Methods of term labour induction for women with a previous cesarean section

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RHL summary

Key Findings

- Included trials were underpowered to detect differences in relevant maternal and infant outcomes
- When comparing prostaglandin E2 versus oxytocin, trials found no statistically significant differences for rates of caesarean section, serious neonatal morbidity or perinatal death, nor for serious maternal morbidity or death. There was one uterine rupture in a woman in the prostaglandin group with no statistical significance.
- When comparing misoprostol to oxytocin, the only outcome reported was uterine rupture and the difference did not reach statistical significance

Evidence included in this review

Two trials, conducted in the 1990’s, were included involving 80 women. One trial randomized 42 women (who required induction of labour due to preeclampsia or prolonged pregnancy) to vaginal prostaglandin E2 or oxytocin. The other trial involved 38 women and compared vaginal misoprostol to oxytocin and was stopped prematurely because of two cases of uterine rupture in the misoprostol group. Meta-analysis was not performed as methods used in the two studies were different.

Quality assessment

One trial was considered to be at low risk of bias. The second trial was at unclear risk of bias because methodological data was not reported.

Clinical implications

There is a lack of evidence from randomized controlled trials to draw conclusions on which method of labour induction is preferred in women with previous caesarean section. Data derived from observational studies suggests that the use of prostaglandin method increases the risks of women having uterine rupture when compared to spontaneous labour or mechanical method of induction.

Further research

It is improbable that future randomized controlled trials assessing these comparisons will be performed. If they are, trials should be of good quality and appropriate sample size, assessing on relevant maternal and infant outcomes and including pharmacological and mechanical methods. The authors suggest adequately
Cochrane review

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Abstract

Induction of labour is a common obstetric intervention, with between 20% and 30% of births reported to occur following induction of labour. Women with a prior caesarean delivery have an increased risk of uterine rupture, particularly when labour is induced. For women who have had a previous caesarean birth and who require induction of labour in a subsequent pregnancy, it is unclear which method of cervical ripening and labour induction is preferable.

To assess the benefits and harms associated with different methods used to induce labour in women who have had a previous caesarean birth and require induction of labour in a subsequent pregnancy.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 July 2012) and reference lists of retrieved studies.

All randomised controlled trials comparing any method of third trimester cervical ripening or labour induction, with placebo/no treatment or other methods in women with prior caesarean section requiring labour induction in a subsequent pregnancy were included.

Methods of cervical ripening or labour induction could include: prostaglandin medication (including oral or vaginal prostaglandin E2 (PGE2) and misoprostol); mifepristone; mechanical methods (including Foley catheters and double balloon catheters); oxytocin, or placebo.

The two review authors independently assessed studies for inclusion and trial quality. Any disagreement was resolved by discussion. Both review authors independently extracted data and data were checked for accuracy.

Two studies (involving a total of 80 women) were included. However, the two included studies used different methods and thus, meta-analysis was not appropriate. The two included studies compared 2.5 mg vaginal PGE2 inserts versus oxytocin (Taylor and colleagues) and misoprostol versus oxytocin (Wing and colleagues). Risk of bias in the included studies was judged 'low' and 'unclear' respectively.

**Vaginal PGE2 inserts versus oxytocin** - Taylor and colleagues included 42 women, equally distributed over both groups. Baseline characteristics, and reasons for labour induction were comparable between the groups. There were no significant differences in any of the outcome measures reported (caesarean section, instrumental vaginal deliveries, epidural analgesia, Apgar score, perinatal death). One uterine rupture occurred in the prostaglandin group, after the use of prostaglandins and oxytocin, while no ruptures occurred in the oxytocin group (one study, 42 women; risk ratio (RR) 3.00, 95% confidence interval (CI) 0.13 to 69.70).

**Misoprostol versus oxytocin** - the study conducted by Wing and colleagues was stopped prematurely due to safety concerns after the inclusion of 38 women. Seventeen women had been included in the misoprostol
group, and 21 women in the oxytocin group. There were no significant difference in the only outcome measure reported by the authors, uterine rupture, which occurred twice in the misoprostol group, and did not occur in the oxytocin group (one study; 38 women; RR 6.11, 95% CI 0.31 to 119.33).

There is insufficient information available from randomised controlled trials on which to base clinical decisions regarding the optimal method of induction of labour in women with a prior caesarean birth.

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