentional 'chronic' were involved somewhat more than intentional overdoses in cases of ALF.
- Prescription combinations were slightly more, about equally, involved as OTC acetaminophen.

There are thousands of acetaminophen products, prescription and OTC, with names that often do not make it evident to patients that they contain acetaminophen.

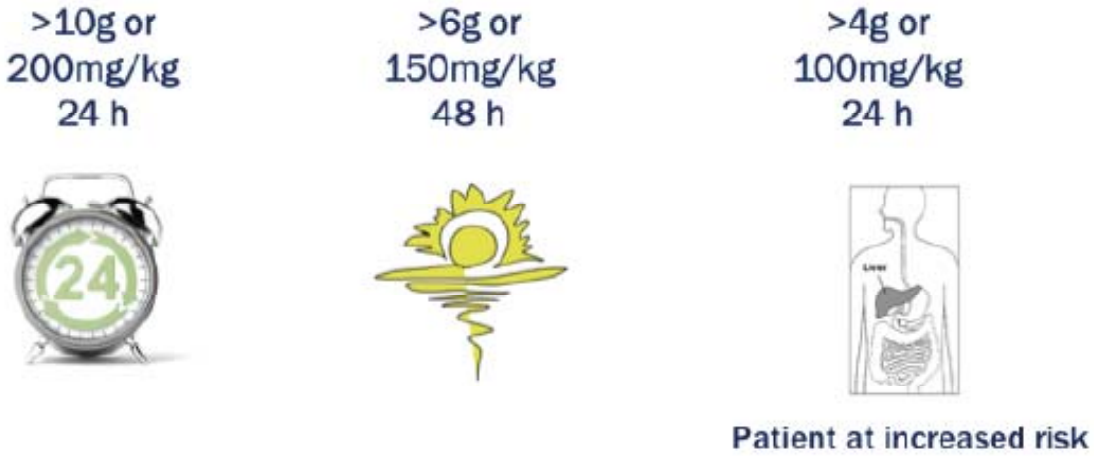
Acetaminophen hepatotoxicity often results in patients unknowingly taking more than one type of acetaminophen product.

Therefore, patient education on acetaminophen liver damage and how to prevent it is important.

For safe practice, NEVER prescribe over 1gr x 4 a day and remind patients that overdose can kill.

Call a poison center if you suspect toxicity.

- Make sure that prescribed and over the counter acetaminophen does not exceed 4gr/24h
- Use one acetaminophen product at a time
- Educate patients to avoid drinking more than three glasses of alcohol a day
- Ask for Acetaminophen blood levels and liver function test when toxicity is suspected



Notes

The recommended maximum dose of prescription acetaminophen combination products for adults is 4 g per 24 hours.

The recommended maximum dose of OTC acetaminophen varies by formulation, strength and manufacturer but does not exceed 4 g per day when under a physician's care.

Doses requiring medical evaluation ([Acetaminophen concentration], Liver Function Tests):

a. At least 10 g or 200 mg/kg (whichever is less) over a single 24-hour period,
b. At least 6 g or 150 mg/kg (whichever is less) per 24-hour period for the preceding 48 hours or longer; or
c. Greater than 4 g or 100 mg/kg (whichever is less) per 24 hours in patients with conditions purported to increase susceptibility to acetaminophen toxicity (e.g., alcohol use disorder, isoniazid use, prolonged fasting)

Encourage to contact pharmacist and/or toxicologist or ER provider for any patient above 4 g/day, or contact overdose hotline, or input with GI specialist.

- Perform Medication Reconciliation of prescription and OTC medications (including those for allergy, cough, cold fever, flu and sleeplessness) to ensure that patients do not exceed the acetaminophen maximum total daily dose (4 g/day)
- Advise patients to take only one product containing acetaminophen at a time
- Use prescription combination acetaminophen products that contain no more than 325 mg of acetaminophen per dosage unit, and discontinue those that contain more than 325 mg

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Notes - Continued

- Identify patients who may be susceptible to hepatotoxicity from repeated supratherapeutic ingestion of acetaminophen; check acetaminophen and liver enzyme levels
- Advise patients who need to take acetaminophen on a long-term basis to abstain from alcohol or reduce the maximum daily intake of alcohol
- Inform patients that severe liver injury, including cases of acute liver failure resulting in liver transplant and death, has been reported with the overuse of acetaminophen
- Educate patients about acetaminophen poisoning
- Report adverse events to VA's Adverse Drug Event Reporting System (ADERS)

