

FPIN's Help Desk Answers

Labor Induction at Term

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Help Desk Answers provides answers to questions submitted by practicing family physicians to the Family Physicians Inquiries Network (FPIN). Members of the network select questions based on their relevance to family medicine. Answers are drawn from an approved set of evidence-based resources and undergo peer review.

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Clinical Question

What is the best way to induce labor in a patient at term?

Evidence-Based Answer

Oral misoprostol (Cytotec), vaginal and intracervical prostaglandins, and mechanical methods are effective for induction of labor at term. (Strength of Recommendation [SOR]: B, based on Cochrane reviews.) The use of intravenous oxytocin (Pitocin) increases the risk of failure to achieve vaginal delivery at 24 hours and the risk of cesarean delivery compared with prostaglandins and mechanical methods of labor induction. (SOR: B, based on systematic reviews.)

A 2014 Cochrane review of 76 randomized controlled trials (RCTs; N = 14,412) compared the effectiveness and safety of oral misoprostol with placebo and other methods of labor induction in the third trimester.¹ Oral misoprostol led to fewer cesarean deliveries than vaginal prostaglandin E2 (PGE2; 12 RCTs; N = 3,859; relative risk [RR] = 0.88; 95% confidence interval [CI], 0.78 to 0.99). There was no difference in the proportion of women achieving vaginal delivery within 24 hours with oral misoprostol vs. intravenous oxytocin (six RCTs; N = 789; RR = 0.79; 95% CI, 0.59 to 1.05), and no difference in a subgroup analysis of women with ruptured membranes (three RCTs; N = 265; RR = 0.95; 95% CI, 0.56 to 1.6). Oral misoprostol led to fewer cesarean deliveries than intravenous oxytocin (RR = 0.77; 95% CI, 0.6 to 0.98). There was no difference in the proportion of women achieving vaginal delivery within 24 hours with oral vs. vaginal misoprostol (14 RCTs; N = 2,448; RR = 1.08; 95% CI, 0.86 to 1.36). This review was limited by variability in medication doses and whether

women had ruptured membranes. It did not report Bishop scores.

A 2009 Cochrane review of 61 RCTs (N = 12,819) compared oxytocin vs. prostaglandins and placebo for third trimester cervical ripening and induction of labor.² There was an increased rate of failure to achieve vaginal delivery in 24 hours with oxytocin compared with vaginal PGE2 (two RCTs; N = 58; RR = 3.3; 95% CI, 1.6 to 6.9) and intracervical PGE2 (two RCTs; N = 258; RR = 1.5; 95% CI, 1.1 to 2.0). There was an increased rate of cesarean delivery with intravenous oxytocin vs. intracervical PGE2 (14 RCTs; N = 1,331; RR = 1.4; 95% CI, 1.1 to 1.7). Overall, membrane status, parity, and cervical status did not affect results. The quality of evidence was generally poor because many of the studies provided little information about method of randomization, and blinding was rare. This review was limited by variability in PGE2 doses and oxytocin protocols.

A 2012 Cochrane review of 71 RCTs (N = 9,722) compared mechanical methods (e.g., *Laminaria*, Foley catheter, extra-amniotic saline infusion) with placebo, oxytocin, and prostaglandins for third trimester induction of labor.³ The proportion of women who did not achieve vaginal delivery at 24 hours was not significantly different between women using mechanical methods and those using vaginal PGE2 (three RCTs; N = 586; RR = 1.7; 95% CI, 0.90 to 3.3). Findings were similar when mechanical methods were compared with vaginal misoprostol (four RCTs; N = 594; RR = 1.2; 95% CI, 0.94 to 1.4). Mechanical methods reduced the risk of hyperstimulation with fetal heart rate changes compared with vaginal PGE2 (eight RCTs; N = 1,203; RR = 0.16; 95% CI, 0.06 to 0.39) and misoprostol (nine RCTs; N = 1,615; ▶

RR = 0.37; 95% CI, 0.25 to 0.54). The risk of cesarean delivery between mechanical methods and prostaglandins was similar. Mechanical methods reduced the risk of cesarean delivery compared with oxytocin (five RCTs; N = 398; RR = 0.62; 95% CI, 0.42 to 0.90), but there were no data on the likelihood of vaginal delivery within 24 hours. Most studies included women in their third trimester with an unfavorable cervix (Bishop score of less than 4 to 6); a single, vertex fetus; and intact membranes. This meta-analysis grouped all mechanical methods together for each comparison; thus, there was heterogeneity in the mechanical methods and doses included, as well as in the dosing of the interventions in the comparison groups.

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