COMPARISON OF EPIDURAL METHADONE WITH EPIDURAL DIAMORPHINE FOR ANALGESIA FOLLOWING CAESAREAN SECTION

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Analgesia provided by either 5 mg methadone or 5 mg diamorphine (diluted in 10 ml 0.9% saline) administered by the epidural route at the time of delivery during elective caesarean section was compared in 40 women in a prospective randomized trial. Epidural anaesthesia for the operation was provided using 0.5% bupivacaine administered through a catheter at either the L2/3, or L3/4 level. Caesarean sections were performed using a low transverse abdominal incision. Postoperatively if analgesia was inadequate, further analgesia was administered. Morphine 10 mg i.m. 3-hourly was prescribed. Alternatively, two Co-dydramol tablets (dihydrocodeine plus paracetamol) were offered. Prochlorperazine 12.5 mg i.m. was given if necessary for nausea and vomiting.

Ten centimetre visual analogue scales for both pain and nausea were completed at 2-hourly intervals for the initial 12 h, and again at 24 h. Each woman was asked 24 h postoperatively if pruritus had occurred, and if she would choose this form of analgesia in the future were she to have another caesarean section. The details of supplementary analgesia and antiemetic administration were documented from the nursing notes. An Ohmeda Biox pulse oximeter interfaced with a Psion organizer hand held computer recorded oxygen saturation (SpO2) data at 60 s intervals when the SpO2 was >93%, and at 10 s intervals if <94%, for 12 h postoperatively. Statistical analysis was by $\chi^2$ or Mann-Whitney U-tests as appropriate.

The median time to further analgesia was 395 min in the methadone group and 720 min in the diamorphine group ($P=0.0003$). Pain scores were significantly lower in the diamorphine group at 8 and 10 h. The median i.m. morphine dose during the first 24 h to the methadone group was 20 mg, and 0 mg in the diamorphine group ($P=0.0199$). Nausea and pruritus were common in both groups. One woman receiving diamorphine and 6 receiving methadone stated that they would prefer another form of postoperative analgesia were they to require a caesarean section in the future.

Continuous pulse oximetry data were available in 15 patients receiving methadone, and 17 patients receiving diamorphine. One or more episodes of significant desaturation (<90% for 20 s), occurred in 5 patients given methadone, and in 10 patients given diamorphine (NS). The respiratory rate was documented hourly. In no patient was this recorded as being less than 12 breaths per minute.

We conclude that despite both the drugs studied being opioids with similar physical properties, a single dose of 5 mg diamorphine provides a longer period of analgesia than does a single 5 mg dose of methadone when administered into the epidural space at the time of caesarean section. Our oxygen saturation data suggest that intermittent counting of the respiratory rate is not a satisfactory index of respiratory depression, since episodes of hypoxaemia of variable duration were present in both groups of women studied, despite normal respiratory rates.
EPIDURAL OPIOIDS IN UK OBSTETRIC ANAESTHETIC PRACTICE

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The survey
A postal survey of 180 out of approximately 280 obstetric units in the 17 Regional Health Authorities in the UK was carried out. The questionnaire identified the workload of the unit and asked about their practice of using epidural opioids.

The results
There was a 60% response rate. The units delivered 376,000 infants per year (more than 55% total annual deliveries in the UK). 63 (60%) of the units replying used epidural opioids.

Units using epidural opioids
62 units used epidural opioids for caesarean sections and 40 units also used them during labour. 20,000 women per year at these units had caesarean sections using epidural anaesthesia and 2,500 women per year had been given epidural opioids during labour.

Diamorphine and fentanyl were the commonest drugs used (77% of units). Other drugs used included morphine, alfentanil, phenoperidine, pethidine, methadone and buprenorphine. Twelve per cent of units gave more than one dose down the epidural catheter.

Postnatal care took place on the general ward after up to 1 h in recovery in 52% of units. Only 6 units had a High Dependency Unit where patients were nursed for between 12 and 24 h.