Knowledge Check

Which statement about repeated supratherapeutic ingestion (RSTI) of acetaminophen is NOT true?

a. At least 10 g or 200 mg/kg (whichever is less) over a single 24-hour period is potentially hepatotoxic.

b. At least 6 g or 150 mg/kg (whichever is less) per 24-hour period for the preceding 48 hours or longer is potentially hepatotoxic.

c. Potentially hepatotoxic doses are those greater than 4 g or 100 mg/kg (whichever is less) per 24 hours in patients with conditions purported to increase susceptibility to acetaminophen toxicity (e.g., alcohol use disorder, isoniazid use, prolonged fasting).

d. The recommended maximum dose of prescription acetaminophen is 3g per 24-hour period.

Knowledge Check – Answer

Which statement about repeated supratherapeutic ingestion (RSTI) of acetaminophen is NOT true?

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d. The recommended maximum dose of prescription acetaminophen is 3 g per 24-hour period.

Notes

D is the correct answer.

The recommended maximum dose of prescription acetaminophen is 3 g per 24-hour period. FALSE

The RMD for PRESCRIPTION acetaminophen is 4 g per 24-h period.

Knowledge Check

A 68-yo white male veteran is receiving MAPAP 650mg 2 tabs 4x /d and ibuprofen 200mg one capsule 4x/d to treat an acute episode of LBP after lifting a heavy box 3 weeks ago. His pain is 6/10, vitals, physical exam and recent lab tests are all normal. He is still hurting and asking for VICODIN to help.

1. What changes , if any, would you make to the current acetaminophen therapy? Change dose? Discontinue?
2. What adverse effects or drug interactions should you be concerned about with acetaminophen?

Knowledge Check – Answer

1. What changes, if any, would you make to the current acetaminophen therapy? Change dose? Discontinue?

   MAPAP is actually Acetaminophen ("APAP") Extended Release. He is currently on 1300 mg x 4/d = 5200 mg/d x 3 wk, which is a repeated supratherapeutic ingestion (RSTI) of over 4 g/d).

   I must DISCONTINUE the MAPAP.

2. What adverse effects or drug interactions should you be concerned about with acetaminophen?

   I am concerned with hepatotoxicity due to RSTI that may cause liver failure and death. I must check APAP level and liver enzyme tests.

Notes

The OTC brand name "MAPAP" (really, it is a brand name!) contains "APAP" (a clue!)

VICODIN = Hydrocodone with acetaminophen. The acetaminophen content is 'hidden.'

MAPAP = Acetaminophen ("APAP") Extended Release = 1300 mg x 4/d = 5200 mg/d x 3 wk, which is Repeated Supratherapeutic Ingestion (RSTI, >4 g/d) of acetaminophen. DISCONTINUE.

Adverse Effects: Hepatotoxicity due to RSTI. Check APAP level and liver enzyme tests.

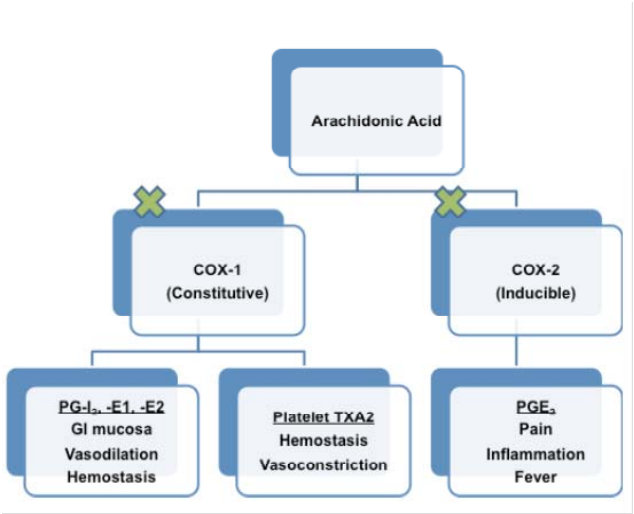
Drug Interactions with Acetaminophen: No substantiated interactions of major concern.

