Vaginal prostaglandin (PGE2 and PGF2a) for induction of labour at term

Jane Thomas¹, Anna Fairclough², Josephine Kavanagh¹, Anthony J Kelly³

¹C/o Cochrane Pregnancy and Childbirth Group, Department of Women's and Children's Health, The University of Liverpool, Liverpool, UK. ²Worcester College, University of Oxford, Oxford, UK. ³Department of Obstetrics and Gynaecology, Brighton and Sussex University Hospitals NHS Trust, Brighton, UK

Contact address: Jane Thomas, Cochrane MSDG FMHS, Auckland University, Grafton Campus, Auckland, New Zealand. jane_thomas@onetel.com.

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ABSTRACT

Background

Prostaglandins have been used for induction of labour since the 1960s. This is one of a series of reviews evaluating methods of induction of labour. This review focuses on prostaglandins given per vaginam, evaluating these in comparison with placebo (or expectant management) and with each other: prostaglandins (PGE2 and PGF2a); different formulations (gels, tablets, pessaries) and doses.

Objectives

To determine the effects of vaginal prostaglandins E2 and F2a for third trimester cervical ripening or induction of labour in comparison with placebo/no treatment or other vaginal prostaglandins (except misoprostol).

Search methods

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (1 March 2014) and bibliographies of relevant papers.

Selection criteria

Clinical trials comparing vaginal prostaglandins used for third trimester cervical ripening or labour induction with placebo/no treatment, with each other, or other methods listed above it on a predefined list of labour induction methods.

Data collection and analysis

We assessed studies and extracted data independently.

Main results

Seventy randomised controlled trials (RCTs) (11,487 women) are included. In this update seven new RCTs (778 women) have been added. Two of these new trials compare PGE2 with no treatment, four compare different PGE2 formulations (gels versus tablets, or sustained release pessaries) and one trial compares PGF2a with placebo. The majority of trials were at unclear risk of bias for most domains.

Overall, vaginal prostaglandin E2 compared with placebo or no treatment probably reduces the likelihood of vaginal delivery not being achieved within 24 hours. The risk of uterine hyperstimulation with fetal heart rate changes is increased (4.8% versus 1.0%, risk ratio
(RR) 3.16, 95% confidence interval (CI) 1.67 to 5.98, 15 trials, 1359 women). The caesarean section rate is probably reduced by about 10% (13.5% versus 14.8%, RR 0.91, 95% CI 0.81 to 1.02, 36 trials, 6599 women). The overall effect on improving maternal and fetal outcomes (across a variety of measures) is uncertain.

PGE2 tablets, gels and pessaries (including sustained release preparations) appear to be as effective as each other, small differences are detected between some outcomes, but these maybe due to chance.

**Authors' conclusions**

Prostaglandins PGE2 probably increase the chance of vaginal delivery in 24 hours, they increase uterine hyperstimulation with fetal heart changes but do not effect or may reduce caesarean section rates. They increase the likelihood of cervical change, with no increase in operative delivery rates. PGE2 tablets, gels and pessaries appear to be as effective as each other, any differences between formulations are marginal but may be important.

**PLAIN LANGUAGE SUMMARY**

**Vaginal prostaglandin (PGE2 and PGF2a) for induction of labour at term**

Induction of labour is offered to pregnant women when it is thought the outcome will be better for the mother and/or baby if the baby is born than if the pregnancy continues. Common reasons include prolonged pregnancy, prelabour rupture of the membranes, concerns about the health of the mother such as pre-eclampsia or the baby such as poor growth. Prostaglandins are hormones, produced throughout the body and can be used to start (induce) labour. They are applied locally to the vagina as tablets, gels, suppositories and pessaries to reduce side-effects. The dose, number of doses, and time between doses vary considerably. Sustained release pessaries reduce the need for repeat doses and so the number of vaginal examinations.

This review set out to determine the effectiveness and safety of vaginal prostaglandins for third trimester cervical ripening and induction of labour (the cervix softens, shortens and opens, the uterus starts to contract regularly). Eight different comparisons were made, different vaginal prostaglandins were compared with placebos or no treatment, or other vaginal prostaglandins (PGE2, PGF2a, except misoprostol) and different preparations and dosages were compared. We identified 70 studies involving a total of 11,487 women. Vaginal prostaglandins increase the likelihood of vaginal birth within 24 hours, but they can also stimulate the uterus to contract too much and this may cause the baby's heart to slow, however they did not increase the caesarean section rate and may reduce it. Overall, the trials do not show any effect (improvement or worsening) of many important outcomes. Prostaglandin E2 tablets, gels, or pessaries including sustained release preparations appear to be as good as each other or the differences between them are small and have not yet been detected in the trials. Lower-dose regimens, as defined in the review, appeared to be as good as higher-dose regimens (eight trials, 1615 women).

Very limited data were available in the included trials on time in labour and patient satisfaction. Few studies have addressed issues relating to the safety of using vaginal prostaglandins for induction of labour as outpatients.

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