

Addition of Misoprostol to Double-Balloon Catheter for Cervical Ripening Associated with Improved Obstetric Outcomes

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Introduction

If induction of labor (IOL) is indicated but the cervix is deemed unfavorable, cervical ripening agents like mechanical dilators and synthetic prostaglandin E1 medications can be used. The objective of this study was to compare labor outcomes of women who underwent cervical ripening with a double-balloon catheter alone or with the addition of concurrent misoprostol. We hypothesized that concomitant use of misoprostol and cervical ripening balloon (CRB) was associated with increased vaginal delivery rates compared to CRB use alone.

Methods

We conducted a retrospective cohort analysis consisting of patients who underwent IOL with CRB at Eskenazi Hospital. Comparison between the two cohorts was done using a chi-square/fishers' exact test for the categorical variables and t-test for the continuous variables.

Results

A total of 134 patients were analyzed in the cohort, with 82 receiving concurrent misoprostol and 52 not receiving any additional pharmaceutical agents. Patients who received misoprostol and CRB had higher vaginal delivery rates (84.2% vs. 51.9%, $p < 0.01$), decreased EBL (388.0 vs. 592.1 mL, $p = 0.01$), and were not more likely to be given terbutaline (90.2% vs. 75%, $p = 0.02$) compared to patients treated with CRB alone. There were no differences in neonatal outcomes (NICU admission, birth weight, or 5-min APGAR scores) or occurrence of uterine tachysystole between the cohorts. The multivariate analyses showed similar trends, although additional medication, medication use before balloon placement, advanced maternal age, and terbutaline use were not strong independent predictors of the vaginal delivery rate.

Conclusion and Potential Impact

We found that concurrent use of misoprostol and CRB during IOL was associated with increased vaginal delivery rate and decreased EBL when compared with patients who had CRB alone. Potential impacts of this study include providing evidence-based recommendations on cervical ripening practices as well as guiding future studies investigating the possible benefits with standardization of IOL practices.