Should we be undertaking routine combined spinal epidural anaesthesia for elective caesarean sections?

The number of elective caesarean sections is increasing and there is much evidence indicating that regional anaesthesia is safer (Lewis, 2004). Combined spinal epidural anaesthesia has gained popularity recently, and some advocates perform combined spinal epidurals routinely for elective caesarean sections when regional anaesthesia is indicated. This article reviews the advantages and disadvantages of routine combined spinal epidural for elective caesarean sections.

The case for combined spinal epidural

The rate of failure of regional anaesthesia can be objectively defined as conversion to general anaesthesia. Kinsella (2008) showed that for spinals this is 1.5% and for epidurals 6.2%. Theoretically, a technique using both components should reduce the failure rate. This was demonstrated by Ranasinghe et al (2003), who noted the failure rate of combined spinal epidurals to be as low as 0.6%.

The spinal component of the combined spinal epidural technique tends to administer a lower dose of local anaesthetic. This can prevent side effects such as hypotension compromising maternal and fetal circulations, an excessively high block, nausea, and reduce the need for vasopressors. The rationale for this is twofold. First, the presence of an indwelling epidural catheter permits the anaesthetist to extend the block in level or duration. Second, epidural volume extension, where saline is injected into the epidural space, can augment the subarachnoid block, and intrathecal requirements may be as low as 5 mg bupivicaine (Lew et al, 2004).

An increasing subset of parturients are presenting for elective caesarean section with pregnancy-induced hypertension and severe cardiac conditions. A lower dose of subarachnoid anaesthetic will minimize haemodynamic swings. Furthermore, the level of block can be titrated via the epidural, ensuring haemodynamic stability.

Elective caesarean sections may be performed for surgically challenging cases in which a spinal may not be sufficient for the length of surgery. Unanticipated surgical complications may arise intraoperatively, and an epidural in-situ allows extension of anaesthesia without further interventions.

The epidural can also be used postoperatively for patients who may need to return to theatre. Furthermore, it can be used for postoperative analgesia in those in whom attenuation of the sympathetic drive via excellent analgesia is necessary, such as pre-eclampsia.

Combined spinal epidurals tend to use a smaller gauge spinal needle than the 25G needles used frequently for single shot spinals. This has a theoretical advantage of a lower risk of post-dural puncture headache.

Routine combined spinal epidurals would facilitate training. Consultants can review the epidural technique of a trainee, the chance of which does not always occur during the provision of labour analgesia.

The case against combined spinal epidural

Using two needles rather than one theoretically increases the risk of complications such as infection, bleeding, trauma and nerve injury. The Third National Audit Project showed that although combined spinal epidurals were <6% of all blocks, they contributed to 13% of major complications, including 15–40% cases of paraplegia or death. However, in the obstetric subset, combined spinal epidurals were noted to be safer (Cook et al, 2009).

Ranasinghe et al (2003) found that the epidural component of a combined spinal epidural was not used in over 25% of cases. These parturients are being subjected to the unnecessary risks of epidural insertion, especially accidental dural puncture, which can have incapacitating consequences.

Smaller spinal needles used in combined spinal epidural do not always demonstrate good CSF flow. This can lead to failure of correct placement of the intrathecal drug as well as repeated puncture of the dura. Following the spinal injection, there may be a delay to site the epidural, which could lead to a saddle block and difficulty in manipulating the block. Furthermore, the epidural catheter may thread into a vein, which may not be salvaged. Thus the combined spinal epidural would have to rely on the spinal anaesthetic, which at a lower dose may prove insufficient for surgery.

Following intrathecal injection, the epidural position cannot reliably be confirmed by a test dose and its efficacy may be difficult to determine because of the established subarachnoid block. The catheter may have inadvertently threaded or migrated into the subarachnoid space, rarely through the spinal dural puncture site, which could result in a dangerously high spinal if topped-up.

Conclusions

Combined spinal epidurals have many advantages over sole spinal or epidural techniques, but they are not without risks. The authors prefer not to routinely undertake combined spinal epidurals for elective caesarean sections. BJHM

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