Respiratory rate was the commonest form of postnatal monitoring. Nine units used pulse oximeters and 9 units used no extra monitoring. Six units had written protocols.

An estimated 100,000 women will have had epidural opioids in these units. There were only 4 reports of respiratory depression: one patient had a respiratory rate of 11; one had a respiratory rate of less than 10; one other patient was given 50 mg diamorphine in error and had to be ventilated and a fourth one had respiratory depression after having a chloromethiazole infusion in addition to epidural morphine.

Conclusion
Epidural opioids have a very good safety record in obstetric anaesthetic practice. Over 100,000 women have had epidural opioids, of whom only 4 have had respiratory depression reported.

The use of epidural opioids is not nationally accepted as only 60% of units replying use them routinely. The concerns expressed by units not using opioids included anxieties regarding respiratory depression and adequacy of postoperative monitoring. These results suggest that the restrictions on the use of epidural opioids, as suggested for the non-pregnant population, may not be relevant to a pregnant one.

THE EFFECT OF POSTURE ON THE SPREAD OF HYPERBARIC BUPIVACAINE (SITTING VERSUS LEFT LATERAL)

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Introduction
Russell has extensively investigated the effect of posture on the spread of isobaric bupivacaine in obstetric patients. However, no controlled studies have been undertaken to evaluate the effect of sitting and lateral positions on the spread of hyperbaric bupivacaine in pregnant patients. We therefore decided to perform a randomized controlled trial to elucidate the effect of these two positions on the spread of hyperbaric bupivacaine.

Methods
Fifty patients undergoing elective caesarean section were randomly allocated to receive 2.0 ml of hyperbaric bupivacaine in either the sitting or left lateral position. Using a single space combined spinal and epidural technique, the subarachnoid injection was made at the L2/3 space without barbotage. The patients were then placed in the supine position with a 20° right lateral tilt. If at 6 min the sensory analgesia to ethyl chloride had not reached T10, 10 ml of 0.5% bupivacaine with 1:200,000 adrenaline was administered through the epidural catheter. Hypotension (defined as a fall in the systolic pressure below 100 mmHg) was minimized by a preload of Hartmann’s 1 litre followed by an infusion of ephedrine (60 mg in Hartmann’s 1 litre). The time taken for sensory analgesia to reach T4 and motor block to reach grade 3 (unable to flex ankles) were recorded. Statistical analysis was performed using Student’s t-test and χ² tests.

Results
The demographic details of two groups were comparable. One patient from each group was withdrawn.
due to a failed subarachnoid block and these patients proceeded to caesarean section under epidural anaesthesia.

<table>
<thead>
<tr>
<th></th>
<th>Sitting n = 24</th>
<th>Lateral n = 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean onset time to T4 (min)</td>
<td>10.8 (4.0)</td>
<td>7.7 (3.6)*</td>
</tr>
<tr>
<td>Mean time to grade 3 (min)</td>
<td>9.4 (3.1)</td>
<td>6.9 (2.4)*</td>
</tr>
<tr>
<td>Epidural top-up. No. (%)</td>
<td>9 (37.5)</td>
<td>1 (4)*</td>
</tr>
<tr>
<td>Hypotension. No. (%)</td>
<td>3 (13)</td>
<td>11 (48)</td>
</tr>
<tr>
<td>Nausea. No. (%)</td>
<td>5 (22.5)</td>
<td>14 (61)*</td>
</tr>
</tbody>
</table>

* = significant difference (P< 0.05)

Discussion

Two millilitres of 0.5% hyperbaric bupivacaine provides rapid and reliable analgesia for caesarean section when injected in the lateral position. However, it is associated with an increased incidence of hypotension and nausea. We recommend that if spinal anaesthesia for caesarean section is carried out with the patient in the sitting position then a dose greater than 10mg of bupivacaine should be used as 37.5% of the patients in the sitting group required an epidural top-up.

