

# FPIN's Help Desk Answers

## Risks of Elective Labor Induction vs. Expectant Management

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### Clinical Question

Does elective labor induction at 39 weeks' gestation increase maternal or fetal risks compared with expectant management?

### Evidence-Based Answer

Elective labor induction at 39 weeks' gestation leads to a mean 145-g (5.1-oz) lower birth weight compared with expectant management, but there is conflicting evidence about the effects on rates of cesarean delivery, perinatal mortality, operative vaginal birth, and admission to the neonatal intensive care unit (NICU). Elective labor induction does not significantly change the risk of stillbirth, low Apgar score, or neonatal respiratory distress. (Strength of Recommendation [SOR]: A, based on a meta-analysis of randomized controlled trials [RCTs] and two cohort studies.) Elective labor induction is associated with a lower risk of postpartum hemorrhage, anal sphincter injury, and maternal third- or fourth-degree perineal lacerations. (SOR: B, based on two cohort studies.)

### Evidence Summary

A 2012 meta-analysis (22 RCTs; N = 9,383) compared birth outcomes with elective labor induction vs. expectant management in uncomplicated, singleton pregnancies at term.<sup>1</sup> Outcomes were subcategorized according to cervical favorability and gestational age, but parity was not distinguished. Primary outcomes included perinatal mortality,

stillbirth, neonatal death, NICU admissions, Apgar scores, birth weight, cesarean delivery, and operative vaginal birth. Three of the RCTs (810 births) involved women at 39 to 40 weeks' gestation. Pooled results showed that infants born after elective labor induction had lower mean birth weights than those born after expectant management (mean difference = -145 g; 95% CI, -248 to -42). There were no differences in any of the primary outcomes.

A 2013 retrospective cohort study (N = 362,154) compared elective labor induction with expectant management in women with vertex, singleton pregnancies delivering at 37 to 42 weeks' gestation.<sup>2</sup> Outcomes included rates of cesarean delivery, operative vaginal delivery, maternal third- or fourth-degree perineal lacerations, perinatal death, respiratory distress, and NICU admissions. Analysis was stratified by gestational age and included 6,809 women undergoing labor induction at 39 weeks compared with 144,898 women delivering spontaneously at 40 to 42 weeks. About half of the patients were nulliparous; those with fetal anomalies or previous cesarean delivery were excluded. Compared with expectant management, elective labor induction at 39 weeks' gestation was associated with a decreased risk of cesarean delivery (adjusted odds ratio [AOR] = 0.46; 95% CI, 0.41 to 0.52; number needed to treat [NNT] = 12), operative vaginal delivery (AOR = 0.77; 95% CI, 0.63 to 0.95; NNT = ►

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49), third- or fourth-degree perineal lacerations (AOR = 0.65; 95% CI, 0.55 to 0.78; NNT = 91), and NICU admissions (AOR = 0.68; 95% CI, 0.59 to 0.78; NNT = 55). These differences remained after adjusting for age, education, teaching hospital, race, prenatal care, and health insurance. In subgroup analysis, elective labor induction was associated with a decreased risk of cesarean delivery in nulliparous patients (n = 75,828; AOR = 0.75; 95% CI, 0.67 to 0.83; NNT = 19) and those with previous vaginal births (n = 74,902; AOR = 0.44; 95% CI, 0.37 to 0.53; NNT = 28).

A 2012 retrospective cohort study of more than 1.2 million singleton pregnancies compared elective labor induction with expectant management at 37 to 41 weeks' gestation for the outcomes of perinatal mortality, postpartum hemorrhage, anal sphincter injury, NICU admission rate, and cesarean delivery.<sup>3</sup> Analysis stratified by gestational age included 16,344 women undergoing elective labor induction at 39 weeks' gestation compared with 810,720 women managed expectantly. The women had no contraindications to induction and no previous cesarean delivery. Results were adjusted for age at delivery, parity, deprivation category (Scottish index accounting for socioeconomic status, education, and health care access), year of birth, and birth weight. Elective labor induction was associated with lower rates of perinatal mortality (AOR = 0.26; 99% CI, 0.11 to 0.62; NNT = 71), postpartum hemorrhage (AOR = 0.90; 99% CI, 0.83 to 0.98; NNT = 145), and anal sphincter injury (AOR = 0.62; 99% CI, 0.43 to 0.89; NNT = 46). However, elective labor induction was associated with higher risks of NICU admission (AOR = 1.2; 99% CI, 1.1 to 1.3; number needed to harm [NNH] = 87) and cesarean delivery (AOR = 1.1; 99% CI, 1.0 to 1.2; NNH = 164).

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