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Misoprostol 1 to 3 h preprocedure vs. overnight osmotic dilators prior to early second-trimester surgical abortion☆

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Abstract

Objectives: We sought to compare the effectiveness of at least 1 h of 400 mcg of buccal misoprostol to overnight osmotic dilators for early second-trimester surgical abortion cervical preparation.
Design: We conducted a retrospective cohort study, reviewing 145 consecutive charts to compare procedure duration for women who received 400 mcg of buccal misoprostol at least 1 h preprocedure vs. overnight osmotic dilators before dilation and evacuation between 14 weeks, 0 days and 15 weeks, 6 days' gestation. Primary outcome was procedure duration and secondary outcomes included maximum mechanical dilator size, estimated blood loss and side effects.
Results: Sixty-four women (44.1%) received buccal misoprostol (mean 1.6 h), and 81 women (55.9%) received overnight osmotic dilators. Groups did not differ regarding mean gestational age or gynecologic history. All procedures in both groups were completed. Procedure duration was not significantly different between the misoprostol and osmotic dilator groups (median 11.0 min vs. 10.0 min, p=.22), even after multivariable linear regression (p=.17). The mean total cervical preparation duration was 1.6 h for women in the misoprostol group compared to 20.3 h in the osmotic dilator group (p<.001). Secondary outcomes did not differ between groups.
Conclusions: We found that at least 1 h of preprocedure misoprostol decreased the duration of cervical preparation for early second-trimester procedures performed by an experienced surgeon.
Implications: In this small, retrospective review, at least 1 h of preprocedure buccal misoprostol decreased the duration from cervical preparation initiation to procedure completion in early second-trimester procedures performed by an experienced surgeon. These results should be considered as a pilot evaluation, and further prospective study is needed to further clarify whether this short interval could be applied in general practice.
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Keywords: Surgical abortion; Cervical preparation; Misoprostol; Osmotic dilators

1. Introduction

Cervical preparation prior to dilation and evacuation (D&E) is an important measure to decrease complications [1–5]. Protocols for cervical preparation include using osmotic dilators, prostaglandins and/or antiprogestins to reduce the need for additional mechanical dilation that may result in increased risk of cervical trauma and uterine perforation [2–8].

Misoprostol alone for cervical preparation is of clinical interest, as it facilitates same-day procedures compared to 2-day procedures often required with osmotic dilators. Additional advantages include patient acceptability of oral or buccal medications and decreased cost [9]. Several studies demonstrate increased dilation, greater ease of dilation and shorter procedure time when using 400 mcg of misoprostol administered buccally or vaginally 1–2 h prior to first-trimester surgical abortion [10,11]. However, data regarding the use of misoprostol alone prior to second-trimester surgical abortion are less clear. Existing studies vary regarding gestational age

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range, route of administration and duration of use with inconsistent results on overall procedure time and ease of dilation [12–16]. Despite conflicting data, in a 2001 survey of National Abortion Federation clinics, 40% of respondents reported routinely using misoprostol alone for cervical preparation at 16 weeks or less [17].

Protocols requiring a shorter duration of cervical preparation allow for the convenience of a same-day procedure, likely increasing accessibility and acceptability of early second-trimester abortion. Nucatola et al. [18] reported data from 6620 early second-trimester surgical abortions performed at Planned Parenthood of Los Angeles, which had been using 90 min of misoprostol alone for early second-trimester cervical preparation since 2001. This new approach to cervical preparation was not associated with an increase in serious adverse events, including uterine perforation [18]. Pharmacokinetic data demonstrate that over 75% of individuals who receive 400 mcg of buccal misoprostol reach peak serum levels between 30 and 90 min [19]. Building on this existing literature, we present initial data comparing procedure duration using at least 1 h preprocedure 400 mcg of buccal misoprostol vs. overnight osmotic dilators before early second-trimester D&E.

