Motor block may be an unreliable sign of an effective epidural top-up.

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Introduction

The OAA have described and published an approach to block assessment prior to caesarean section (CS) which includes establishing that the patient has a motor block, as shown by inability to straight leg raise (SLR), as well as establishing sensory block [1,2]. We evaluated epidural top-ups in our unit against these standards, and RCOA best practice standards for pain/conversion [3]. We were particularly interested to see how ropivacaine top-ups performed as, anecdotally, clinicians felt they were seeing less motor block with this drug, despite seemingly adequate and effective sensory block for surgery.

Method

We used a pro-forma (see figure 1) to collect prospective data on epidural top-ups for CS and made this available to all anaesthetists on Delivery Suite.

Results

35 epidural top-ups were included. These were all for emergency CS - mostly category II (74.3%). Various drugs were used: 0.75% ropivacaine in 71.4%, 0.5% L-bupivacaine in 25.7% and lignocaine/adrenaline in 2.8%. Twenty five (71.4%) top-ups were associated with a progressive motor block (increase of at least one point on modified Bromage scale – see figure 2,) although when these patients had a block to cold to T4 or above, only 13 patients were unable to SLR (54.2%). Most (84%) remained comfortable during surgery.

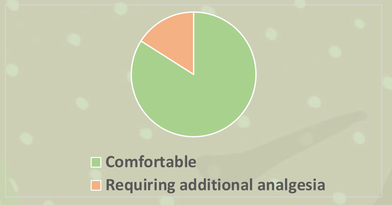
Ten (28.6%) top-ups were not associated with a progressive motor block when the block to cold was at T4 or above or when a decision was made about the block pre-KTS. Most (77.7%) of these patients also remained comfortable during surgery.

'The dense motor block required for caesarean section is associated with dense motor block of the lumbosacral plexus. ***If the mother can straight leg raise, no matter how high the loss of sensation, the block is unlikely to be suitable for anaesthesia for caesarean.'***

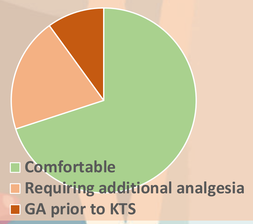
OAA, 2022 [1]

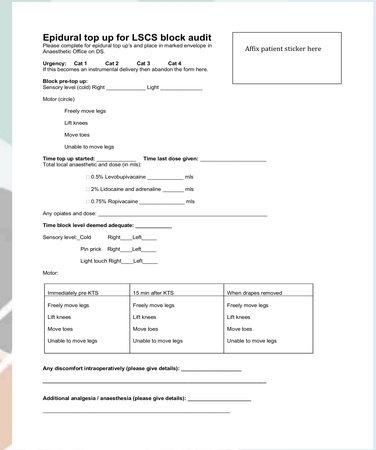
All patients (n=35)

Patients <u>with</u> progressive motor block and cold to T4 (n=25);
<u>13 unable to SLR</u>; 12 able to SLR



Patients <u>without</u> progressive motor block and cold to T4 (n=10);
<u>All able to move legs freely/SLR</u>.





Epidural top up for LSCS block audit

Please complete for epidural top up's and place in marked envelope in Anaesthetic Office on DS.

Affix patient sticker here

Urgency: Cat 1 Cat 2 Cat 3 Cat 4
If this becomes an instrumental delivery then abandon the form here.

Block pre-top up:
Sensory level (cold) Right _____ Light _____

Motor (circle)
Freely move legs
Lift knees
Move toes
Unable to move legs

Time top up started: **Time last dose given:** _____
Total local anaesthetic and dose (in mls)
0.5% Levobupivacaine _____ mls
2% Lidocaine and adrenaline _____ mls
0.75% Ropivacaine _____ mls

Any opiates and dose: _____

Time block level deemed adequate: _____

Sensory level: Cold Right____Left____
Pin prick Right____Left____
Light touch Right____Left____

Motor:

Immediately pre KTS	15 min after KTS	When drapes removed
Freely move legs	Freely move legs	Freely move legs
Lift knees	Lift knees	Lift knees
Move toes	Move toes	Move toes
Unable to move legs	Unable to move legs	Unable to move legs

Any discomfort intraoperatively (please give details): _____
_____

Additional analgesia / anaesthesia (please give details): _____
_____

Figure 1: Proforma used in service evaluation

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The Newcastle upon Tyne Hospitals
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Table 1 Modified Bromage score

Grade	Criteria	Degree of block (%)
0	Free movement of legs and feet	Nil (0)
1	Just able to flex knees with free movement of feet	Partial (33)
2	Unable to flex knee, but with free movement of feet	Almost complete (66)
3	Unable to move legs or feet	Complete (100)

Figure 2: Modified Bromage scale used in service evaluation.

Discussion

Our results suggest motor block varies with epidural top-up and inability to SLR may not be achieved by the time sensory block is deemed adequate for surgery. Neither presence nor absence of ability to SLR appears to be an absolute indicator of successful or failed epidural top-up, respectively, although it seems that failure to demonstrate any progression of motor block after top-up may be associated with increased risk of pain during CS requiring additional analgesia/GA, irrespective of local anaesthetic used. Perhaps it is *progression* of motor block rather than absolute inability to SLR that we should be looking for? Perhaps, with epidural top-ups, focusing testing on multiple sensory modalities may be more helpful? Ultimately, however we test our block, we must remain vigilant for block failure, as our work shows, and Plaat et al [2] remind us, *'there are no infallible tests'.*

'The anaesthetist must maintain situational awareness and recognise that a 'perfect' block can fail, and there are no infallible tests.'

OAA, 2022 [1]

References 1. Plaat F. (09 Jan 2021) OAA Webcast: Neuraxial anaesthesia - assessing the block prior to CS. Learning Zone. Neurological Monitoring Associated with Obstetric Neuroaxial Block (oaa-anaes.ac.uk) 2. Plaat F. et al (2022) Prevention and management of intra-operative pain during caesarean section under neuraxial anaesthesia: a technical and interpersonal approach. Anaesthesia Volume Issue 5 p.588-597. 3. Purva, M. and Kinsella, M. (2020) RcOA Audit Recipe Book: 7.6 Caesarean secton anaesthesia: technique and failure rate. 21075 RCoA Audit Recipe Book_16 Secon B.7_p241-268_AW.pdf