24 Labor outcomes of immediate versus delayed oxytocin administration after amniotomy, a randomized controlled trial

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OBJECTIVE: To compare duration of labor, mode of delivery, maternal satisfaction and early neonatal outcomes following immediate (within 15-30 minutes) versus delayed (2 hours) oxytocin administration after amniotomy among low risk women in labour.

STUDY DESIGN: Pragmatic randomized single blind two armed clinical trial in which women in labour at term who had hypotonic uterine contractions were assigned to immediate (within 15-30 minutes) versus delayed (at 2 hours) oxytocin administration after amniotomy at Kenyatta National Hospital in Nairobi, Kenya. We compared the duration of time from amniotomy to second stage, vaginal delivery and decision to cesarean delivery between the two arms. Secondary outcomes were mode of delivery, early neonatal outcomes, maternal satisfaction and actual need of oxytocin. We used intent-to treat analysis for all outcomes.

RESULTS: A total of 209 low risk women at a cervical dilation of 4-5 cm and with hypotonic uterine contractions were enrolled between February and July 2018 and randomized to immediate and delayed oxytocin administration after amniotomy. Labor was monitored using a partograph. The baseline characteristics were similar between the two groups. The average time to delivery was 4.6 (standard deviation [SD] 2.6) hours versus 4.9 hours (SD 2.7) following immediate versus delayed oxytocin administration respectively and was similar between the two groups (relative risk [RR] 1.02, 95% confidence interval [CI] 0.97−1.08, P=0.403). The cesarean section rate was not different following immediate (16%) versus delayed (22%) oxytocin administration RR 1.4 95% CI 0.8-2.5, p=0.263. The maternal satisfaction on a visual numerical rating scale (median [interquartile range]) was 4 [3−5] and was similar between the two arms. Time to second stage, decision to cesarean delivery, fetal hears rate patterns, APGAR score at one minute and birthweights were similar between the two arms. In the delayed arm, oxytocin infusion was not required for 28% of women.

CONCLUSION: Immediate or delayed oxytocin administration for hypotonic uterine contractions after amniotomy does not significantly alter the duration of labor, mode of delivery, early neonatal outcomes or maternal satisfaction.

25 Duration of latent phase of labor induction and maternal and neonatal outcomes in full-term nulliparas

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OBJECTIVE: The relationship of duration of latent phase (LP) in induced labor (IOL) to pregnancy outcomes remains controversial. We quantified the association between duration of LP of IOL and cesarean delivery (CD) and maternal and perinatal morbidity in healthy nulliparas at term.

STUDY DESIGN: Planned secondary analysis of a multicenter RCT of IOL at $39^{0/7}$ wks vs. EM until at least $40^{5/7}$ wks but no later than $42^{2/7}$ in singleton low-risk nulliparas. All those with viable non-anomalous neonates who underwent IOL with oxytocin were included regardless of study arm and receipt of cervical ripening. Duration of LP (time from initiation of oxytocin to first reaching at least 5cm dilation) was examined by 3-hr intervals from <12 to 24+ hrs in relation to CD, and both a maternal and perinatal composite of adverse outcomes. Categorical variables were compared using Cochran-Armitage trend or Chi-Square tests, and continuous variables using the Jonckheere- Terpstra test of trend. Poisson regression was used for multivariable adjustments.

RESULTS: Of 6,106 women in parent trial, 3045 who underwent IOL met criteria for this analysis. The median duration was 19.6 hours (IQ range 9.5-30.2), with 33% lasting <12, 25% 12-23 and 42% ≥24 hrs (Table 1). Presence of modified Bishop score <5 increased as LP duration increased from 28% if <12 hrs to 66% if ≥24 hrs. The frequency of CD (range 16%-30.5%) and the maternal composite (range 14.5 to 26.1%), but not the neonatal composite, increased with LP duration (Table 1). After multivariable adjustment (Table 2) LP duration was associated with increased odds of CD after 15 hrs and increased odds of the maternal composite after 18 hrs; there was no association between LP duration and the neonatal composite. Bishop score at the time of IOL did not modify these findings.

