INDUCTION OF LABOR

Abstracts 20-30

20 Induction of labor versus expectant management at 39 weeks: a cost-effectiveness analysis

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OBJECTIVE: A recent study found that induction of labor at 39 weeks for low-risk women was not associated with an increased risk of adverse neonatal outcomes. We sought to examine the cost-effectiveness and outcomes associated with induction of labor at 39 weeks versus expectant management.

STUDY DESIGN: A cost-effectiveness model using TreeAge software was designed to compare outcomes in women who were induced at 39 weeks versus expectantly managed. We used a theoretical cohort of 1.6 million women, the approximate number of nulliparous term births in the US annually that are considered low risk. Outcomes included mode of delivery, preeclampsia, macrosomia, intrauterine fetal demise, permanent brachial plexus injury, cerebral palsy, and neonatal death, in addition to cost and quality-adjusted life years (QALY) for both the woman and neonate. Probabilities were derived from the literature, and a cost-effectiveness threshold was set at $100,000/QALY.

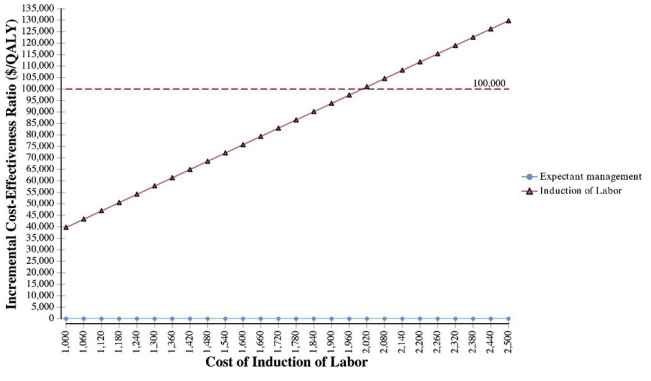
RESULTS: In our theoretical cohort of 1.6 million women, induction of labor resulted in 49,449 fewer cesarean deliveries and 79,152 fewer cases of preeclampsia. Additionally, we found that induction of labor resulted in 795 fewer cases of intrauterine fetal demise and 49 fewer neonatal deaths, despite 50 more cases of brachial plexus injury and 54 cases of moderate cerebral palsy (Table 1). Induction of labor resulted in increased costs, but increased QALYs with an incremental cost-effectiveness ratio of $97,501 per QALY. Univariate sensitivity analysis demonstrated that induction of labor was cost-effective until the cost of induction exceeded $2000 (Figure 1).

CONCLUSION: In our theoretical cohort, induction of labor in nulliparous term women at 39 weeks of gestation resulted in improved outcomes, but increased costs. The cost-effectiveness ratio was marginally cost effective, but would lead to an additional $2.26 billion of health care costs. Whether individual clinicians and healthcare systems offer routine induction of labor at 39 weeks will need to depend on local capacity and patient preferences.

Table 1. Outcomes in a theoretical cohort of 1.6 million pregnant women at 39 weeks of gestation.

	Induction of Labor	Expectant Management	Difference
Cesarean deliveries	313,706	363,155	-49,449
Preeclampsia	144,736	223,888	-79,152
Macrosomia	169,600	181,574	-11,974
Intrauterine fetal demise	0	795	-795
Permanent brachial plexus injury	3,085	3035	50
Moderate cerebral palsy	1,763	1,709	54
Neonatal death	189	238	-49
Cost (in thousands, USD)	$20,964,264	$18,700,990	$2,263,273
Effectiveness (in thousands, QALYs)	91,249	91,226	23
Incremental Cost-Effectiveness Ratio (ICER)	$97,501/QALY		

Figure 1. Univariate Sensitivity Analysis of the cost of induction of labor (WTP = $100,000/QALY)



21 A randomized controlled trial of pre-induction cervical ripening comparing dilapan-s versus foley balloon (DILAFOL trial)

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OBJECTIVE: To test the hypothesis that Dilapan-S is not inferior to the Foley balloon for pre-induction cervical ripening at term.

STUDY DESIGN: Pregnant women > 37 weeks with unfavorable cervix (<3cm and < 60% effaced) were randomly assigned to 12 hours of either Foley balloon (FB) inflated with 60 cc saline or Dilapan-S (DS) for cervical ripening. If cervix remained unfavorable, then one more round of the assigned dilator was used. Following ripening, oxytocin and labor management were left to the clinical providers. The primary outcome was vaginal delivery. Secondary outcomes are listed in Table. Patient completed a satisfaction survey after the pre-induction period. On the basis of noninferiority margin of 10% and a frequency of vaginal delivery of 76% in FB, a sample size of 420 women was needed (90% power & 87% protocol adherence).

RESULTS: From November 2016 – February 2018, 419 women were randomized (209 in FB; 210 in DS). In the intent to treat analysis,