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Medication abortion failure in women with and without previous cesarean delivery

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Abstract

Objective: To investigate the association between previous cesarean delivery and medication abortion failure and the association between parity and failure.

Methods: Data were abstracted from 2035 consecutive charts of women who underwent medication abortion in 2011. All women were at 63 days gestation or less and received mifepristone 200 mg orally and misoprostol 800 mcg buccally. We used multivariate logistic regression to assess the relationship between failure, defined as requiring either curettage or additional medication, and prior cesarean delivery. We also examined the relationship between failure and parity.

Results: Follow-up was available on 1609 (79%) patients. Overall, 4.5% of patients experienced failure. Neither cesarean delivery nor parity was associated with failure; 6.5% of women with prior cesarean delivery experienced failure, compared to 3.7% of nulliparous women [adjusted odds ratio (aOR), 1.79, 95% confidence interval (CI), 0.83–3.87]. With regard to parity, 4.7% of women with two or more previous births experienced failure, compared to 3.7% of nulliparous women (aOR, 1.07, 95% CI, 0.54–2.14).

Conclusion: We did not find significant associations between prior cesarean delivery and failure or parity and failure. A previous study of patients who had received a less effective regimen reported significant associations between cesarean delivery and failure and parity and failure. While our results do not rule out the possibility of modest associations due to our limited statistical power, they are reassuring relative to previous findings.

Implications: Our results suggest that if there are differences in women's odds of medication abortion failure by obstetric history, such differences are unlikely to be large. Providers and patients may factor this information into decision making about methods of pregnancy termination.

Keywords: Abortion; Medication abortion; Failure; Cesarean; Parity

1. Introduction

Women seeking early abortion care in the United States are increasingly choosing medication abortion over vacuum aspiration. In 2011, early medication abortions accounted for nearly a quarter of all nonhospital first-trimester abortions, up from 6% in 2001 [1].

A recent Taiwanese comparative study of 879 women, including 13.6% with prior cesarean delivery, found that women with prior cesarean delivery had greater odds of needing surgical intervention after medication abortion, compared to nulliparous women and women with prior vaginal birth only [2]. This finding conflicts with other studies that found no difference in the efficacy of medication abortion [3,4] or the treatment of early pregnancy failure [5] in women with uterine scarring. The studies that found no difference, however, either had lower power to find a difference due to smaller sample sizes [3,5] or lacked a

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contemporaneous comparator group [4]. Importantly, the regimens that patients received in all these studies were markedly different than the regimen recommended in guidelines in the United States and internationally of mifepristone 200 mg orally and misoprostol 800 mcg by a non-orally-ingested route [6,7]. Instead, patients in these studies either received misoprostol 600 mcg orally [2–4] or, in the case of the study of early pregnancy loss, misoprostol 800 mcg vaginally with no mifepristone [5]. Given the increasing rate of cesarean births in the United States and other countries [8], it is important to investigate further whether an association exists between cesarean delivery and failure of the regimen commonly used in the United States of mifepristone 200 mg orally and misoprostol 800 mcg by a non-orally-ingested route.

2. Material and methods

We conducted a retrospective analysis of a cohort of women who presented to two outpatient abortion clinics in Chicago, IL, under the same clinical management, between January 1, 2011 and December 31, 2011 for a medication abortion. All received mifepristone 200 mg orally and misoprostol 800 mcg buccally. Demographic information, reproductive history and data about the current pregnancy and abortion were abstracted from the charts of 2035 consecutive medication abortion patients at 63 days gestation or less, as determined by ultrasound. During the study period, previous cesarean delivery was not considered a contraindication for medication abortion at these sites. This study was approved by the New England Institutional Review Board.

Our primary aim was to investigate the relationship between prior cesarean delivery and medication abortion failure. The primary outcome was defined as whether or not the first treatment course of misoprostol/mifepristone was successful. We chose this outcome, rather than the common definition of failure as curettage [9,10], because follow-up treatment is influenced by patient preference in the clinics providing data.

At these clinics, all patients presenting for a medication abortion are asked to make follow-up appointments 7 to 14 days after the initial treatment course. If a patient does not return for follow-up, clinic staff will attempt to reach her with two phone calls and then a certificate-of-mailing letter. Sonogram is used at follow-up to determine failure of abortion, indicated by ongoing pregnancy or incomplete abortion. Heavy bleeding and/or pelvic pain that interferes with daily activities may also indicate failure. Patients experiencing failure are advised on the failure management options appropriate for their case. Patients who are hemodynamically stable are usually presented three options: conservative management by observation only, supplemental misoprostol or rescue curettage under local or general anesthesia. As all three treatment options are included in the initial fee, there is no financial constraint placed on the patient in choosing one clinical option over the others. Our secondary outcome was curettage.

We conducted a post-hoc power analysis to determine our power to find differences in failure by type of previous delivery. We used chi-squared tests and univariate and multivariate logistic regression to evaluate the relationship between failure and prior cesarean section. We also used these tests to evaluate the relationship between failure and parity. Additional covariates, selected based on previous findings associating them with women's pregnancy outcomes, were patient age, race/ethnicity, gestational age, history of miscarriage and parity. We structured our analysis after that of Chien et al. [2], which included two multivariate logistic regression models to examine the respective relationships between parity and failure, and type of previous delivery and failure. Hypotheses were evaluated at the 0.05 significance level. We investigated whether there was interaction between gestational age and cesarean delivery with Wald tests, using a p-value of 0.20 to define a significant interaction. All tests were performed using STATA 13 (College Station, TX, USA).

3. Results

Of 2035 patients whose data were extracted, 426 (21%) were lost to follow-up (LTFU) after the initial visit. An additional 5 patients were LTFU after receiving a second dose of misoprostol. Whether these 5 patients later received curettage is unknown; therefore, their data were included in the primary analysis of failure as additional intervention but not in the secondary analysis of the curettage outcome. Previous cesarean delivery was not associated with LTFU. Parity was associated with LTFU; 25% of patients with 1 delivery and 27% of patients with ≥ 2 deliveries were LTFU, compared to 14% of nulliparous women ($p < 0.01$).

The demographics of the 1609 patients who returned for follow-up are displayed in Table 1, both overall and by medication abortion failure status. Of this group, 201 (12.5%) had a prior cesarean delivery. Our post-hoc power analysis indicated that we had 80% power in two-sided tests with a Type I error rate of 5% to detect an adjusted odds ratio of 3.6, or a difference of 7% points, in the comparison of failure between women with previous cesarean delivery and nulliparous women.

Overall, 4.5% of patients experienced failure. There was some variation in failure by obstetric history, with a slightly higher percentage of women with prior cesarean delivery having experienced failure (6.5%), compared to nulliparous women (3.7%) and women with prior vaginal delivery only (4.8%). This difference was not significant ($p = 0.22$). In adjusted analysis, women with prior cesarean delivery had 1.79 times the odds of failure compared to nulliparous women (CI, 0.83–3.87, $p = 0.14$) (Table 2). There were also no