

## PALLIATIVE CARE TIPS

### Issue # 17

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## Morphine vs Hydromorphone vs Oxycodone vs Fentanyl Patch VS Tramadol

The spectrum of available opioids has increased. Why do we need alternative opioids?

There is Individual variability in response to opioids therefore:

- Different individuals respond differently to the same opioid
- Same individuals respond differently to different opioids.
- Same individuals show different opioid neuro-toxicity symptoms with the different opioids

Inter-individual variability may be due to:

- Genetically - determined expression of opiate receptor subtypes
- Incomplete cross-tolerance 2nd to differential receptor subtype affinity or efficacy
- Opioid metabolite accumulation
- Pain mechanism - specific opioid response

Opioid rotation/switch is indicated for improving analgesia-toxicity balance.

Morphine: Immediate release and slow release formulations are available.

- Preferred routes: oral, subcutaneous
- The standard/benchmark opioid, usual first choice
- 10x more potent mg for mg than codeine
- Parenteral maximum concentration: 50 mg/ml

Hydromorphone: Immediate release (Dilaudid) and slow release (Hydromorph Contin) formulations are available.

- Preferred routes: oral, subcutaneous
- Approx. 5x more potent mg for mg than morphine
- Parenteral maximum concentration: 100 mg/ml
- The usual alternative to morphine especially in patients with renal impairment

Oxycodone: Immediate release (Supeudol) and slow release (OxyContin) formulations are available.

- Preferred routes: oral, subcutaneous
- Originally introduced in combination with ASA (Percodan, Oxycodan, Endodan) or Acetaminophen (Percocet, Oxycocet, Endocet) for moderate pain.
- ↓hallucinations reported in studies.
- Approx. 1.5x more potent mg for mg than morphine (controversial)
- Parenteral maximum concentration: 50-60 mg/ml

Fentanyl: Transdermal (Duragesic) and parenteral formulations are available.

- high lipid solubility
- 50-100 time more potent than morphine
- Transdermal patch convenient in patients with stable pain control. Caution advised in uncontrolled pain syndromes (not suitable for rapid titration)
- Possible ↓ in constipation and sedation
- GI withdrawal syndrome described with switch to patch
- Conversion ratio uncertain (use manufacturer's conversion table)
- No convenient form for rescue doses
- Subcutaneous infusions → pump needed for continuous infusion  
→ high cost of drug

Tramadol:

- A weak opioid agonist and a reuptake inhibitor of serotonin and noradrenaline (caution advised when used with other serotonergic medications and neuroleptics)
- Potency is similar to Codeine (one tenth the potency of Morphine )
- Originally introduced in combination with Acetaminophen (Tramacet)

Consider switching/ Rotating opioids when opioid toxicity develops (eg: sedation, delirium, hallucinations, myoclonus, nightmares/vivid dreams) → calculate an equianalgesic daily dose of the new opioid, reduce this by 20-30% to account for incomplete cross tolerance between opioids, divide into multiple daily doses at regular intervals (q4h for immediate release opioids). Provide approx. 10% of the total daily dose available as a rescue dose (Breakthrough analgesia = BTA). Start around the clock (ATC) immediate release opioids 12 hours after the discontinuation of slow release opioids or Duragesic patch.

**REMEMBER: For referrals, questions, or telephone consultations call 496-1300 weekdays and weekends.**

Palliative Care Tips are now available on our Website: [www.palliative.org](http://www.palliative.org)