References


EFFICACY OF DICLOFENAC IN A SINGLE PROPHYLACTIC DOSE IN POST PARTUM PAIN

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Queen Charlotte’s & Chelsea Hospital, London, UK

Introduction

Relief of post partum pain - uterine cramps, episiotomy and oedema especially following instrumental intervention - is provided traditionally by parenteral and oral opioid analgesics and other non-steroidal anti-inflammatory drugs (NSAIDs). It has been suggested that prophylactic use of NSAIDs enhances their analgesic efficacy by attenuating inflammatory response and minimizing the activation and sensitization of peripheral nociceptors. This causes improved analgesia, earlier mobilization, and a reduced need for analgesics. This study therefore evaluates the relative efficacy of diclofenac in a single prophylactic dose in post partum pain.

Methods

The study was a prospective, randomized, double blind, placebo-controlled trial. The study protocol was approved by the Ethics Committee. After informed consent, 262 mothers were given diclofenac 100 mg or identical looking placebo as a suppository after vaginal delivery. Women with a history of known sensitivity to aspirin-related drugs, bronchial asthma, documented peptic ulcer or coagulation abnormality were excluded from the study. Further pain relief was with paracetamol, mefanamic acid (MA) and oral opioid as required. Visual analogue score (VAS) and the total amount and type of analgesics required in the first 24 h were noted.

Results

Results are tabulated by mode of vaginal delivery, each group subdivided into diclofenac (D) and placebo (P)

<table>
<thead>
<tr>
<th></th>
<th>SVD</th>
<th>Instrumental delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>72</td>
<td>86</td>
</tr>
<tr>
<td>No analgesic request</td>
<td>16(22.2)</td>
<td>40(46.5)</td>
</tr>
<tr>
<td>Paracetamol only</td>
<td>9(12.5)</td>
<td>11(12.7)</td>
</tr>
<tr>
<td>MA 500 mg</td>
<td>20(27.7)</td>
<td>13(15.1)</td>
</tr>
<tr>
<td>MA 1000 mg</td>
<td>18(25)</td>
<td>15(17.4)</td>
</tr>
<tr>
<td>MA &gt; 1000 mg</td>
<td>6(9.3)</td>
<td>7(8.1)</td>
</tr>
<tr>
<td>opioid</td>
<td>3(4.1)</td>
<td>0(0)</td>
</tr>
<tr>
<td>VAS (mm)</td>
<td>31.1</td>
<td>28.6</td>
</tr>
</tbody>
</table>

60% of women who had a spontaneous vaginal delivery required no further analgesia or paracetamol only following diclofenac compared with 34.7% and 23.3% respectively with placebo.

Conclusion

The prophylactic use of diclofenac reduces analgesic requirements and has an opioid-sparing effect. We therefore suggest that a single prophylactic dose of diclofenac 100 mg suppository be given after all vaginal deliveries, noting the usual exclusion criteria for NSAIDs.
COMBINED SPINAL AND EPIDURAL ANAESTHESIA FOR CAESAREAN SECTION:
USE OF SMALL DOSE SUBARACHNOID INJECTION

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Introduction

Combined spinal epidural (CSE) anaesthesia has advantages that neither technique alone possesses for caesarean section (C/S). Spinal anaesthesia fulfils the essential requirements for ideal operative conditions; a low dosage of local anaesthetic raises the possibility of lower incidence of hypotension and high blocks, whilst a catheter in the epidural space offers flexibility in duration and efficacy of postoperative analgesia. This study, therefore evaluates the use of 1.5 ml of 0.5% heavy bupivacaine for C/S using CSE technique.

Methods

Forty four mothers presenting for elective C/S were studied. Using a single space CSE technique, 1.5 ml of 0.5% hyperbaric bupivacaine was injected at the L2/3 space with the patient in the left lateral position. Patients were excluded from the study if no CSF could be aspirated at the end of the injection. Following insertion of the epidural catheter, the mother was placed in the right lateral position. All patients were preloaded with 1 litre Hartmann’s solution and hypotension (systolic BP < 100 mmHg or > 20% drop) was prevented by an infusion of ephedrine (60 mg in 1 litre Hartmann’s). If at 10 min, the block had not reached T4, 10 ml of a standard epidural mixture of equal parts of 0.5% bupivacaine and 2% lignocaine each containing 1:200 000 adrenaline, was given. Epidural fentanyl (100 μg in 10 ml saline) was given to all women before surgery. Pain during surgery was assessed using a 100 mm visual analogue score (VAS).