Topic Two

NSAIDs: Non Steroidal Anti Inflammatory Drugs

NSAIDS are effective anti-inflammatory and analgesic drugs for mild to moderate pain, blocking COX 1 and COX 2 or only COX 2 enzymes.

- NSAIDS differ in their COX 1 and COX 2 selectivity
- NSAIDS are not very effective in neuropathic pain



Notes

The major effect of all NSAIDs is to decrease the synthesis of prostaglandins by reversibly inhibiting cyclooxygenase (COX), an enzyme that catalyzes the formation of prostaglandins (PGs) and thromboxanes (TX) from the precursor, arachidonic acid.

Salicylates (e.g., aspirin), which irreversibly bind to COX and inhibit production for the entire life of the cell are now considered to be separate from NSAIDs.

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Notes - Continued

Acetaminophen, in contrast, inhibits COX centrally.

Cyclooxygenase-1 (COX-1)

activated by physiologic stimuli

proposed to generate prostaglandins that maintain organ function, protect the gastric mucosa, and generate platelet-derived thromboxane responsible for platelet aggregation and vasoconstriction.

is expressed in all tissues

Cyclooxygenase-2 (COX-2)

is induced by inflammatory stimuli

produces prostaglandins that mediate pain and inflammation

also expressed in kidneys and vascular endothelium.

Much marketing has been done to differentiate COX-2 inhibitors from nonselective NSAIDs; however, COX-2 inhibitors are simply NSAIDs that are relatively more selective in their COX-2 effects than traditional / nonselective NSAIDs.

Use the lowest dose for the shortest time.
Beware GI, CV, Kidney, Liver risk factors:
Low: no risk Moderate: 1-2 risks High: > 2 risks

- Gastrointestinal (GI) risk factors include:
  - Age > 65 years
  - High-dose NSAID therapy
  - Previous history of uncomplicated ulcer
- Concurrent aspirin, anticoagulant, steroid use

- Cardiac and kidney risk factors include:
  - Age > 65 years
  - Heart failure, Diabetes, Hypovolemia
  - Angiotensin Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) therapy
  - CrCl < 50 ml/min
- Liver toxicity is rare and is a risk with concomitant hepatotoxic drugs

Notes

Patients have a LOW GI risk if they have NO risk factors; MODERATE risk if they have 1 to 2 risk factors; and HIGH risk if they have 3 or 4 risk factors OR a previous complicated ulcer.

Cardiovascular Risks

- Both nonselective and COX-2 selective NSAIDs increase CV risks.
- Risks include myocardial infarction, stroke, or cardiovascular death.

Many providers will generally avoid using NSAIDs in patients with impaired renal function, especially for chronic use.

RENAL WARNINGS – vary by drug. Don't memorize; be aware, and check product information before prescribing.

- All NSAIDs inhibit renal vasodilating prostaglandins and can cause reductions in renal blood flow and renal perfusion.
- Individual NSAIDs have different levels of contraindications and warnings based on renal function and renal toxicity risks

NSAID-induced hepatotoxicity is relatively rare, but the total burden to drug-induced liver disease is substantial because of the large number of people taking NSAIDs and the substantial morbidity and mortality.

Among NSAIDs, sulindac has been the drug most consistently associated with hepatotoxicity.

Most patients present within 6 months after starting the drug.

Cases of liver injury after 1 year of treatment is rare.

There are probably multiple causes of diclofenac hepatotoxicity including genetic factors that promote:

- Formation of reactive acylglucuronide metabolite of diclofenac.
- Enhanced immune response to metabolite-protein adducts.

Choose the best NSAID for low risk cardiovascular disease.

LOW CV LOW GI RISK	LOW CV MODERATE GI RISK	LOW CV HIGH GI RISK
• *Ibuprofen* • *Celecoxib* • *Meloxicam* • *Etodolac*	• *Add generic proton pump inhibitor* • *or double dose H2 blocker* • *or Celecoxib alone*	• *Avoid NSAIDs* • *Celecoxib + generic proton pump inhibitor*

Notes

This shows one suggestion for selecting NSAIDs according to patient risk factors.