2. Materials and methods

We conducted a retrospective cohort study comparing outcomes of women who received at least 1 h of buccal misoprostol or overnight osmotic dilators (combination of laminaria and/or Dilapan-S) for cervical preparation prior to early second-trimester D&E. We reviewed all charts of women presenting for surgical abortion between 14 weeks, 0 days and 15 weeks, 6 days of gestation from January 1, 2011 through June 30, 2011 at a high-volume pregnancy termination clinic, Family Planning Associates (FPA), in Chicago, Illinois. The primary outcome for this study was procedure duration. Secondary outcomes included mechanical dilator size, estimated blood loss and side effects, including postoperative bleeding, postoperative nausea/vomiting and postoperative pain. The institutional review board at the John H. Stroger, Jr. Hospital of Cook County approved the study.

A study team member not directly involved in statistical analysis extracted all study data from patient charts. Inclusion criteria included all women who underwent surgical termination between 14 weeks, 0 days and 15 weeks, 6 days' gestation during the study period. Women who did not receive cervical preparation, who received less than 1 h of misoprostol at the discretion of the attending surgeon, or for whom the method of cervical preparation was not recorded in the chart were excluded from the study. Data collected were de-identified and included sociodemographic, reproductive health and procedure details. The primary outcome, procedure duration, was measured to the nearest minute by a highly experienced certified registered nurse anesthetist (CRNA) from the time of speculum insertion to speculum removal. Data for postoperative vaginal bleeding (none/scant/small/moderate/heavy), pain (none/minimal/moderate/severe) and nausea and vomiting (none/emesis) were extracted from the nursing record using a standardized form.

During the study period, all women presenting to FPA for surgical abortion 14 weeks, 0 days and 15 weeks, 6 days' gestational age underwent ultrasound confirmation of gestational age, preoperative evaluation, preoperative counseling and consent. At this gestational age, all women visited the clinic on 2 consecutive days for a preoperative visit and surgery. During the preoperative visit, advanced practice nurses (APNs) provided preprocedure counseling, including counseling regarding cervical preparation. The first option, overnight osmotic dilators, would require a shorter waiting time on the day of surgery, as the patient could arrive at the clinic on the day of surgery ready for her procedure. The second option, 400 mcg of buccal misoprostol, would require a longer waiting time on the day of surgery, as it would be administered that day, at least 1 h in advance of the procedure. Accordingly, APNs offered misoprostol as an option if the clinic's volume on the day of surgery could accommodate the longer waiting time that misoprostol requires. Prior to surgical days when the clinic anticipated shorter clinical hours due to a low volume of procedures, women received overnight dilators at their preoperative visit. Prior to a surgical day when the clinic anticipated longer hours due to a high volume of procedures, women were offered the option of either overnight osmotic dilators or day-of-procedure misoprostol.

Experienced advanced practice clinicians performed all osmotic dilator placements (laminaria and Dilapan-S) with consultation as indicated by supervising physicians. Dilator placements were often performed after pre-dilation of the cervix using serial mechanical dilation with Hegar dilators up to 12 mm, as allowable without application of undue force. During osmotic dilator insertion, the advanced practice clinicians injected 2–3 ml of a 1% procaine analog to the anterior lip of the cervix (to minimize tenaculum pain) with or without additional paracervical block as needed. Intravenous or intramuscular injections of an analgesic agent (e.g., butorphanol or ketorolac) were also immediately available per standard clinic protocol as clinically indicated.

One experienced, board-certified obstetrician-gynecologist performed all D&E procedures under general anesthesia using a 12-mm rigid suction curette and Sopher forceps. Mechanical dilators were used for additional dilation, and the maximum serial Hegar dilator used was recorded in millimeters for all cases prior to evacuation of the uterus. Pain control in every case was provided by a CRNA who used a combination of bolus intravenous propofol and ketorolac, the latter primarily for postoperative pain. Ketamine was used adjunctively for women with a body mass index (BMI) >35 kg/m^2. Patients were not intubated. Trainee physicians did not participate in any of the procedures.

Study team members not involved in data collection conducted descriptive statistics, comparing by cervical preparation type, to determine whether the groups differed

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