CSE Analgesia Represents the Gold Standard for Regional Analgesia in Labour

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CSE analgesia does not represent the gold standard for regional analgesia in labour.
Gold Standard

A thing of superior quality which serves as a point of reference against which other things of its type may be compared
Epidural as The Gold Standard

- Complete analgesia
- Throughout labour
- Side effect profile
- Beneficial physiological effects for mother and baby
- Low impact on obstetric outcomes

- Anaesthesia for operative intervention

Cambic CR, Wong, CA. Labour Analgesia and Obstetric Outcomes. BJA 2010; 105 (S1): i50–i60
Why bother with a CSE?
Advantages of CSE

- Improved patient satisfaction
- Faster onset of analgesia
- More reliable analgesia
- Less motor block
- Lower overall local anaesthetic dosage
Disadvantages of CSE

- Difficulties with technique
- Post dural-puncture headache
- Fetal heart rate abnormalities
- Infection
- Pruritus
- Epidural catheter use
Who should have a CSE for labour analgesia?
Who should have a CSE for labour analgesia?

- Odds ratios for failed epidural analgesia
  - Cervical dilatation >7cm: 3.18
  - Opioid tolerance: 7.24
  - Previous failed epidural: 5.55
  - Insertion by a trainee: 2.03

Agaram R, Douglas MJ, McTaggart RA, Gunka V. Inadequate pain relief with labor epidurals: a multivariate analysis of associated factors. IJOA 2009; 18, 10-14
Technical Difficulties
Technical difficulties

- Blanshard and Cook
- Survey of consultant anaesthetists in the UK
- 71% failure of spinal
- 61% inability to thread epidural catheter
- 59% blood in catheter

Blanshard HJ, Cook TM. Use of combined spinal-epidural by obstetric anaesthetists. Anaesthesia 2004; 59(9), 922-3
Failure

- Collis et al
- Failure rate of 10.6%
  - Spinal component
- Most of the blocks performed by trainees

Failure

- Lyons et al
- Comparison of NTN technique Vs. sequential injections
- Spinal failure rate 16% in the NTN group
- 4% in sequential needle technique

Insertion Difficulty

- 150 CSE in lateral position
- Only identified CSF in 88%
  - First pass with pencil-point spinal needle

Technical difficulties

<table>
<thead>
<tr>
<th>Condition</th>
<th>Elective (n = 1431)</th>
<th>Non-elective (n = 432)</th>
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<tr>
<td>Conversion to general anaesthesia</td>
<td>12 (0.8%)</td>
<td>9 (2.1%)</td>
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<td>Epidural supplementation</td>
<td>200 (14.0%)</td>
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Viira DJ, Courtman S, Coghill J. Technical difficulties and complication rates associated with the use of combined spinal-epidural anaesthesia for caesarean section. IJOA 2008;17(1):86-7
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More Frequent Post Dural-Puncture Headache (PDPH)
PDPH

- Choi et al
- ADP and PDPH
- ADP rate of 1.5% with all epidural needles
  - 52.1% risk of PDPH developing
PDPH

- Collis et al
- PDPH in 2.3% of women
  - 16G Tuohy needle
  - 27G Whitacre spinal needle
CSE and the Fetal Heart Rate (FHR)
CSE and the FHR

[Graph showing fetal heart rate (FHR) with annotations and timestamps]
CSE and the FHR

- Palmer et al – Retrospective Review
  - CTG reviewed for 30 min prior to and 30 min following the injection
  - As judged by a perinatologist blinded to the type of analgesia

- FHR twice as likely to deteriorate in the CSE group
  - 12% Vs. 6%

CSE and the FHR

- Systematic review of 24 studies (3500 women)
- Intrathecal opioids Vs. non-intrathecal opioid regimen

- Significant increase in the risk of fetal bradycardia
  - OR 1.8

- Risk of CS for FHR abnormality was similar
Serious Complications

- Arachnoiditis
- Infection
- Trauma
NAP 3

- CSE
  - 41,875 annually in the UK
  - 6% of central neuraxial block
  - 13% of permanent harm
  - 2 deaths following CSE
Arachnoiditis

Grace Wang

Angelique Sutcliffe
Arachnoiditis

- Potential for contamination
- Devastating results
- Meticulous practice

- Cases like this must be borne in mind prior to being cavalier about performing unnecessary procedures
Infection - Meningitis

- Underreported

- Bacterial pattern differs from community acquired infection

- Bacterial transfer
  - Maternal blood
  - Operator’s airway

Reynolds F. Infection as a complication of neuraxial blockade. IJOA 2005; 14, 183-188
Infection - Meningitis

- Epidural more common in labour
- Cases of meningitis more frequently reported after known dural puncture
- Labour is not a risk factor for meningitis alone

“Perhaps the moral is, don’t deliberately puncture the dura during labour without good reason”
Infection - Meningitis

- Review by Baer
- 179 cases of post-dural puncture meningitis
  - Not purely obstetric
- Spinals and epidurals: meningitis reported more commonly in the non-obstetric population
- CSE: meningitis was reported more commonly in obstetric population
  - 4% Vs. 1%

Baer ET. Post-Dural Puncture Bacterial Meningitis. Anesthesiology 2006; 105:381–93
Direct trauma from spinal injection

- 7 cases reports, 4 CSE
  - 3 of these were at caesarean section
- Insertion points believed to be at L2-3 interspace
  - Tuffier’s line is an inconsistent landmark
  - Cord may extend as low as L3
- Anaesthetists are frequently wrong about the level of insertion
- Cephalad tilt of spinal needle exiting the Tuohy not to be forgotten

Reynolds F. Damage to the conus medullaris following spinal anaesthesia. Anaesthesia 2001; (56) 3,238-247
Human Factors
Errors in anaesthetic practice

- Slips, lapses and mistakes

- “Strategies that reduce complexity are most likely to improve safety”

- “Causing the next error by trying to prevent the last one”

The Cochrane Review
2012
The Cochrane Review

- 27 randomised controlled trials
  - 3274 women
- 1st stage of labour
- CSE Vs. Traditional and Low Dose Epidural Analgesia
- 26 outcomes
The Cochrane Review

- Time to analgesia
- Need for rescue analgesia
- Satisfaction
- Ability to mobilize
- PDPH
- Dural tap
- Blood Patch
- Pruritus
- Urinary retention
- N&V
- Hypotension
- Respiratory depression
- Headache

- Labour augmentation
- Mode of delivery
- Neonatal pH
- Apgar Scores
- NNU admissions

Scott W Simmons, Neda Taghizadeh, Alicia T Dennis, Damien Hughes and Allan M Cyna
Combined spinal-epidural versus epidural analgesia in labour
October 2012
The Cochrane Review

- CSE Vs. Low Dose Epidural

- 4 statistically significant differences
  - 1. Speed of onset from 1\textsuperscript{st} injection
  - 2. Effective analgesia at 10 minutes
  - 3. CSE associated with more pruritus
  - 4. CSE associated with lower umbilical arterial pH
The Cochrane Review

- “There appears to be little basis for offering CSE over epidurals in labour, with no difference in overall maternal satisfaction despite a slightly faster onset with CSE and conversely less pruritus with low-dose epidurals. There was no difference in ability to mobilize, maternal hypotension, rate of caesarean birth or neonatal outcome.”
CSE analgesia does not represent the gold standard for regional analgesia in labour
CSE does NOT represent the gold standard for labour analgesia

- The highest level of medical evidence does not support CSE analgesia for every woman in labour
- It is clearly not superior to epidural analgesia
- It cannot therefore, be referred to as a gold standard
Thank You