In patients with a Low Cardiovascular Risk with:

Low GI risk: Use low-GI-risk NSAIDs; ibuprofen and celecoxib (a COX2-selective inhibitor) have the lowest GI risk; meloxicam, etodolac and nabumetone are relatively COX2-selective also and have relatively low GI risk as well.

Moderate GI Risk: Add PPI or H2RA or – last choice / most costly – celecoxib alone.

High GI Risk: Avoid NSAIDs, if possible, or use celecoxib with a PPI.

The NSAIDs with high GI risk (2-fold higher than for ibuprofen): naproxen, indomethacin and diclofenac.

NSAIDs with highest GI risk: ketorolac, piroxicam

Choose the best NSAID for high risk cardiovascular disease on low dose aspirin.

HIGH CV LOW GI RISK	HIGH CV MODERATE GI RISK	HIGH CV HIGH GI RISK
• *Naproxen*	• *Add generic proton pump inhibitor* • *Add double dose H2 blocker*	• *Avoid NSAIDs*

Notes

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NSAIDs with highest GI risk: ketorolac, piroxicam

Knowledge Check

The same 68-yo white male veteran is asking for VICODIN to treat a 3 week old low back pain. His pain is 6/10, vitals, physical exam and recent lab tests are all normal. He is on Ibuprofen 200mg x4/d and is also taking low dose aspirin after a successful coronary bypass 4 years ago and Paroxetine for PTSD for 10 years.

1. What is the patient's CV risk (low, high)?
2. What is the patient's GI risk (low, moderate, high)?
3. What changes, if any, would you make to the current NSAID therapy?
4. What major adverse effects or drug interactions should you be concerned about with this patient's NSAID therapy?

Knowledge Check – Answer

1. What is the patient's level of CV risk (low, high)?
   • LOW (Low-dose aspirin; S/P CABG x 4)
2. What is the patient's level of GI risk (low, moderate, high)?
   • MODERATE (concurrent aspirin = 1 risk factor)
3. What changes, if any, would you make to the current NSAID therapy?
   • SWITCH TO NAPROXEN + GENERIC Proton Pump Inhibitor
4. What major adverse effects or drug interactions should you be concerned about with this patient's NSAID therapy?
   • GI, CV, renal (elderly); less so, hepatotoxicity

Notes

The same patient as before. Now we address the NSAID issues.

What is the patient's level of CV risk (low, high)? HIGH (Low-dose aspirin; S/P CABG x 4)

What is the patient's level of GI risk (low, moderate, high)? MODERATE (concurrent aspirin = 1 risk factor)

What changes , if any, would you make to the current NSAID therapy? SWITCH TO NAPROXEN + GENERIC PPI

What major adverse effects or drug interactions should you be concerned about with this patient's NSAID therapy? GI, CV, renal (elderly); less so, hepatotoxicity.

EXTRA POINTS FOR GETTING THESE:

Aspirin – Ibuprofen: Regular use of ibuprofen may decrease the antiplatelet effects of aspirin. Reduced antiplatelet efficacy in patients with underlying cardiovascular risk may occur. Additionally, the potential for GI adverse effects, including bleeding, may be increased with regular use of full-dose or low-dose aspirin. IR aspirin should be taken at least 30 minutes to 2 hours before ibuprofen or at least 8 hours after ibuprofen or other nonselective NSAIDs. Avoid long-term NSAID use with aspirin, if possible.

Acetaminophen has been associated (not causally related) with potential increased CV and GI risks because of COX2I activity. An interaction with NSAIDs needs further study.

The high acetaminophen doses are potentially hepatotoxic and may increase the risk of NSAID hepatotoxicity.

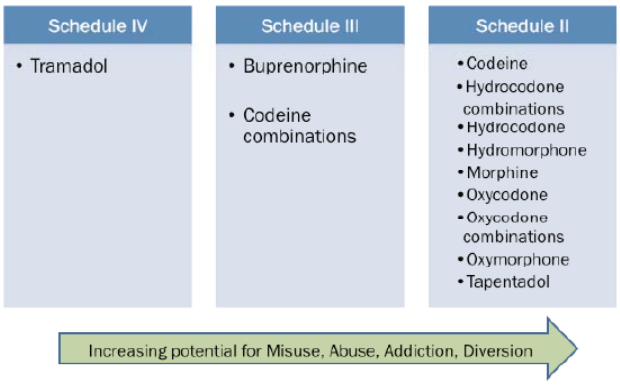
Topic Three

Opioids Basics

Opioids are strong analgesics indicated for moderate to severe pain.

