



Pharmacology Update

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Opioid receptors

μ	μ_1 – analgesia, physical dependence μ_2 – resp. depression, miosis, euphoria, slowed GI transit, physical dependence
δ	Analgesia Modulation of hormone & neurotransmitter release
K	Analgesia, psychomimetic effects, slowed GI transit, miosis, ↓ body temp.

Opioid pharmacokinetics

- Most well absorbed s/c, im & po
- Rapidly leave blood compartment & localise in highly perfused tissues
- May get accumulation in fatty tissues with highly lipophilic opioids (eg fentanyl)
- Metabolised mainly in the liver
- Mainly renal excretion

	Duration of analgesia	t ½ for high doses	Receptor activity
Morphine	4-5h		Potent agonist at μ receptor Some δ & κ agonist activity
Methadone	4-6h	25-52h	Potent agonist at μ receptor Blocks NMDA receptors & monoaminergic reuptake transporters
Buprenorphine	4-8h	20-70h	Partial agonist at μ receptor Agonist & antagonist activity demonstrated at all opioid receptors

Buprenorphine

- High binding affinity but low intrinsic activity at μ receptors
- Slow rate of dissociation, so long acting
- Mixed agonist-antagonist
- Less euphoric, less sedating & less likely to cause respiratory depression than full agonist
- s/l route avoid significant 1st pass effect

Considerations for analgesia while taking "Subutex"

- Strong receptor affinity will stop other opioids displacing buprenorphine
- Will displace other opioids from receptors
- μ antagonist activity at high doses
- "ceiling" analgesic effect of buprenorphine

Analgesic options

- Maximise non-opioid analgesia, including regular paracetamol or NSAIDs as appropriate
- Local anaesthetic techniques including infiltration, regional blocks
- Adjunctive therapy options, eg TENS, acupuncture, hypnosis, massage

Opioid options

- Continue current buprenorphine regimen, & increase dose by 25%
- As above & supplement with iv opioids as required for residual pain
- Convert to full agonist prior to surgery
- Discontinue buprenorphine & prescribe full agonist
- Divide daily dose of buprenorphine to take 6-8 hrly

Roberts DM, Meyer-Witting. *Anaesth Intensive Care* 2005;33:17-25

Alford DP, Compton P, Samet JH. *Ann Intern Med* 2006;144:127-134