Sunnybrook VETERANS CENTRE

Palliative Care Unit & Veterans Centre
Sunnybrook Health Sciences Centre

A Medication Dosing Guide for Management of Pain and Dyspnea in Palliative Care

(adapted from full symptom guide)

1. Pain

Principles

- Assess for multiple pain sources
- Treat potential reversible causes
- WHO ladder for prescribing analgesics
- Consider adding co-analgesics:
  - Bone pain, Non-infective pleuritic pain, Liver capsule pain, Neuropathic pain
- Review analgesic requirements every 24h
- Treat
  - by mouth (preferred)
  - by the clock
  - by the WHO ladder
  - by the patient
  - always provide PRN analgesia for 'breakthrough pain'

Medications and Doses

Step 1: Non-Opioids

Acetaminophen: up to 4 g daily
NSAIDs: avoid in heart failure and renal failure. If used, consider gastric protection.
Topical analgesic: Antiphlogistine A535 Heat, diclofenac (Voltaren Emulgel, Pennsaid liquid).

Step 2. Opioids for mild to moderate pain

Codeine ('weak opioid"), codeine/acetaminophen, tramadol, tramadol/acetaminophen

Note: Opioid toxicity can increase with renal or liver impairment

Step 3. Opioids for Moderate to Severe Pain

Hydromorphone (preferred), morphine, oxycodone

OPIOID :	Single Dose Opioid Equivalence to Morphine 10 mg PO or 5 mg IV/SC	
	Oral (mg)	SC (mg)
*HYDROmorphone	2	1
*Oxycodone	5	--
*Morphine	10	5
*Codeine	100	60
**Fentanyl patch- See chart in CPS for conversion from the oral morphine maintenance dose		

Note: Dose comparison is an estimate. Determination of the appropriate dose of opioid by CADD pump requires individual titration.

*http://sunnynet.ca/ see opioid dose equivalence
** eCPS Opioid Monograph

Opioid dosing considerations:

- Use (immediate release) opioid tablet q4h with access to PRN doses q1h. (or liquid formulation)
- The sc dose is ½ of the po dose.
- Monitor response every 24 hours, if in pain or using more than 3 breakthrough doses/24hrs and no toxicity, increase regular dose and PRN by 25-30% daily until pain control achieved.
- Recommended PRN dose is 10% of the total 24hr dose, and can be given q1h.
- If pain is under control using an immediate release oral opioid product, consider switching to an oral controlled release opioid product (CR/ER/SR/PR).
- Caution when converting from fentanyl patch due to uncertain absorption through the skin.

Opioid Product Availability

Legend- long-acting oral opioid formulations:
CR= controlled-release;
ER= extended-release;
SR= sustained-release;
PR= prolonged-release

HYDROmorphone
Injection: 2 mg/ml, 10 mg/ml and others
Tablet: 1, 2, 4, 8 mg
CR po cap: 3, 4.5, 6, 9, 12, 18, 24, 30 mg **Hydromorph Contin®** (bid dosing)
PR po tab: 4, 8, 16, 32 mg **Jurnista®** (daily dosing)
Liquid: 1 mg/ml

Morphine
Injection: 1, 2, 5, 10 and 15 mg/ml
Tablet: 5, 10, 20, 25, 30, 40, 50, 60 mg
SR po tab: 10, 15, 20, 30, 40, 50, 60 mg **MS Contin®** (bid dosing)
ER po cap: 10, 20, 50, 100 mg **M-Eslon®** (bid dosing)
SR po cap: 10, 20, 50, 100 mg **Kadian** (daily dosing)
Liquid: 1mg/ml

Oxycodone
Tablet: 5, 10, 20 mg
CR po tab: 10, 15, 20, 30, 40, 60, 80 mg **OxyNEO®**
(bid dosing: needs special approval)

Fentanyl
Transdermal Patch: 12, 25, 50, 75, 100 mcg/hr **Duragesic®** Change patch q 72 hrs.

Codeine
Tablet: 15, 30 mg
CR po tab: 50, 100, 150, 200 mg **Codeine Contin®** (bid dosing)
Liquid: 5 mg/ml

2. Common Opioid Side Effects

Constipation, nausea, vomiting, dry mouth, drowsiness, confusion, urinary retention, itchiness

Opioid toxicity

Consider if patient is:

- More drowsy
- Restless, confused or delirious**, or has:
- Visual hallucinations
- Severe myoclonic jerks
- Respiratory depression
- Signs of hyperalgesia

If toxicity occurs:

- Review analgesia and co-analgesia use
- Assess for cause, e.g. infection
- Check kidney & liver function and serum calcium
- Reduce the opioid maintenance dose
- Naloxone only for severe respiratory depression; use a low dose

Example dosing

Opioid naive patient
Hydromorphone 0.5 –1 mg po or 0.2 – 0.5 mg sc Repeat q1h PRN until pain relieved. PRN dose can be equal to or half of the q4h dose. See opioid dose equivalency table. **Note:** Dose range is provided for reference. Prescribe a specific dose (not a range) Prescribe a specific frequency (not a range)
Opioid treated patient
If pain uncontrolled, increased fixed schedule dose by 25-30%. If renal impairment, reduce dose by 25% or consider using hydromorphone. If side effects occur with increased dose, reduce the opioid and add a co-analgesic drug (eg, gabapentin, dexamethasone, acetaminophen, IV bisphosphonate, antidepressant).