They may be used as first line drugs for acute post-operative or cancer pain, however for chronic non-cancer pain, there is evidence that harm may exceed their benefits.

Most prescribed opioids are schedule II drugs.



Notes

In this section, we'll discuss ways to classify opioids that might aid in selecting agents, some basic concepts related to dosing opioids, and converting between different opioids. Because of their well-known potential harms, opioids should generally be reserved for pain that doesn't respond adequately to less risky therapies. There are a few situations when they may be used first-line, such as for severe acute pain. However, as a general rule, try safer drug and nondrug alternatives first.

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Notes - Continued

Third- / fourth-line agents for most types of persistent moderate to severe pain, after non-opioid analgesics and nondrug therapies.

May be first-line for severe, acute / postop pain and cancer pain

Harms may outweigh small benefits in hip / knee osteoarthritis pain

For chronic non-cancer pain, evidence is lacking that opioids are better than non-opioids.

Opioids can be classified by their receptor activity.

FULL MU-OPIOID RECEPTOR AGONISTS can be further subclassified by chemical class, which may be helpful to be familiar with in cases of allergic reactions.

If a patient develops a true hypersensitivity reaction to an agent in one class (e.g., phenanthrenes), switch to an agent from another class (phenylpiperidines or diphenylheptanes. OTHER OPIOIDS can be subcategorized by mixed agonist-antagonist and mu-agonist with serotonin-norepinephrine reuptake inhibitory effects.

Mixed agonist-antagonist opioids are not often used for pain management because of their ceiling to analgesic effects and their potential to induce withdrawal in individuals physically dependent on opioids. The opioids can also be broadly categorized by degree of analgesic effects they can confer.

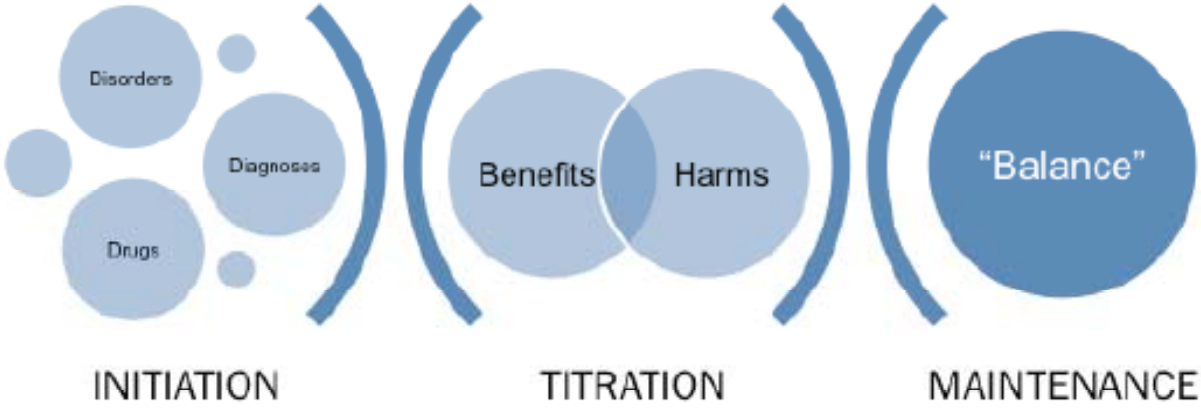
Codeine is a 'weak' opioid, alone and in combination with acetaminophen.

Start low and go slow especially if:

• Age > 65 • Under 50kg (110lbs) • Liver disease CrCl < 50 ml/min

Use of sedatives Initially, monitor the effects (4 A's) every 1 to 3 days.

Remember prescribing opioids is a process.



Notes

General dosing considerations:

Opioid dosages are determined by a PROCESS that entails trials and errors to find the optimal opioid for an individual.

The process also requires assessment and re-assessment after dosage escalations. When starting long-acting / extended-release opioids, check on the patient 1 to 3 days later, even by a simple phone call.