Results

The average age, weight and height of the patients were 33.1 (25-40) years, 79.0 (54-115) kg, 162.3 (151-172) cm respectively. The details of the sensory block are shown in the Table.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready for surgery at 10 min n(%)</td>
<td>34</td>
<td>77</td>
</tr>
<tr>
<td>Epidural top-up at 10 min n(%)</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>Upper level of block</td>
<td>C7</td>
<td>T4</td>
</tr>
<tr>
<td>Hypotension (%)</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Mean visual analogue score (mm)</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

High blocks neither caused difficulties nor required intervention. No patient required general anaesthesia and all indices of neonatal outcome were within normal limits.

Conclusions

This study shows that 1.5 ml of 0.5% hyperbaric bupivacaine provides rapid, reliable and effective analgesia in over 75% of mothers. The 27% incidence of hypotension compares very favourably with other studies\(^1\) and confirms the findings of Rawal et al\(^2\) who showed that the incidence of hypotension when using the CSE technique can be reduced to a level that is significantly lower than with epidural analgesia, if a small dose is injected into the subarachnoid space and then, if necessary, using the epidural catheter to block the upper segments.

References


CROSSMATCH POLICIES IN UNITED KINGDOM OBSTETRIC UNITS

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Introduction

Over-crossmatching contributes to blood wastage and shortage, and is costly financially and in terms of medical and laboratory staff time. A review of current crossmatch policy in Bellshill Maternity Hospital (RMH) revealed a crossmatch transfusion ratio (CTR) of 12:1, more than 4 times the recommended ‘ideal’ CTR of 2.5:1.\(^1\) due to routine crossmatching of blood for all sections, ‘high risk’ labours, retained placenta, ante- and postpartum haemorrhages (APH and PPH). New guidelines for crossmatching have been adopted at BMH. A survey of policies in obstetric units throughout the UK was undertaken, to determine what variation in practice exists, and to identify factors that may influence these practices.
Method
A postal questionnaire was sent to 89 randomly selected obstetric units, one third of all units recognized by the Royal College of Obstetricians and Gynaecologists. Seventy two replies were received, a response rate of 81%, representing 31% of the total UK deliveries per annum.

Results
In general excessive blood is crossmatched, reflected in the high CTRs reported (range 1-50). Crossmatching policy varies widely; 60% of units replying to the survey crossmatch for section, the rest 'group and screen' (G&S), 29% crossmatch for fetal distress. Most units crossmatch for active APH and PPH (Table).

Units with no on-site blood bank experience significantly longer delays obtaining blood ($P<0.001$). Isolated units are less likely to have an on-site blood bank ($P<0.001$).

Units without a 24 h resident haematology technician experience longer delays obtaining blood ($P<0.01$). Fewer small units have a 24 h resident technician ($P<0.01$). District hospitals compared with teaching hospitals ($P<0.05$) and isolated units compared with main hospital units ($P<0.05$) experience longer delays obtaining blood, though they do not crossmatch more blood.

19% of units do not have O-negative blood readily available.

60% of units have a protocol for management of obstetric haemorrhage.

<table>
<thead>
<tr>
<th>Crossmatch</th>
<th>Group and screen</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caesarean section</td>
<td>43 (60)</td>
<td>27 (37)</td>
</tr>
<tr>
<td>'High risk' labour</td>
<td>19 (26)</td>
<td>43 (61)</td>
</tr>
<tr>
<td>Active APH and PPH</td>
<td>67 (93)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

Recommendations
1. Obstetric units should adopt a crossmatch policy, depending on local circumstances, but aimed at achieving a CTR around 2.5.
2. When possible, obstetric units should have on-site blood banks and 24 h resident haematology technicians. This may have financial implications for small or isolated units.
3. All units should have O-negative blood readily available. It is safe to give group specific blood if there is a recent negative antibody screen.

