

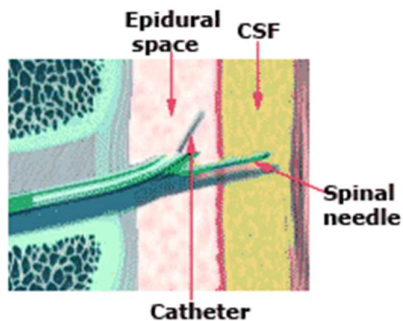
## Combined spinal and epidural anaesthesia (CSE)



Pain relief for women in labour/lower limb/abdominal surgery can be provided by using the techniques of spinal and epidural in combination.

**Figure 8: Anatomy of the CSE**

### The anatomy of the combined spinal and epidural



### Background

Intrathecally administered opioids act at opioid receptors in the spinal cord. Intrathecal opioids can provide profound pain relief during labour without affecting muscle strength and blood pressure control. The latter are effects seen with local anaesthetics given via an epidural as a result of the non-specific action of local anaesthetic on these nerves at higher concentrations. Spinal opioids are very effective in alleviating pain.

Epidural analgesia has the disadvantage that the effects of the local anaesthetics can be delayed, usually by 10 minutes, after the catheter has been inserted. This may be slightly longer if very dilute concentrations are given as a means of avoiding muscle weakness. This is not excessive in itself; however, in combination with other factors which influence the length of time that an epidural takes to work, a delay of up to an hour may occur from the time when a woman makes the initial request to when she is noticeably more comfortable. Once pain relief has been achieved, it is possible to continue it indefinitely. Intrathecally administered opioids give pain relief almost immediately. As they are given as a single injection, however, they have a finite duration of action and many patients will require supplemental analgesia. To overcome these limitations, many anaesthetists combine the techniques of intrathecal opioid injection with epidural analgesia. The former ensures rapid onset of intense analgesia, while the latter permits the maintenance of analgesia for extended periods, along with the flexibility to respond to the frequently changing circumstances of surgery.

### CSE technique

## **Combined spinal and epidural anaesthesia (CSE)**

An initial dose of opioid (e.g. fentanyl) is given via the spinal route, sometimes in combination with a small dose of local anaesthetic (bupivacaine). Although the pain relief thus obtained has a finite duration of action (approximately 1-2 hours), an epidural catheter placed at the same time can be used at a later stage to administer low-dose intermittent epidural bupivacaine with fentanyl when the initial analgesia wears off. This technique produces rapid, reliable analgesia, with the preservation of motor power, and most patients maintain the ability to walk. Many mothers feel that these are significant advantages. In studies designed to assess maternal satisfaction with CSE as compared with a standard epidural technique, women preferred the low-dose CSE technique, probably because of the faster onset, less motor block and feelings of greater self control with the CSE technique.

### **Side-effects and complications**

The classic side-effects described for intrathecal and epidural opioids are itch, nausea and vomiting, urinary retention and respiratory depression. These are typically problems associated with morphine when given in this way. When shorter-acting opioids such as fentanyl are used, side-effects are mild and require no treatment. Itch is the most commonly reported side-effect in pregnant women.

Other side-effects such as low blood pressure and respiratory depression are very uncommon and generally reflect a block which has spread too high. Moreover, they only represent serious problems if they are not detected and treated appropriately.

### **References**

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