



Pain Management: Optimised & Individualised

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PQUIP's Top 5 National Improvement Opportunities 2018-2019

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Individualised Pain Management

Severe perioperative pain is common and impacts on patient experience and recovery

Good pain management begins with preoperative assessment and planning

A regular pain service led by appropriately trained clinicians is recommended for best patient care



Use multimodal approaches, including LA blocks, and ideally minimise use of opioids

- Goals of perioperative pain management
 - Enhanced recovery, Reduced LOS
 - Increased patient satisfaction, reduced pain
 - Reduced SEs of medication & opioids
 - Reduced chronic post surgical pain (CPSP)

The Opioid Epidemic



<https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis>

- Opioids = leading cause death in under 50s in US
- 83% heroin users started with prescription opioids
- Proportion of UK patients prescribed opioids doubled 2000-2012
- Number admitted for opioid overdose doubled 2005-2006 & 2016-2017
- Drug-related deaths has hit a record high in England & Wales: 3,744 last year (mainly heroin & other opioids)

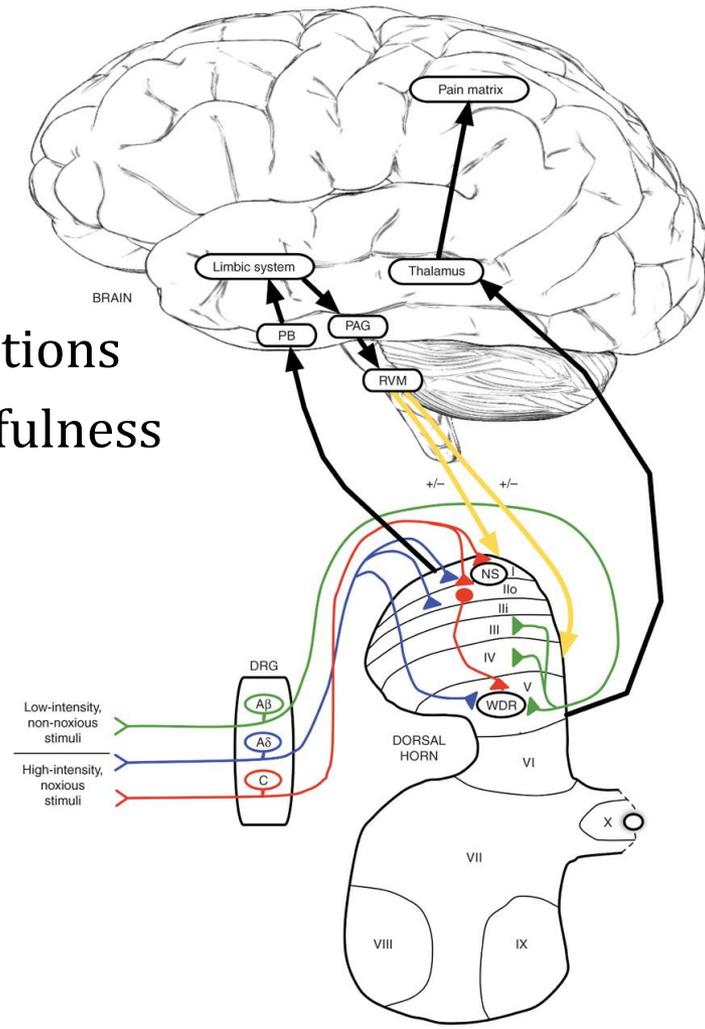
Perioperative multimodal analgesia

- Experience

- Context & fears
- Education & expectations
- CBT, hypnosis, mindfulness
- Placebo

- Inflammation

- Paracetamol
- NSAIDs
- IV lidocaine



- Central

- Opioids
- α agonists

- Transmission

- IV lidocaine
- Regional
- Ketamine
- Gabapentin



Perioperative Quality Improvement Programme



Ketamine

- Perioperative sub-anaesthetic doses reduce analgesic requirements, effects last 36-72hrs if given pre-incision
- Reduces PONV & 24 hour PCA morphine consumption
- Shown to decrease chronic postsurgical pain and opioid consumption after total hip arthroplasty (ketamine 0.5 mg/kg IV before incision and a 24-hr infusion of 2 µg/kg/min) Remerand Anesth Analg 2009
- Overall evidence for reduction in CPSP but at lower doses equivocal on pain intensity



Ketamine – how?

