5th ERAS UK Conference

Advances in Pain Management

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Pre-op information
Optimised organ function
No nutritional deficits
No alcohol pre-op
Stop smoking pre-op
Neuraxial blockade
Minimal invasive operation
Normothermia
Nausea prevention
Ileus prevention
Early feeding
Good oxygenation
Good sleep
Opioid sparing
EB post-op care

Anxiety, fear
Pre-op organ dysfunction
Surgical stress response
Hypothermia
Semi starvation
Hypoxaemia
Poor sleep drains, tubes
Catheters

PAIN
Optimal analgesia

- Earlier mobilization
- Reduced organ dysfunction
- Reduced stress response
- Earlier nutrition
- Earlier discharge
Multimodal analgesia

Achieved by combining different analgesics that act by different mechanisms, resulting in additive or synergistic analgesia with lowered adverse effects of sole administration of individual analgesics

Kehlet H, Dahl JB. Anesthetic Analgesia 1993 77: 1048-1056
Western General Hospital

- Large colorectal unit >450 per year
- Large urology unit

Western General Pain Team
3 nurses
3 consultants
Pharmacy
Physiotherapy
Achieving the balance

- Laparoscopic surgery
- Negates need for epidural

But

- Continue to opioid spare
- Creative approach using local anaesthetics and systemic analgesics
WGH “guideline”

- Intrathecal/spinal
  - Diamorphine & bupivacaine
- IV lidocaine
- PCA morphine or fentanyl (24 hours)
  - Dose find and convert to oral/patch
- NSAID
- Paracetamol
- Consider stepdown & downward titration
Intrathecal opioid

- Pre-op
- Diamorphine dose consideration
  – “Relief or grief”
- Side effects
**Epidural**
- 1-5 days great analgesia
- Mobilisation?
- Reduced opioid use
- Reduced stress response
- Reduction of ileus

**Spinal**
- 12 hours
- No issues with mobilisation
- Reduced opioid use
- Reduced stress response
- Reduction of ileus

**BUT…**
- 1/3 failure rate?
- Potential for serious complications
- Hypotension/fluid overload

**AND…**
- More predictable
- Lower risk major complications
- CVS stability post-op
Western General

![Graph showing the use of Spinal diamorphine and Epidural at Western General Hospital from 2010 to 2015. The graph indicates a significant increase in the use of Epidural in 2011, with a peak in 2013. The use of Spinal diamorphine remains relatively stable throughout the years.](NHSLogo.png)
### IV Lidocaine for Major Colorectal Surgery

#### Inclusions
- ASA 1, 2, 3
- Aged 18-90 yrs
- Colorectal Resection
- (Elective) Cases

#### Exclusions
- Allergy to LA
- *MI in last 6 month
- Deranged LFTs / Clotting
- Epidural
- Pregnancy / Breast-Feeding
- eGFR <30mL/min

*(Inclusion/exclusion tight in initial audit phase 120 patients)*

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#### 2% Lidocaine
- 1.5mg/kg bolus (over 20 min)
- If <70kg – 3mL/hour (60mg/hour) for 12 hours
- If ≥70kg – 6mL/hour (120mg/hour) for 12 hours

*SHDU for duration of infusion*

Assessment of safety, pain scores, bowel function, Quality of Recovery
Why Fixed Dose?

- To minimise human error
- PCA pump used – programmed for
  - Low dose (3mL/60mg/hr)
  - High dose (6mL/120mg/hr)
- PCA giving set
  - Anti-syphon
  - Anti-reflux
- Locked/Anti-tamper
IV Lidocaine usage at WGH

To date

Number of IV lidocaine

1,246 patients (2/11/15)
## Safety Data

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbness / Tingling</td>
<td>4</td>
</tr>
<tr>
<td>Tracking (redness) up vein</td>
<td>3</td>
</tr>
<tr>
<td>Low blood sugar</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension (relieved by catheterisation)</td>
<td>1</td>
</tr>
<tr>
<td>Dystonic reaction (not helped by intralipid)</td>
<td>1</td>
</tr>
</tbody>
</table>

7 adverse events out of 1,246 IV lidocaine infusions to date

(6 in recovery room, 1 on HDU)
Quality of Recovery

- Quality of Recovery-40 Questionnaire, (QoR-40)
  - 5 dimensions: (patient support, comfort, emotions, physical independence, pain)
  - Maximum score 200

<table>
<thead>
<tr>
<th></th>
<th>QoR — 40 Score (median)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lidocaine</td>
<td>Non-Lidocaine</td>
</tr>
<tr>
<td>Total</td>
<td>176 (n=28)</td>
<td>166 (n=28)</td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>175 (n=10)</td>
<td>159 (n=9)</td>
</tr>
<tr>
<td>Open</td>
<td>182 (n=18)</td>
<td>168 (n=19)</td>
</tr>
</tbody>
</table>

Small significance but only 112 patients

Paterson et al, 2014
Return of Bowel Function

Based on 127 perioperative lidocaine infusions (12 hours)

Craven et al, 2015
Patient controlled analgesia (PCA)

- Morphine or fentanyl
- Ideally 24 hours and then step down to
  - Fentanyl patch
  - Oxycodone MR
  - Tramadol
  - Regular (if necessary) plus as required
- Paracetamol +/- NSAID
And beyond .............

- Targinact ®
- Alvimopam
  - Methylnaltrexone
  - Linaclotide
- Liposomal bupivacaine
- Ionsys (fentanyl transdermal PCA)
Targinact®
Oxycodone/naloxone

Constipation was significantly relieved in a 2008 study. [1]

No acute license (restless legs)
No SMC approval
TACS project WGH

Alvimopam

peripherally acting μ-opioid antagonist. With limited ability to cross the blood–brain barrier, many of the undesirable side-effects of the opioid agonists such as constipation are minimized without affecting analgesia or precipitating withdrawal
Liposomal Bupivacaine

- Up to 96 hours action
- Most useful in orthopaedic or rectus sheath blocks
Ionsys®
fentanyl iontophoretic transdermal system

Fentanyl PCA

• Frees patient from infusion
• Recommended for approval UK
• FDA approved