Spinal versus epidural anaesthesia for caesarean section

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Both spinal and epidural techniques are shown to provide effective anaesthesia for caesarean section.

RHL Commentary by Krisanaprakornkit W

1. EVIDENCE SUMMARY

This review (1) includes ten randomized trials (involving 751 women) conducted during between 1988 and 2001. Its aim was to compare efficacy and safety of spinal and epidural anaesthesia for Caesarean section. The results show that both techniques provide effective anaesthesia (as judged in terms of failure rate, need for additional intra-operative analgesia, need for another technique during surgery and maternal satisfaction). With spinal anaesthesia the operation could start sooner [weighted mean difference (WMD) 7.91 minutes less, 95% confidence interval (CI)-11.59–4.23], but there was an increased risk of hypotension that required treatment (RR 1.23, 95% CI 1.00–1.51).

One of the benefits of regional over general anaesthesia is postoperative pain control. The results from two studies with significant heterogeneity showed no difference in the need for postoperative pain relief. The studies included in the analysis did not provide enough information for investigating the benefit of adding an opioid to the anaesthetic solution used. For other postoperative outcomes such as nausea/vomiting, postoperative intervention for back pain, Horner’s syndrome and postdural puncture headache requiring treatment, the review authors could not reach a conclusion owing to either their low incidence or not being reported.

The search strategy was rigorous and all possible controlled trials were identified and potentially eligible studies were assessed. The trials were evaluated for methodological quality before inclusion and sensitivity analyses were planned and performed in an appropriate manner. Data are presented clearly and concisely.

2. RELEVANCE TO UNDER-RESOURCED SETTINGS

2.1. Magnitude of the problem

Despite sustained efforts to reduce the Caesarean section rate, the rate has remained stable or even increased in some developing countries (2, 3).

Regional anaesthesia has become the preferred technique for Caesarean delivery. Compared to general anaesthesia, regional anaesthesia is associated with reduced maternal mortality, the need for fewer drugs,
and more direct experience of childbirth, faster neonatal-maternal bonding, decreased blood loss and
excellent postoperative pain control through the use of neuraxial opioid.

2.2. Applicability of the results

Three of the ten studies included were conducted in developing countries, and the results of these studies
were similar to those of studies conducted in developed countries. Thus, the findings of this review would be
applicable to under-resourced settings.

2.3. Implementation of the intervention

Compared to spinal anaesthesia, the epidural technique usually needs more time and skill to apply. This type
of anaesthesia should be administered only by well trained anaesthesiologists. It might not be feasible to
apply the epidural technique for caesarean section in under-resourced settings where appropriately trained
anaesthesiologists are often not available. On the other hand, in the case of spinal anaesthesia, a physician or
an obstetrician with experience of spinal block could administer the anaesthesia. However, in such cases the
patients should be monitored using standard monitoring techniques (4). This should be in accordance with
the local authority.

All attempts to prevent maternal hypotension should be made before administering regional anaesthesia.
These include preloading the patient with crystalloid or colloid, if available, (5, 6, 7) and wrapping of the
legs (8). Intravenous ephedrine, either by infusion (9) or injection, and phenylephrine can be used with
reliable result for the prevention and treatment of hypotension (10).

Early evaluation and prompt treatment of serious neurological complication should be performed after
regional anaesthesia.

3. RESEARCH

Women anaesthetized with the spinal anaesthesia technique needs treatment for hypotension more often than
the epidural method. Since hypotension can affect the baby adversely, future research aimed at investigating
the effects of spinal anaesthesia on neonatal outcomes is needed. The benefit of postoperative pain control
with neuraxial opioid in the case of regional anaesthesia should be balanced against side-effects such as
nausea/vomiting and pruritus. These side-effects may have an impact on maternal well being and ability to
breast-feed. Research aimed at investigating such benefit and side-effects of regional anaesthesia is also
needed.

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