3. Naloxone Use

Note: naloxone will reverse the effects of the opioid, including respiratory depression, but may precipitate a pain crisis.

4. Co-Analgesics (involving various mechanisms)

- Gabapentin, pregabalin, carbamazepine
- Pamidronate, zoledronic acid IV
- Dexamethasone po or sc
- Duloxetine, venlafaxine; amitriptyline, nortriptyline; methylphenidate
- Nabilone
- Baclofen
- Hyoscine butylbromide po or sc
- NSAIDs & Acetaminophen
- Lidocaine topical (spray, gel, ointment) & viscous
- Topical Analgesic Compounds

Gapapentin- neuropathic pain

- Usual frequency is tid.
- Start 100 mg po tid; titrate up over 2 - 3 days.
- Dose can be increased every 2 to 3 days.
- Reduce dose in renal impairment.
- Common dose range is 300 – 600 mg po tid.
- Consider reducing opioid dose as gabapentin dose is titrated up.
- Bioavailability is lower with higher doses.

Pregabalin- neuropathic pain

- Usual frequency is bid (or tid).
- Start at 25 mg po bid; titrate up over 2 days.
- Common dose is 50 – 100 mg po bid, up to 150 mg bid. Max dose is 300 mg bid.
- Reduce dose in renal impairment.
- Consider reducing the opioid dose as pregabalin dose is titrated up.

Dexamethasone po or sc- anti-inflammatory

- Usual dose: 4 – 8 mg daily. Titrate up to 8 mg bid. If no effect taper or discontinue.
- If dosing bid, give at breakfast and supper; avoid bedtime dosing due to insomnia.
- Consider ranitidine or PPI for cytoprotection.
- May increase to 12 – 16 mg daily for spinal cord compression or brain edema.
- Higher doses may be used.

Antidepressants-CNS pain effects

- Antidepressants with specific analgesia properties include duloxetine and venlafaxine.
- Duloxetine 30 mg po daily, titrate up to 60 or 90 mg daily
- Venlafaxine 37.5 mg daily, (up to 150 mg daily)

Other antidepressants:

- Amitriptyline or nortriptyline 10 – 25 mg po qhs (up to 75 mg/daily).
- SSRI or mirtazapine

NSAIDs- central and peripheral mechanisms

- Several agents in this class:
  Oral: e.g. ibuprofen, naproxen, diclofenac, meloxicam, celecoxib, ketoprofen;
  Topical: diclofenac
- Limited applicability in palliative care due to adverse effects. Therefore consider short term or PRN use.
- Use with caution in the elderly or in heart failure or renal impairment.
- Consider GI protection.
- Consider underlying bleeding risk.

Acetaminophen

- Acetaminophen 650 mg po/pr q 4h PRN

Dyspnea

- Treat underlying medical conditions
- Avoid overhydration
- **Simple measures**- fan, well ventilated space, avoid crowding around the bed, re-positioning, energy conservation, breath control, reassurance, relaxation techniques
- Psychological & spiritual support
- Supplemental oxygen if hypoxic

Pharmacological treatment

- Opioids are the mainstay of treatment. Use regular and PRN dosing (as for pain)
- Bronchodilator, for treatment of reversible bronchoconstriction.
- For the anxiety component, consider any of: benzodiazepine/ antidepressant/ neuroleptic.
- Anti-inflammatory therapy can be an effective adjunct (dexamethasone).

Opioid naive
Hydromorphone 0.5 –1 mg po or 0.2 – 0.5 mg sc q1h PRN until SOB relieved.
Opioid treated patient
Increase scheduled dose by 25 –30% as needed
If still breathless, add:
Benzodiazepine PRN: Midazolam 0.5 – 2.5 mg sc q1h PRN (use 5 mg/ml) or via CADD pump (2mg /ml) Lorazepam 0.5 – 2 mg SL/sc q2-4h PRN (4mg/ml) Clonazepam 0.5 mg po od- bid PRN (max 8 mg/d)
Dexamethasone 4 – 24 mg po/sc daily
Bronchodilator: Salbutamol 2 puffs q4h PRN via spacer (preferred) or Salbutamol 2.5 mg by nebulizer q4h prn

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