Early versus late epidural analgesia and risk of instrumental delivery in nulliparous women: a systematic review  
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CRD summary  
There was no increased risk of caesarean delivery or instrumental vaginal delivery for women who received early epidural analgesia at cervical dilation of 3cm or less in comparison with late epidural analgesia. The results of this review reflect the evidence presented and can be taken as reliable.

Authors' objectives  
To compare early versus late epidural analgesia for the risk of caesarian or instrumental delivery in nulliparous women.

Searching  
PubMed, EMBASE and The Cochrane Library were searched to July 2010. Search terms were reported. There were no restrictions on publication date and language. References were checked.

Study selection  
Randomised controlled trials (RCTs), prospective and retrospective cohort studies that reported on the effects of early epidural analgesia (3cm or less) versus late epidural analgesia (at least 4cm) on mode of delivery were eligible for inclusion. Nulliparous women with a gestational age of at least 36 weeks, spontaneous or induced labour, with a singleton in vertex presentation were included. The primary outcome rate of caesarian or instrumental vaginal deliveries.

Four of the included studies reported only on women in spontaneous labour. The other studies included a mixture of spontaneous and induced labour. Most women who received late epidural analgesia received systemic opioids before the epidural (drugs and doses varied). Other analgesics were used (doses varied). No further patient characteristics were reported.

Two reviewers independently screened and selected studies for inclusion. Disagreements were resolved with a third reviewer where necessary.

Assessment of study quality  
Study quality was assessed using the five-point Jadad scale of randomisation, blinding and analysis. Blinding of participants and caregivers was not possible so the maximum possible score was 3.

Two reviewers independently assessed study quality.

Data extraction  
Two reviewers independently extracted patient characteristics and study details. These included mode of delivery, indication for instrumental delivery and cervical dilation at epidural analgesia.

Methods of synthesis  
The risk ratio (RR) for dichotomous variables was calculated for each study. Data were pooled using the Mantel-Haenszel method. Heterogeneity was determined based on $I^2$ values with confidence intervals (CI) calculated using the statistical package R. Heterogeneity was considered to be substantial when over 50%. Heterogenous studies were excluded and the pooled estimate recalculated.

Results of the review  
Six studies were included in the review: five RCTs and one retrospective cohort study (15,399 participants, range 60 to 12,793). Three of the five RCTs reported using adequate randomisation and detailed withdrawals and drop-outs. Two RCTs failed to report on withdrawals or drop-out. One trial used quasi-randomisation.
There were no significant differences between early epidural analgesia and control arms for rates of instrumental vaginal delivery, caesarian delivery and spontaneous delivery. One study was excluded from the instrumental vaginal delivery analysis due to increased heterogeneity and no significant difference was found.

**Authors’ conclusions**
There was no increased risk of caesarean delivery or instrumental vaginal delivery for women who received early epidural analgesia at cervical dilation of 3cm or less in comparison with late epidural analgesia.

**CRD commentary**
The review addressed a clear clinical question. Searches were appropriate and covered key medical databases without restrictions on language and publication date. Publication bias was not assessed. Appropriate methods to reduce reviewer error and bias were adopted throughout the review process. RCTs were assessed for quality although the tool used is limited when trials cannot be truly blinded. It was not clear that the cohort study was assessed. The synthesis appeared appropriate. Although exclusion of trials simply due to apparent heterogeneity without consideration of the study characteristics may be inappropriate, in this review it did not substantially change the results.

The results of this review reflect the evidence presented and can be taken as reliable.

**Implications of the review for practice and research**
**Practice:** The authors stated that as there was no evidence of early epidural analgesia having an adverse influence on mode of delivery, patient preference should be considered paramount.

**Research:** The authors did not state any implications or recommendations for research.

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