A meta-analysis of passive descent versus immediate pushing in nulliparous women with epidural analgesia in the second stage of labor

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CRD summary
The authors concluded that, in healthy women with effective epidural analgesia, passive descent was a safe and effective method of increasing spontaneous vaginal births, decreasing instrument-assisted deliveries, and reducing time spent pushing. Poor reporting of the review process, and the possibility of results disproportionately influenced by one large study, suggests that the conclusions may be overstated and their reliability unclear.

Authors' objectives
To compare the effectiveness of passive descent versus early pushing following epidural in second-stage labour.

Searching
MEDLINE, CINAHL, and the Cochrane Central Register of Controlled Trials (search dates were not reported) were searched to identify relevant English-language studies for inclusion in the review. Search terms were reported. The reference lists of identified articles were scanned to locate further studies of interest.

Study selection
Randomised controlled trials (RCTs) comparing passive descent with early or immediate pushing in women in labour who had received epidural analgesia, were eligible for inclusion in the review. There were no inclusion criteria for outcomes. The included trials enrolled healthy women with full term singleton pregnancies, for whom epidural had been effective.

Outcomes included instrumental deliveries (forceps and vacuum); non-instrumental, or spontaneous vaginal births, caesarian births, episiotomies, lacerations, maternal fatigue, time spent pushing during second stage labour; and measures of foetal well-being including accelerations, decelerations, variability of foetal heart rate, oxygen desaturation, and cord pH.

The majority of trials included only nulliparous women. Standard doses and concentrations of analgesic medications were used, but epidural protocols were thought to be variable. Whilst the majority of included trials reported women in the delayed pushing group (pushing within one hour after full dilation), protocol variations were noted in the early pushing group. All the included trials limited the length of time from full dilation to pushing (passive descent) in the intervention groups to two hours or less.

The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
Trial quality was assessed on the method of randomisation and comparability of baseline characteristics, blinding, and use of intention to treat analysis.

The authors did not state how many reviewers performed the quality assessment.

Data extraction
Data were extracted on the number of events for each outcome, in order to derive (where possible) the relative risk (RR) or mean difference, and 95% confidence interval (CI).

The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.
Methods of synthesis
Relative risks and 95% confidence intervals for spontaneous vaginal births, caesarian births, instrumental deliveries, lacerations, and episiotomies were pooled in a meta-analysis. Weighted mean differences (WMD) and 95% confidence intervals for time spent pushing during second-stage labour were pooled in a fixed-effect meta-analysis. The Mantel Haenszel method of weighting was used for both meta-analyses.

Results of the review
Seven RCTs were included in the meta-analysis (n=2,827 women). Sample sizes ranged from 45 to 1,862 women. All trials were reported to be randomised by computer generation, non-blinded, used intention-to-treat analysis, and had at least 80% completion. The majority of trials were reported to display comparable baseline characteristics.

Due to the small number of studies, or disparate data, it was not possible to pool results for maternal fatigue or foetal well-being (cord pH, Apgar score, and foetal heart rate decelerations).

The pooled analysis showed that women who experienced passive descent compared with early pushing significantly increased their chance of having a spontaneous vaginal birth (RR 1.08, 95% CI 1.01 to 1.15). There was a 23% reduced risk of undergoing an instrumental delivery (RR 0.77, 95% CI 0.71 to 0.85). Pooled analysis also showed that women who laboured with passive descent had a lower mean time spent pushing during second-stage labour (WMD -0.19 hours, 95% CI -0.27 to -0.12). One large study (n=1,862 women) contributed substantial weight in these analyses (66.2% in spontaneous vaginal births, 78% in instrumental deliveries, and 74.1% in time spent pushing during second-stage labour). No statistically significant differences were reported for risks of caesarian birth, lacerations, or episiotomies.

There appeared to be a discrepancy between the abstract and main text on the level of significance associated with instrumental delivery. The figures given in this Results section are taken from the main text.

Authors’ conclusions
In healthy women with effective epidural analgesia, passive descent was a safe and effective method of increasing spontaneous vaginal births, decreasing instrumental deliveries, and reducing time spent pushing during second-stage labour.

CRD commentary
The research question was clear and was supported by potentially reproducible inclusion criteria for study design, participants, and intervention. The search strategy appeared to consult some relevant sources, but the restriction to articles written in English may mean that studies were missed, and language bias introduced. There was no apparent search for unpublished material, meaning that publication bias could not be ruled out. Aspects of study quality assessment were performed, but the individual results of this were not presented, making it difficult to verify the authors’ summary statements. It was not clear whether any part of the review process was conducted with sufficient transparency to minimise errors and bias, and the absence of reporting in this regard represents a potential limitation in the review. The authors acknowledged further limitations presented by the inclusion of generally small-sized studies, and the heavy weighting of one larger study in the meta-analysis for spontaneous vaginal birth, risk of instrumental delivery, and time spent pushing during second-stage labour. There was no reported sensitivity analysis to explore this and heterogeneity was not assessed. Given the methodological weakness identified above, it is suggested that the authors conclusions may be overstated and their reliability is unclear.

Implications of the review for practice and research
Practice: The authors stated that the use of passive descent is recommended during the second stage of labour in healthy women for whom an epidural has been effective, and who have no complications. Such women should be allowed to labour in this way for up to two hours until the head is visible at the introitus, or until they have an irresistible urge to push.

Research: The authors stated that the long-term follow-up of large scale studies which control for confounders (such as method of pushing and length of delay) are required. Such studies should investigate neonatal and infant health, along with the associated physical and emotional maternal experiences.
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