References

FACTORS LIMITING DEMAND FOR OBSTETRIC EPIDURAL ANALGESIA
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Despite the benefits of epidural analgesia in labour, in a large District General Hospital only 16–25% of patients have the technique.

To determine the reasons, 278 patients in 1 month were interviewed on the postnatal wards and subdivided into 4 groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Unaware of epidural service</th>
<th>Aware of service but no request made</th>
<th>Requested but did not receive an epidural</th>
<th>Received an epidural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>180</td>
<td>20</td>
<td>65</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>4.7</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>7.2</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>23.4</td>
</tr>
</tbody>
</table>

No %

The epidural rate was higher in primigravid (38%) as compared to multigravida (11%) patients.

In group 2 61% of patients were offered the technique by the attending midwife, 31 patients thought labour was too far advanced and did not consider it necessary and 2 had been previously advised against by medical staff. Altogether 140 patients had decided against epidural analgesia, reasons given were as follows (> 1 per patient).

<table>
<thead>
<tr>
<th>Reason</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frightened of needle in back</td>
<td>67</td>
<td>48</td>
</tr>
<tr>
<td>Frightened of being paralysed</td>
<td>42</td>
<td>30</td>
</tr>
<tr>
<td>Frightened of damage to back, backache or headache</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Epidurals are unnatural</td>
<td>36</td>
<td>26</td>
</tr>
<tr>
<td>Unable to push with epidural</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>More likely to require forceps</td>
<td>25</td>
<td>18</td>
</tr>
<tr>
<td>Put off by family or friends</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>Didn’t want drips or urinary catheter</td>
<td>20</td>
<td>14</td>
</tr>
<tr>
<td>Frightened of pain on epidural insertion</td>
<td>10</td>
<td>7</td>
</tr>
</tbody>
</table>

Overall 15% wished that they had had an epidural in retrospect, 50% if they had undergone instrumental delivery.
A NEW POSITION
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Objective
A pilot study to assess the value of a different position: that of kneel/sitting adopted by the mother during the siting of a lumbar epidural catheter for pain relief during labour.

Design
• Verbal questioning of mother as to the comfort or otherwise of the kneel/sitting position during routine post-epidural check-up.
• Questionnaire to anaesthetists who performed epidurals in this manner.

Setting
Maternity Unit, HM Stanley Hospital, St Asaph, North Wales.

Subjects
Thirty five women who requested epidurals for pain relief during labour had them sited whilst they were in the kneel/sitting position by any one of eight anaesthetists who were willing to perform the technique with their patients in this position.

Results
• In 34 out of 35 cases the procedure was successfully performed.
• There were no epidural complications.
  31 (88.5%) were happy with the procedure and would have it again.
  4 (11.4%) complained of paraesthesia of the lower limbs.
• In 1 case this position was abandoned.
• In 5 of the 35 cases this was the patient’s second epidural. 4 of the 5 had their previous epidural in the lateral lying position. All 4 preferred kneel/sitting. The fifth had her previous epidural in sitting position and she preferred this position.
• All 8 anaesthetists considered it to be a useful alternative position in which to perform epidurals.

Conclusion
Most women who have epidurals for analgesia during labour have them sited in the lateral lying or sitting positions. In both positions disadvantages have been noted for either patient or anaesthetist.

The outcome of a pilot study showed that kneel/sitting is a useful alternative position for the patient to adopt for comfortable, safe and easy positioning of the epidural catheter.

Implications
Further trials now need to be carried out to prove or refute this hypothesis. Anaesthetists taking part would have to be completely comfortable with the technique so that a randomized study can be performed measuring different variables in the lateral lying, sitting and kneel/sitting positions.