Research Day Abstract 2021

Estimating the Incidence of Failed Induction of Labor and the Associated Patient Risk Factors

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Objective: To estimate the incidence of failed induction of labor and the associated patient risk factors.

Methods: We performed a case-control study from a cohort of nulliparous women who delivered between 39-41 weeks gestation after an induction of labor in one of seven hospitals. Cases of failed induction were defined using the Obstetric Care Consensus criteria (i.e., cesarean delivery performed in early labor (<6 cm dilatation) after at least 12 hours of oxytocin administration from membrane rupture). For each case, the next four women who did not meet the criteria for failed induction of labor were selected as controls, matched by hospital. We identified characteristics associated with failed induction of labor using a multivariable conditional logistic regression that was constructed with backward stepwise method for variable selection.

Results: Across the hospitals, 4,123 of 10,175 nulliparous women were induced (40.5%), of whom 82 had a failed induction of labor (2.0%). A total of 328 women were selected as matched controls. Baseline characteristics were similar between the groups. Compared to controls, women with a failed induction were more likely to have a delivery body mass index (BMI) ≥40 (28.0 vs 8.2%, p<0.001), shorter height (mean 63.9 vs 64.8 inches, p=0.01), and closed cervix on admission (41.5 vs. 24.1%, p=0.002). Factors significantly associated with induction failure in the multivariable model included 1) delivery BMI (adjusted odds ratio (aOR) and 95% confidence interval (CI) of 7.93 (95% CI 3.48 – 18.09) for BMI≥40 kg/m^2 relative to BMI<30; 2) height in inches (aOR 0.89, 95% CI 0.80 – 0.98); and 3) number of centimeters dilated on admission ≥ 2 (aOR 0.30, 95% CI 0.14 – 0.65).

Conclusion: Failed induction of labor occurs infrequently. Risk factors include shorter height, BMI ≥40 kg/m^2, and cervical dilatation < 2 cm on admission. Even so, most women with these risk factors will not experience failed labor induction.