Analgesia for Colorectal Surgery: the way Forward

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The Fall of the Epidural (Plymouth)

Postoperative IV-PCA vs epidural analgesia

- PCA
- Epidural

Graph showing the comparison between Postoperative IV-PCA and epidural analgesia from 2001 to 2010.
Why the fall?

- Re-evaluation of risk benefit (Master Trial, Rigg, Lancet 2002)
  - Respiratory failure
    - NNT of 15
  - Analgesia
    - 25% failure rate
  - Shortcomings in Laparoscopic surgery (Levy, Scott, Anaesthesia, 2010)

- Local History of complications (Christie, Anaesthesia, 2008)
  - 6 abscesses + 3 meningitis + 4 haematomas over 10 years

- Hypotension
  - 25% colorectal patients
  - Splanchnic perfusion
  - Vasopressor vs fluids vs where to nurse

- Introduction of alternatives
Fig 1 Graph of percentage change from period 0 for each parameter mean arterial pressure, cardiac output, central venous pressure, colonic serosal red cell flux (laser Doppler) at the end time points of periods 1, 2, and 3. Mean values, 95% CI.
Randomized controlled trial of intraoperative goal-directed fluid therapy in aerobically fit and unfit patients having major colorectal surgery

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Trial participants having open or lap to open conversion

<table>
<thead>
<tr>
<th></th>
<th>TAP/ RS</th>
<th>Epidural</th>
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<tbody>
<tr>
<td>n</td>
<td>37</td>
<td>96</td>
</tr>
<tr>
<td>duration op (min)</td>
<td>175</td>
<td>172</td>
</tr>
<tr>
<td>Intra-op Crystalloid (ml)</td>
<td>3600</td>
<td>3700</td>
</tr>
<tr>
<td>Intra-op Colloid (ml)</td>
<td>806</td>
<td>1210</td>
</tr>
<tr>
<td>Flatus (d)</td>
<td>2.6</td>
<td>2.0</td>
</tr>
<tr>
<td>Diet (d)</td>
<td>2.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Ready for Discharge</td>
<td>6.5</td>
<td>11</td>
</tr>
<tr>
<td>LOS (d)</td>
<td>9</td>
<td>17</td>
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|                                | TAP/ RS | Epidural | \( p \)  
|--------------------------------|---------|----------|-----------
| Ready for Discharge (days)     | 4.7     | 7.3      | 0.025     |
Critical Care Admissions:
Open Colorectal Surgery

TAP/rectus: 3
Epidural: 29 (Total: 67)
Alternatives

- Multimodal analgesia
- Spinal – laparoscopic (Guildford)
- Rectus Sheath Blocks
- TAP Blocks
- Drugs – ketamine, gabapentin, oral opioid + oral naloxone
The Transversus Abdominis Plane Block Provides Effective Postoperative Analgesia in Patients Undergoing Total Abdominal Hysterectomy

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BACKGROUND: Patients undergoing total abdominal hysterectomy suffer significant postoperative pain. The transversus abdominis plane (TAP) block is a recently described approach to providing analgesia to the anterior abdominal wall. We evaluated the analgesic efficacy of the TAP block in patients undergoing total abdominal hysterectomy via a transverse lower abdominal wall incision, in a randomized, controlled, double-blind clinical trial.

METHODS: Fifty females undergoing elective total abdominal hysterectomy were randomized to undergo TAP block with ropivacaine (n = 24) versus placebo (n = 26) in addition to standard postoperative analgesia comprising patient-controlled IV morphine analgesia and regular diclofenac and acetaminophen. All patients received a general anesthetic and, before surgical incision, a bilateral TAP block was performed using 1.5 mg/kg ropivacaine (to a maximal dose of 150 mg) or

Figure 2. Mean postoperative cumulative morphine consumption in each group in the first 48 postoperative hours.

Table 2. Postoperative Analgesic Requirement

<table>
<thead>
<tr>
<th>Group</th>
<th>Control (n = 26)</th>
<th>Tap block (n = 24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to first request for morphine (min) (median, IQR)</td>
<td>12.5 (0–23)</td>
<td>45 (26–116)*</td>
</tr>
<tr>
<td>Mean 24 h morphine requirement (mg ± SD)</td>
<td>39.6 ± 15.7</td>
<td>21.1 ± 12.7*</td>
</tr>
<tr>
<td>Mean 48 h morphine requirement (mg ± SD)</td>
<td>55.3 ± 17.6</td>
<td>26.8 ± 19.8*</td>
</tr>
<tr>
<td>Interval morphine requirements (mg ± SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–12 h</td>
<td>29.8 ± 12.7</td>
<td>14 ± 9.2*</td>
</tr>
<tr>
<td>12–24 h</td>
<td>9.8 ± 7.8</td>
<td>7.2 ± 6.8</td>
</tr>
<tr>
<td>24–36 h</td>
<td>8.3 ± 5.6</td>
<td>3.3 ± 5.3†</td>
</tr>
<tr>
<td>36–48 h</td>
<td>7.3 ± 6.6</td>
<td>2.8 ± 7.7‡</td>
</tr>
</tbody>
</table>

Categorical variables are presented as number and proportion, continuous variables are presented as mean and standard error.
Surgery, anaesthesia, perioperative and critical care

Perioperative transversus abdominis plane (TAP) blocks for analgesia after abdominal surgery

Record type
Uncertainties identified in research recommendations

Source
Cochrane Pain, Palliative and Supportive Care Group?

Why is there uncertainty?
Reliable up-to-date systematic reviews have revealed important continuing uncertainties about treatment effects

Original uncertainty
View original uncertainty

References to reliable up-to-date systematic reviews:

What is needed?
Further research
“further study is required comparing TAP block with other methods of postoperative analgesia and as an analgesia adjunct to usual care”
Evidence?

- Niraj et al: *Anaesthesia* 2011

- Method
  - Upper abdo surgery
  - Subcostal TAP (boluses) vs epidural analgesia (inf)
  - Dynamic VAS until 72h

- Results
  - Greater opioid consumption in TAP group
  - Equivalent analgesia
  - But…
    - Higher failure rate (30% vs 22%) (incisions beyond T10)
    - TAP catheters resited in 45%

- Conclusions
  - TAPs effective alternative
Is this more complicated than it looks?
The TAP era

• TAP mark-1
  – Posterolateral approach
  – Good for sub-umbilical incisions

• TAP mark-2
  – Subcostal approach
  – Good for peri-umbilical incisions

• TAP mark-3
  – Oblique subcostal approach
    • Hebbard et al RAPM 2010
Oblique Subcostal TAP
Oblique Subcostal TAP
What is the correct message?
ER: consistency & measurement

1. Lap (low conv) – Spinal & GA
2. Lap (high conv) – GA & TAP / Rectus cath or GA & epidural
3. Open R Hemicolecotmy – GA & TAP cath
4. Open Rectal Surgery – GA & Epi (HDU)
5. AP Resection – as 4 + dilute LA caudal