When choosing whether to initiate opioid therapy and which opioid product, consider potential risk and benefit factors such as co-disorders / morbidities, diagnoses (is the pain type responsive to opioids?), and drugs for potential interactions.

Titrate upward slowly, taking into account prior response, and aim to achieve an acceptable balance between benefits (improved pain and function) and harms (adverse effects, opioid use disorder, overdose, etc.)

The maintenance phase refers to the period of relatively stable dosage requirements and satisfactory balance between benefits and harms, both real and potential. There may be periods of worsening pain where the dose may need to be re-titrated as the risks of harms and perceived benefits may change with different medical, social and mental health stressors.

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Notes - Continued

Factors to consider: the daily dose, potency, and precise characteristics of the opioid the patient has been taking previously (e.g., whether it is a pure agonist or mixed agonist/antagonist, the elimination half-life);

the reliability of the relative potency estimate used to calculate the dose of morphine needed (potency estimates may vary with the route of administration); the degree of opioid tolerance, if any; and the general condition and medical status of the patient.

Initial dose may be ZERO in some cases; AVOID or substitute with another opioid.

A trial of opioid therapy should NOT be initiated in the following situations (absolute contraindications):

Diagnoses and Disorders

- Severe respiratory instability
- Acute psychiatric instability or uncontrolled suicide risk
- True allergy to opioid agents (cannot be resolved by switching agents)
- QTc interval > 500 millisecond for using methadone
- Active diversion of controlled substances (providing the medication to someone for whom it was not intended)
- Diagnosed non-nicotine Substance Use Disorder (DSM-IV criteria) not in remission and not in treatment
- FENTANYL in nonopioid-tolerant patients; acute pain or in patients who require opioid analgesia for a short period of time; postoperative pain, including use after outpatient or day surgeries; mild or intermittent pain (e.g., use on an as-needed basis);
- ALL OPIOIDS: respiratory depression, especially in unmonitored settings where there is a lack of resuscitative equipment; acute or severe bronchial asthma; paralytic ileus
- TRAMADOL in patients with seizure disorder

Drugs

- Co-administration of drug capable of inducing life-limiting drug-drug interaction
  - Avoid use of fentanyl within 14 days of MAOIs; mifepristone (MIFEPREX, for ending early pregnancy; b/o increased fentanyl effects); sibutramine (MERIDIA, for obesity; b/o increased risk of serotonin syndrome)
  - Avoid use of tapentadol within 14 days of MAOIs
- Prior adequate trials of specific opioids that were discontinued due to intolerance, serious adverse effects that cannot be treated, or lack of efficacy

Example of initial dosing:

OPIOID	INITIAL DOSE IN OPIOID-NONTOLERANT	CHRONIC DAILY DOSE	INITIAL CONVERSION EQUIANALGESIC DOSE (EAD)
OPIOID CONVERSIONS TYPICALLY USING 50%-67% ADJUSTMENT			
HYDROCODONE	ER: 10 MG Q12H	20-30mg	50%-67% of EAD
HYDROMORPHONE	IR: 2-4 MG Q4-6H ER: NOT INDICATED!	7.5mg	50%-67% of EAD
MORPHINE	IR: 5-30 MG Q4H ER: VARIES E.g., 30 MG Q12H (AVINZA)	30mg	50%-67% of EAD
OXYCODONE	IR: 5-15 MG Q4-6H ER: 10 MG Q12H	15-20	50%-67% of EAD
OXYMORPHONE	IR: 10-20 MG Q4-6H ER: 5 MG Q12H	10mg	50%-67% of EAD

For non-naïve, opioid tolerant patients consider a higher daily oral dose of 45-60 mg morphine or 30 mg oxycodone or 12 mg hydromorphone, for 1 week.

Notes

Initial and conversion doses (not necessarily the equianalgesic doses!) for opioids that typically need a 50% to 33% downward adjustment in the equianalgesic dose to calculate the conversion dose.

NOTE: Equianalgesic doses are not an exact science; there are many dosage ratios that have been used, and the ratios are only averages whereas a range of EADs would be more realistic. The goal is to get into the ballpark range of the eventual optimal dose without causing respiratory depression. This is done by estimating a conversion dose (50% to 67% of the equianalgesic dose), covering with supplement IR opioids, and titrating to desired effects.