- Short Case
 - 0.2-0.4mg/kg (10-40mg) bolus at induction
- Medium Case
 - short plus extra 10-20mg bolus
- Long Case (a bit more)
 - 0.1mg/kg (5-10mg) bolus at induction
 - followed by 0.3mg/kg (15-30mg) infusion for 1 hr
 - dropping to 0.1mg/kg/hr (5-10mg/hr)
 - continuous infusion 50mg in 50ml
- Always if neuropathic pain or long term opiate use

Intravenous infusion of lidocaine starting at the time of surgery for reduction of pain and improvement of recovery after surgery

Kranke *et al.* 2015

- 45 RCTs, 2802 participants (moderate-high risk bias, heterogeneity, small studies)
- SAFE (no adverse effects but not powered for this)
- Reduced (early) post-operative pain n=23 studies
- Reduced opioids n= 32 studies
- Reduced length of stay n=21 studies
- Improved bowel function
 - Reduced nausea n=28
 - Reduced time to first flatus n=11
 - Reduced ileus n=3

Lidocaine – who & how?

- Who?

- High risk pain
- High risk ileus
- Regional not possible



- How?

- Whole systems awareness of toxicity & treatment including at surgical Time Out
- Standard infusion protocol
- Non-return valve, labelled line
- Dose reductions in liver/heart failure
- Cautions in acidosis, hypoxia, paralysis

Gabapentin, Pregabalin

- Bind to presynaptic calcium channels, reducing excitatory neurotransmitter release
- Reduce opioid requirement & pain in a variety of surgeries in different trials
- Optimal dose of pre-incision & post-incision gabapentin for pain relief following lumbar laminectomy is 900-1200mg *Khan et al* 2011
- SEs - sedation, visual disturbances, dizziness, headache
- Doses & protocols not well evidenced. More research is needed to find dose which produces minimal adverse effects while reducing pain as part of multimodal analgesia



Mg, Clonidine, Dexmedetomidine

- **Magnesium**

- (8 mg/kg/hr intraoperatively) appears to act via NMDA receptor antagonism & inhibition of calcium influx.
- Some studies have found that it reduces postoperative opioid requirements but a meta-analysis showed no evidence for its efficacy in decreasing postoperative opioid demand & pain

Tan et al 2015, Canadian Journal Anaesthesia

- **Clonidine & dexmedetomidine**

- Central & peripheral α_2 stimulation
- Systematic review & meta-analysis confirmed they decrease postop opioids, opioid SEs & pain intensity, when added to an opioid-based regimen *Blaudszun et al 2012 Anaesthesiology*
- Variability in administration route & timing : more research

What do I do?

- Listen. Manage pain expectations, explain analgesia, trade-offs
- Reduce high opioids pre-op
- Work on anxiety, teach breathing techniques, mindfulness
- Anaesthetic room “healing” language, positive suggestion e.g. of observations on monitor, experience on waking
- Regional technique every time possible (plus plan for after)
- Midazolam (1-2mg), Ketamine (10-20mg) at induction
- Lidocaine 3mg/kg peri-operatively
- Clonidine, Mg if high risk
- Set expectation of when opioids should be stopped



What to do if severe pain in recovery

- Listen – Validate - Act
- Your placebo effect - give care & medicines with warmth, attention & confidence
- If epidural bolus or 10mg morphine ineffective:
 - 2-10mg boluses IV Ketamine
 - 1mg bolus Midazolam (beware airway)
 - 25mcg Clonidine



Systemic suggestions

- Pre-assessment identification of patients at risk of severe post op pain
 - E.g. identify those on pain drugs pre-op, make a pain plan (UCLH audit)
- MDT post operative management of patients at high pain (and other risk)
 - E.g. NELA patients: surgery, pain management, ICU outreach: The Dream Team
- QI methodology to peri-operative pain management drug protocols & processes

