TO AROM OR NOT TO AROM

Does early amniotomy during induction of labor increase the risk of cesarean delivery?

No, according to data from a systematic review and meta-analysis that included 1,273 women in 4 randomized controlled trials. The authors found no significant difference in cesarean delivery (CD) rates between women randomly assigned after cervical ripening for labor induction to early amniotomy or late amniotomy/spontaneous rupture of membranes. However, the women assigned to early amniotomy had a significantly shorter induction-to-delivery interval of about 5 hours.

De Vivo V, Carbone L, Saccone G, et al. Early amniotomy after cervical ripening for induction of labor: a systematic review and meta-analysis of randomized controlled trials. Am J Obstet Gynecol. 2019. doi: 10.1016/j.ajog.2019.07.049.

EXPERT COMMENTARY

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Induction of labor has doubled over the past 2 decades, with almost 25% of parturients currently undergoing induction in the United States.[1] Labor induction at term is associated with perinatal outcomes similar to those with spontaneous labor, without an increase in the CD rate.[1-3] Although numerous methods for cervical ripening have been evaluated, the safest and most effective method has yet to be determined.[2]

Amniotomy—or artificial rupture of membranes (AROM)—has long been used as a technique for labor induction and for augmentation in women in spontaneous labor. Purported benefits include an increased responsiveness to exogenous oxytocin, decreased interval to delivery, and an increased likelihood of spontaneous vaginal delivery. Risks of amniotomy include injury to the fetus or surrounding tissues, bleeding, nonreassuring fetal testing, cord prolapse, and prolonged rupture of membranes (defined as longer than 18 hours), which is a risk factor for intra-amniotic infection.

The optimal timing of amniotomy is not known. The recent study by De Vivo and colleagues was designed to better understand the risk/benefit ratio of early amniotomy after cervical ripening in women undergoing induction of labor.

FAST TRACK

Purported benefits of AROM include an increased responsiveness to exogenous oxytocin, decreased interval to delivery, and increased likelihood of spontaneous vaginal delivery

Details of the study

The authors conducted a systematic review and meta-analysis that included 1,273 women

The authors report no financial relationships relevant to this article.

WHAT THIS EVIDENCE MEANS FOR PRACTICE

This is the first systematic review to evaluate early versus late amniotomy/spontaneous rupture of membranes after cervical ripening for induction of labor. The study results suggest that amniotomy soon after cervical ripening does not change the likelihood of CD, but it does shorten the induction-to-delivery interval by around 5 hours. Prior studies have shown that early amniotomy in women in spontaneous labor decreases time to delivery by an average of 3 hours.[4] Now we know that this is true also of early amniotomy following cervical ripening for induction of labor.

A number of questions still remain before early amniotomy is introduced into routine practice: Does group B streptococcus colonization status matter? Does this practice increase the risk of chorioamnionitis? At this time, it seems most prudent to individualize amniotomy timing based on a woman's obstetric history, indication for induction, and response to cervical ripening.

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in 4 randomized controlled trials to determine the effectiveness of routine early amniotomy versus late amniotomy/spontaneous rupture of membranes after cervical ripening (with either a Foley catheter or prostaglandins) in women with a singleton vertex fetus undergoing induction of labor in the term or late preterm period.

Early amniotomy was defined as AROM "soon after cervical ripening" (cases); late amniotomy was defined as AROM after the active phase of labor or spontaneous rupture of membranes (controls).

The primary outcome was the incidence of CD. Secondary outcomes included the overall length of labor, latency from induction to delivery, and neonatal morbidity (a composite of birth weight, Apgar scores, meconium-stained amniotic fluid, neonatal sepsis, need for resuscitation, and admission to the neonatal intensive care unit).

Findings. Women randomly assigned to early amniotomy had a similar risk of CD compared with controls (31.1% vs 30.9% [relative risk (RR), 1.05; 95% confidence interval (CI), 0.71–1.56]) and a shorter interval from induction to delivery of about 5 hours (mean difference, -4.95 hours [95% CI, -8.12 to -1.78]).

There was no difference in any of the secondary outcome measures, although the number of events was small. Specifically, there was no significant difference in rates of chorioamnionitis between the early and late amniotomy cohorts (7.3% vs 4.8% [RR, 1.47; 95% CI, 0.95–2.28]).

Study strengths and limitations

This is the first systematic review to evaluate early versus late amniotomy after cervical ripening for induction of labor. "Systematic review and meta-analysis" is not synonymous with a review of the literature. It has its own methodology and is regarded as original research. A strength of this study is that it was performed by a highly credible team who followed established Cochrane and PRISMA methodological and reporting guidelines.

Study weaknesses include the fact that the meta-analysis contained a relatively small number of trials and study participants. It was significantly underpowered to address issues related to neonatal outcome. The 4 trials included were highly variable in terms of maternal parity and indications for labor induction and CD. The definition of "early amniotomy" was inconsistent, and the overall rate of CD varied greatly among the studies (7.9%–41.1%). Multiple pregnancies were excluded. Taken together, these findings may have limited generalizability.

References

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