

Length of the Second Stage of Labor and the Risk of Preterm Delivery in a Subsequent Pregnancy

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LENGTH OF THE SECOND STAGE OF LABOR AND THE RISK OF PRETERM DELIVERY IN A SUBSEQUENT PREGNANCY

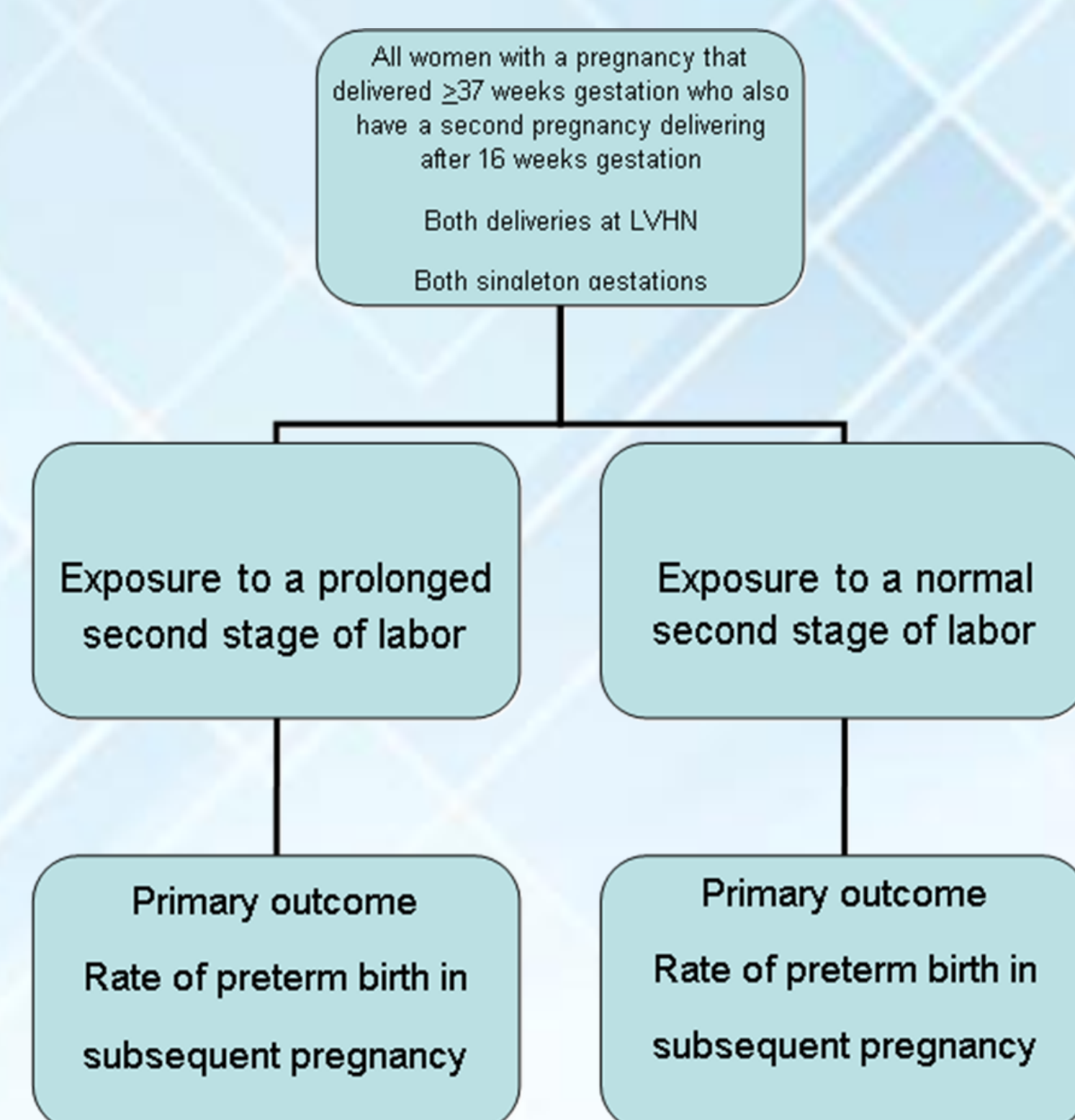
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Background

