Choice of drugs for neuraxial labour analgesia

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Introduction

- Bupivacaine extremely cardio toxic if accidental overdose was to occur

- Newer agents: Ropivacaine, L-bupivacaine

- Although less potent, in high doses Ropivacaine and L-bupivacaine have lower systemic toxicity than bupivacaine (Groban L, Dolinski S Y. 2001)
Hospital fined £100,000 after wrong drug killed new mother

Mayra Cabrera died after giving birth in Swindon when she was accidentally dosed with bupivacaine, a potent anaesthetic

Steven Morris
guardian.com, Monday 17 May 2010 18.41 BST
Patient safety alert

Safer practice with epidural injections and infusions

The National Patient Safety Agency (NPSA) has identified actions that can make administering epidural injections and infusions safer.

Between 2000 and 2004, three patient deaths were reported following the administration of epidural bupivacaine infusions by the intravenous route.\(^1\)

A review of reports made to the NPSA between 1 January 2005 and 31 May 2006 reveals that there were 346 incidents reported that involved epidural injections and infusions.

Most of these resulted in no or low harm, and included six incidents where epidural medicines had been administered by the intravenous route. The others included wrong route errors where intravenous medicines had been administered by the epidural route and the wrong product selected, resulting in the wrong drug or dose being administered.

These incidents highlight a number of risks related to epidural injections and infusions, including how the medicines and devices are labelled, stored and used. Managing these risks successfully will make patient care safer.

Action for the NHS and the independent sector

28 March 2007
NPSA 21: Recommendations

► Ready-to-administer licensed epidural infusions should always be selected, if they are available.

► Store epidural infusions in separate cupboards or refrigerators

► Ensure all staff involved in epidural therapy have received adequate training
Aim

► Is there a uniformity in the choice of LA and adjuvants used for maintenance of labour epidural analgesia in the U.K.?

► Have units conformed to the recommendation made by the NPSA alert 21?
Method

- Online OAA approved survey no. 140

- Lead obstetric anaesthetists in 197 units in the UK.

Response rate was 80.2%
Local anaesthetic of choice for maintenance of labour epidural analgesia

- **Bupivacaine**: 98 units (57%)
- **L-bupivacaine**: 67 units (39%)
- **Ropivacaine**: 3 units (2%)
- **Other**: 3 units (2%)
Commonest concentrations

- **Bupivacaine**
  - 0.10%: 83.67%
  - 0.125%: [Bar graph showing percentage]

- **Levobupivacaine**
  - 0.10%: 85.07%
  - 0.125%: [Bar graph showing percentage]
Opioids added

Most frequently used opioid: Fentanyl (98.1%)

Different regime for parturients who have received parenteral opioids
Reasons for choice of Local Anaesthetic

- Clinical benefit: 40%
- Supplied by pharmacy: 35%
- Cost: 10%
- Regional guideline: 10%
- National guideline: 10%
- Other: 5%
Those using Bupivacaine........

- Has been traditionally used
- Same mixture used in other hospital areas
- Never considered a change is required
Those using Levo-bupivacaine

- Toxicity related safety
- Good balance of efficacy and safety
- Following evidence from published papers
Method used for maintenance of labour epidural analgesia

- PCEA: 46 units (29%)
- PCEA+BI: 31 units (20%)
- CI-PCEA: 1 unit
- Continuous Inf.: 41 units (26%)
- Inter. Top-ups: 33 units (21%)
Local anaesthetic plus opioid solution availability

<table>
<thead>
<tr>
<th>Category</th>
<th>Units</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed premixed bag</td>
<td>102</td>
<td>64%</td>
</tr>
<tr>
<td>Premixed bag pharmacy</td>
<td>16</td>
<td>10%</td>
</tr>
<tr>
<td>Premixed syringe pharmacy</td>
<td>28</td>
<td>17%</td>
</tr>
<tr>
<td>Syringe labour ward</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>6%</td>
</tr>
</tbody>
</table>
Any other adjuvants

- Clonidine: 11 Units
- Adrenaline: 6 Units
- Other: 11 Units
Conclusion

► Is there a uniformity in the choice of LA and adjuvants used for maintenance of labour epidural analgesia in the U.K.?

No

► Have units conformed to the recommendation made by the NPSA alert 21?

Majority have (92%) but 2% still prepare LA mix on labour ward
Discussion

► Should we have more uniformity?

► Should we be moving to L-bupivacaine or Ropivacaine as a safer option?

► If so which drug, which dosage regime?

► What do other countries use?
References