These opioids shown here deviate somewhat from the 50% to 67% adjustment. No need to memorize, but be familiar with main concepts.

The transdermal fentanyl EAD (EquiAnalgesic Dose) is established for conversions from another opioid TO TD fentanyl (as shown in table).

Conversion recommendations for going in the opposite direction (TD fentanyl to another opioid in Morphine Equivalent Daily Doses (oral) is not established. NOTE THAT CONVERSION DOSE RATIOS ARE NOT BI-DIRECTIONAL.

Clinicians use a ratio of 25 mcg/h q3d of TD fentanyl to 45 mg/d MEDD, mainly in cancer pain.

DO YOU KNOW? The initial dose of TD fentanyl in an opioid-NONtolerant individual is ZERO mg. It is recommended / safe to use only in patients who are opioid tolerant.

Use a conversion table and follow these 5 steps:

Remember that it is better to under-dose than overdose.

Ask a colleague to double check.

Ask an expert if daily doses are higher than 120mg morphine equivalent.

1. Determine the total 24-hour dose of the current opioid(s).
2. Using the estimated equianalgesic dose (EAD) and calculate the equivalent dose of new opioid.
3. The starting conversion dose of the new opioid should be no more than 50% to 67% of the EAD because of incomplete cross-tolerance (except for methadone and TD fentanyl).
4. Take the 24-hour starting dose of the new opioid and divide it by the frequency of administration to give the new dose.
5. Consider adding a rescue dose, preferably the same opioid, at an as-needed dose equivalent to 10% of total daily dose, no more than 4 times a day.

Notes

Note that the conversion dose is 50% to 67% of the calculated equianalgesic dose. The conversion dose is not the same as the equianalgesic dose, to adjust for incomplete cross-tolerance.

(However, if a dosage increase is also desired for better pain control in addition to switching opioids, the conversion dose could be the same as / similar to the equianalgesic dose.)

Use rescue short-acting opioids to assist with pain management during the titration process and to help determine the long-term daily opioid dose.

It is better to underestimate than to overestimate. If you underestimate the equianalgesic dose, then you can always supplement as needed. If you overestimate, you may have to manage adverse effects or overdose.

Feature-rich opioid conversion calculators are:

- Global RPH and
- Practical Pain Management

If these are available in the clinic, they are very useful for calculating conversion doses and can reduce mathematical errors. Knowing the steps involved in conversions will help you understand these calculators and use them properly. Know the long-hand calculation method, and double-check the results from these calculators. Use clinical judgment; you get what you put into the calculators.

For example, I would like to convert:

Morphine ER 100mg x 3/d

+

Hydromorphone 8mg x 2/d

To Oxycodone

Step 1: 100mg MOR x 3 = 300mg MOR

Step 2: New opioid is Oxycodone

Step 3: Conversion dose is 50%-67% of the EAD so

Step 4: Recommended dosing for OXY ER is twice a day

Step 5: Rescue dose is no more than 10% daily dose

Knowledge Check

The same 68-yo white male veteran is receiving MAPAP 650mg 2 tabs 4x /d and ibuprofen 200mg 4x/d to treat an acute episode of LBP after lifting a heavy box 3 weeks ago. His pain is 6/10, vitals, physical exam and recent lab tests are all normal. He is still hurting and asking for VICODIN to help.

1. Would you start VICODIN? Why or why not?
2. Would you start another pain medication?

Knowledge Check – Answer

1. Would you start VICODIN? Why or why not?
2. Would you start another pain medication?

Diagnosis or Disorder-related Risk/Benefit Factors?

a. What pain severity level (0 to 10 scale) justifies opioid therapy?
b. Does acute low back pain indicate opioid therapy?
c. Does PTSD increase the risks of opioid therapy?
d. R/O hepatotoxicity from RSTI of MAPAP

Drug-related Risk/Benefit Factors?

a. Why VICODIN specifically? Drug seeking? Past response?
b. VICODIN contains acetaminophen
c. Avoid duplicate sources of acetaminophen
d. Have all nonopioid therapies been tried?

Notes

This is the same patient case as before, but now we're addressing whether to start VICODIN (hydrocodone + acetaminophen).