- Preterm birth (PTD): delivery that occurs prior to 37 weeks gestation
- ~70-80% of preterm births occur spontaneously
 - Preterm labor
 - 40-50%
 - Preterm premature rupture of membranes (PPROM):
 - 20-30%
- 12% of births in U.S. occur before 37 weeks
- Multiple gestations or a short cervix (<30 mm) may be causes of preterm birth
- Cervical insufficiency may be due to a precipitous delivery or a prolonged second stage of labor
- Cervical insufficiency → second trimester abortion or premature labor

Objective

- To evaluate whether an increased duration of the second stage of labor or prolonged labor in a primiparous singleton term delivery increases the risk of PTB in the subsequent singleton pregnancy



Methods/Results

- Cohort study of retrospectively collected obstetric data from Lehigh Valley Health Network between April 2007-November 2013
- Obtained characteristics of the first pregnancy delivered at a gestational age of ≥ 37 weeks
 - Exposure of interest: length of the second stage of labor
- Information regarding woman's subsequent pregnancy was collected
 - Primary outcome: Gestational age at delivery
- 26 out of 33 patients were identified as eligible for inclusion in the study (Table 1)
- 6 patients had a prolonged second stage (≥3 hours) in the first pregnancy
- 17 patients had a normal second stage of labor
- Primary outcome: Gestational ages in subsequent pregnancy similar between the groups (38.8 ± 1.5 weeks in 17 women with a normal second stage vs. 39.6 ± 1.0 weeks in 6 women with a prolonged second stage, p=0.26)
- 3 patients delivered preterm in their second pregnancy
 - Similar lengths of first and second stage of labor in first delivery (Table 2)

Table 1. Patient demographics and labor characteristics by delivery

Demographics and labor characteristics	First Term Delivery n = 26	Subsequent Delivery n = 26
Maternal age (years) ^a	27.4 ± 5.0	29.6 ± 5.0
Resident service (vs. private), n (%)	4 (15.4)	5 (19.2)
Cesarean delivery, n (%)	3 (11.5)	4 (15.4)
First stage labor length (hours) ^a	9.9 ± 4.6	8.0 ± 4.5
Second stage labor length (hours) ^a	2.0 ± 1.6	0.5 ± 0.7
Gestational age at delivery (weeks) ^a	39.2 ± 1.2	39.0 ± 1.4
Neonatal birthweight (grams) ^a	3249.2 ± 507.8	3447.8 ± 595.7

Data analyzed with Student t and chi square tests, as indicated.
^aData expressed in mean ± SD

Table 2. Labor characteristics by gestational age in subsequent pregnancy

Labor characteristics	Term delivery in subsequent pregnancy n = 23	Preterm delivery in subsequent pregnancy n = 3	p value
Gestational age in the subsequent pregnancy (weeks) ^a	39.4 ± 1.1	36.4 ± 0.3	0.0001
First stage labor length in the first term delivery (hours) ^a	n = 18 9.9 ± 4.7	n = 3 9.8 ± 4.7	0.98
Second stage labor length in the first term delivery (hours) ^a	n = 20 2.0 ± 1.7	n = 3 1.0 ± 0.7	0.27

Data analyzed with Student t tests, as indicated.
^aData expressed in mean ± SD

Conclusion

- Information gathered from the study will provide additional data regarding the length of the second stage of labor as a potential risk factor for cervical shortening and spontaneous preterm birth
 - Preterm delivery screening
 - Management of term labor
- Only reviewed 52 pregnancies
 - Small sample size → No correlation observed
 - Additional data needed
 - 1000 patients to be reviewed to address whether there is a relationship between the second stage of labor in the first delivery and future PTB risk

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