CONCLUSION: In low-risk nulliparas who underwent IOL, LP duration was associated with increased risk for CD after 15 hrs and maternal morbidity after 18 hrs. Duration of LP was not associated with neonatal morbidity.

Table 1 Duration of latent phase and outcome frequency (N=3045)

	<12 n=998	12-14.9 n=227	15-17.9 n=208	18-20.9 n=177	21-23.9 n=161	24+ hrs n=1274	P for trend
Maternal outcomes							
Cesarean delivery	162 (16.2)	40 (17.6)	55 (26.4)	50 (28.2)	36 (22.4)	388 (30.5)	<.001
Maternal composite*	145 (14.5)	41 (18.1)	39 (18.7)	46 (26.0)	42 (26.1)	304 (23.9)	<.001
Operative vaginal delivery	81 (8.1)	24 (10.6)	17 (8.2)	8 (4.5)	10 (6.2)	92 (7.2)	.20
Neonatal outcomes							
Neonatal composite	73 (7.3)	17(7.5)	14 (6.7)	11 (6.2)	12 (7.4)	117 (9.2)	.10
NICU admission	116 (11.5)	24 (10.6)	24 (11.5)	22 (12.4)	24 (14.9)	178 (14.0)	.04

*Composite of peripartum infection,3rd or 4th degree laceration, blood transfusion, B-lynch, uterine/hypogastric artery ligation, embolization, hysterectomy, ICU admission, or death
Composite of perinatal death, the need for respiratory support within 72 hours after birth, 5 minute Apgar score ≤3, hypoxic ischemic encephalopathy, seizure, infection (confirmed sepsis or pneumonia), meconium aspiration syndrome, birth trauma (bone fracture, neurologic injury, or retinal hemorrhage), intracranial or subgaleal hemorrhage, hypotension requiring vasopressor support, shoulder dystocia or neonatal hypoglycemia

Table 2: Association of duration of latent phase and outcomes*

**Referent: <12 hrs	12-14.9 hrs RR (95%CI)	15-17.9 hrs RR (95%CI)	18-20.9 hrs RR (95%CI)	21-23.9 hrs RR (95%CI)	24+ hrs RR (95%CI)
Maternal					
CD	1.07 (0.82, 1.39)	**1.31 (1.04, 1.67)**	1.10 (0.84, 1.43)	1.06 (0.80, 1.40)	**1.35 (1.16, 1.57)**
Composite	1.24 (0.90, 1.72)	1.18 (0.85, 1.65)	**1.54 (1.12, 2.11)**	**1.71 (1.24, 2.35)**	**1.53 (1.26, 1.86)**
Operative VD	1.44 (0.91, 2.27)	1.24 (0.74, 2.07)	0.66 (0.31, 1.43)	0.88 (1.43, 1.80)	1.03 (0.75, 1.43)
Neonatal					
Composite	1.04 (0.63, 1.74)	0.89 (0.51, 1.57)	0.52 (0.24, 1.12)	0.87 (0.44, 1.71)	1.26 (0.93, 1.71)
NICU admission	0.91 (0.59, 1.40)	0.92 (0.61, 1.42)	**0.91** (0.57, 1.45)	1.23 (0.78, 1.92)	1.15 (0.90, 1.47)

*Adjusted for bishop score<5 at admission, race/ethnicity, maternal BMI, original trial treatment arm, and GA at induction;

Bolded if significantly different

26 Elective induction of labor at 39 weeks versus expectant management in low-risk multiparous women

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OBJECTIVE: The ARRIVE Trial demonstrated lower cesarean delivery rates, decreased hypertensive disorders of pregnancy and potentially improved perinatal outcomes in low-risk nulliparous women undergoing elective induction of labor (eIOL) at 39 weeks as compared to expectant management (EM). Our objective was to compare maternal and neonatal outcomes between eIOL and EM in low-risk multiparous women.

STUDY DESIGN: A retrospective cohort study of low-risk multiparas (previous delivery ≥20 weeks with no prior cesarean) delivering non-anomalous singletons between 39^{0}-42^{0} weeks from 2014-2017 at our institution. Women were considered eIOL if they delivered