Would you start VICODIN? Another pain medication?

There is no right or wrong answer.

The individualized PROCESS of considering whether to start VICODIN and giving the opportunity for clinicians to share their opinions about what they would do is the exercise here.

continued on next page

Notes - Continued

Diagnosis or Disorder-related Risk/Benefit Factors?

a. What pain severity level (0 to 10 scale) justifies opioid therapy? Score >=4 / moderate (significant interference with function) to >=7/ severe (marked interference with function/enjoyment). (This patient's pain is 6 on current pain meds.) In addition, failure of nonopioid drug and nondrug therapies. This patient should be started on nondrug therapies. IR opioids may be used prior to physical therapy if needed to relieve pain sufficiently to allow patient to participate.

b. Does acute low back pain indicate opioid therapy? Acute LBP = <4-6weeks in duration. Main approach should be physical therapy. Opioids may be used adjunctively; however, the evidence supports the use of opioids in chronic (rather than acute) LBP [UpToDate 2014] and suggests that the harms outweigh the benefits in OA, if the LBP is due to hip OA [Nüesch 2009]. According to UpToDate 2014: "Opioid agonists are widely acknowledged to be among the therapeutic options for low back pain, but there are limited data on their efficacy and safety for this indication. Most recent studies focus on chronic back pain…. In the absence of definitive data, use of opiates for low back pain is a matter of clinical judgment. NSAIDs, acetaminophen, and skeletal muscle relaxants may suffice for most patients. If opiates are used, it is advisable to limit to short term use and to consider scheduled rather than as-needed dosing."

c. Does PTSD increase the risks of opioid therapy?

d. R/O hepatotoxicity from RSTI of MAPAP. VICODIN should not be added because of its acetaminophen content. An opioid without acetaminophen, such as tramadol, may be considered.

Drug-related Risk/Benefit Factors?

a. Why VICODIN specifically? Drug seeking? Past response? The clinician should find out why the patient is requesting VICODIN. Did he have a good past response to it? Or could he be drug seeking?

b. Should NOT start VICODIN (hydrocodone/acetaminophen). Should start physical therapy, gradually increase exercises for prevention of back strain. Could start tramadol (WITHOUT acetaminophen!). Avoid duplicate sources of acetaminophen. In addition, tramadol w/o acetaminophen may be preferable to VICODIN if no contraindications b/o lower risk of abuse/addiction.

c. Have all nonopioid therapies been tried? No. Nondrug therapies should be tried before (or with) short-term opioids.

OVERALL, VICODIN SHOULD NOT BE STARTED BECAUSE OF THE DUPLICATE SOURCE OF ACETAMINOPHEN IN SOMEONE ALREADY TAKING HIGHER THAN RECOMMENDED DOSES OF ACETAMINOPHEN.

Summary

Recall that acetaminophen appears in many over the counter preparations and is often prescribed. Daily doses above 4gr can cause acute liver failure and death.

Avoid, as possible, long-term NSAIDS and choose the appropriate one after evaluating the gastrointestinal and cardiovascular risk.

Start low and go slow when you think opioids are indicated. Familiarize yourself with opioid conversion calculations and always ask a team member to double check your calculations.

Resources

Opioid Dose Calculator

http://agencymeddirectors.wa.gov/mobile.html

Practice Pain Management Opioid Calculator

http://opioidcalculator.practicalpainmanagement.com/

Global RPh Opioid Converter

http://www.globalrph.com/narcoticonv.htm

References

Aithal, G. P., & Day, C. P. (2007). Nonsteroidal Anti-Inflammatory Drug–Induced Hepatotoxicity. Clinics in liver disease, 11(3), 563-575.

Knight, C. L., Deyo, R. A., Staiger, T. O., & Wipf, J. E. (2012). Treatment of acute low back pain. Uptodate. com.

Nüesch, E., Rutjes, A. W., Husni, E., Welch, V., & Jüni, P. (2009). Oral or transdermal opioids for osteoarthritis of the knee or hip. The Cochrane Library.

Rubenstein, J. H., & Laine, L. (2004). The hepatotoxicity of non-steroidal anti-inflammatory drugs. Alimentary pharmacology & therapeutics, 20(4), 373-380.

Notes

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