Risk factors and ramifications of failure to achieve cervical ripening with prostaglandins – Retrospective Cohort Study

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Abstract

Objective: To assess the characteristics and evaluate the outcomes of women who failed to respond to cervical ripening with prostaglandins. Methods: A retrospective cohort analysis (2012-2018) of all women with singleton gestation who underwent induction of labor, due to post-date pregnancy, with a slow-release prostaglandin-E2 vaginal insert for cervical ripening. Overall, 1285 women were divided into 2 groups: a) responders - 1,202 (93.54%) - achieved ripening within 24 hours ; b) non-responders- 83 (6.46%) – did not achieve cervical ripening within 24 hours. Characteristics and outcomes were compared between the groups. Primary outcome was defined as vaginal delivery rate following ripening process. Secondary outcomes were defined as composite adverse maternal and adverse neonatal outcomes. A model combining maternal characteristics and response rates to ripening was constructed as well. Results: In comparison to non-responders, responders achieved higher rates of vaginal delivery (96.51% vs. 66.27%, p<0.001). They also had lower rates of adverse maternal outcomes (12.81% vs. 24.10%, p=0.031) and of neonatal respiratory adverse outcomes (1.33% vs. 6.02%, p=0.009). The responders were also younger (30.03 vs 31.73, p=0.005), and less nulliparous (76.92% vs 50.99%, p<0.001). A multivariate analysis showed that failure to achieve a cervical ripening is an independent risk factor for intrapartum cesarean delivery due to failure to progress in labor (aOR 11.90, 95% CI 6.13-23.25). Conclusion: Women who achieve cervical ripening with PROPESS are younger, and more often multiparous. This group is associated with lower rates of intrapartum cesarean delivery and adverse outcomes.

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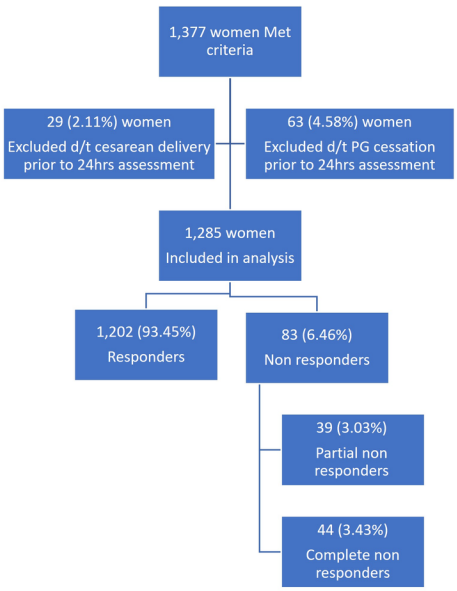
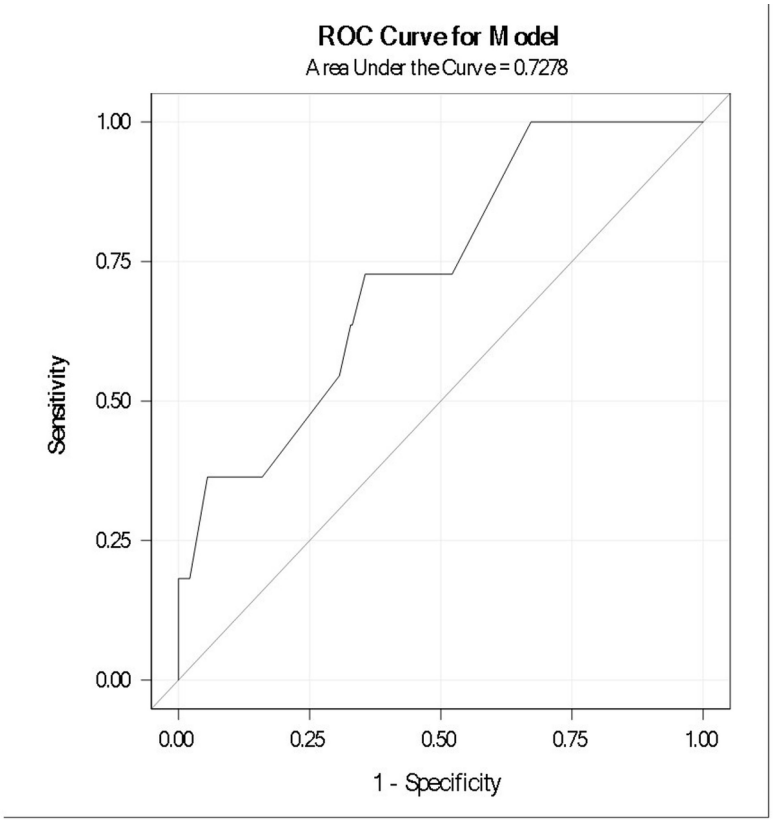


Figure1: Study Design

Overall, 1,377 women at post-dates (≥40w0d) were admitted for cervical ripening with a PGE-2 slow-release vaginal insert (PROPESS). Of those 92 (6.68%) were excluded from the study according to following: 29 (2.11%) were excluded from the study as they underwent a cesarean delivery prior to the 24 hours PROPESS assessment d/t various reasons; 63 (4.58%) were excluded from the study as the process was ceased for them prior to the 24 hours assessment. Thus 1,285 women were included in the final analysis. Of those, 1202 (93.45%) achieved cervical ripening with PROPESS and 83 (6.46%) did not. Of the 83 who did not achieve cervical ripening- 39 (3.03%) were partial non responders and 44 (3.43%) were complete non responders who required a second ripening method with extra amniotic balloon.



aOR of 11.90 for cesarean delivery (95% CI 6.13-23.25, p<0.001), calculated for nulliparous, above 30 and overweight non-responders