Comparative Study of Sublingual versus Vaginal Misoprostol on Preoperative Cervical Priming in First Trimester Abortion

PARNEET KAUR*, MANJEET KAUR*, BALWINDER KAUR**, MANJIT KAUR MOHI†; KHUSHPREET KAUR‡, PREETI JINDAL¶

ABSTRACT

Objective: To compare the effect of sublingual versus vaginal misoprostol on preoperative cervical priming in first trimester abortion. Material and methods: One hundred women seeking first trimester abortion were randomized into either sublingual or vaginal groups of 50 each. They were given 400 µg misoprostol via sublingual or vaginal route for cervical priming three hours before the procedure. The outcome measures assessed were cervical dilatation before surgery, duration of procedure, intraoperative blood loss and preoperative side effects. Results: Subjects in the sublingual group achieved significantly higher mean cervical dilatation compared to vaginal group (8.34 ± 0.62 mm vs 7.60 ± 0.67 mm, p = 0.0001). The mean duration of procedure for sublingual group was significantly lower compared to the vaginal group (2.62 ± 0.64 minutes vs 3.17 ± 0.71 minutes, p = 0.0001). The mean intraoperative blood loss was found to be more in sublingual group as compared to vaginal group (34.90 ± 10.90 ml vs 32.90 ± 7.42 ml), but the difference was not significant (p = 0.286). The sublingual group experienced more preoperative side effects such as pain, bleeding, nausea and shivering as compared to vaginal group. Conclusion: Sublingual misoprostol is more effective and convenient route than vaginal misoprostol for preoperative cervical priming in first trimester abortion.

Keywords: Misoprostol, sublingual, vaginal, cervical priming

An abortion is termination of a pregnancy either spontaneously or intentionally, before the fetus develops sufficiently to survive independently. The traditional method for termination of early pregnancy has been priming of the cervix followed by evacuation by suction aspiration performed under anesthesia or sedation.1 Cervical priming can be achieved with the use of prostaglandins or hydrophilic dilators.2 Various prostaglandin E1 (PGE1) analogs can be used, but misoprostol (15-deoxy-16-hydroxy-16methyl-PGE1) is cheap, easily stored and associated with fewer side effects,3 so, it is most commonly used worldwide. The sublingual route appears as effective as vaginal administration and requires less time for priming, but is associated with more side effects.4 In order to dilate the cervix preoperatively, the subject must receive the agent at least 3-4 hours prior to the procedure.5

OBJECTIVE

The present study was undertaken to compare the effect of 400 µg sublingual and 400 µg vaginal misoprostol on preoperative cervical priming in first trimester abortion.

MATERIAL AND METHODS

The present study was conducted in the Dept. of Obstetrics and Gynecology, Government Medical College and Hospital, Patiala, Punjab. One hundred women seeking first trimester abortion were randomized into either sublingual (Group A) or vaginal group (Group B) of 50 each. They were given 400 µg misoprostol via sublingual or vaginal route for cervical priming three hours before the procedure. The inclusion criterion was young healthy women with period of gestation...
upto 12 weeks. Gestational age was estimated clinically and was confirmed by ultrasonography in case of any doubt. Subjects with history of previous uterine surgery, allergy or contraindications to prostaglandins, hemoglobin < 9 g/dl, pelvic inflammatory diseases, ectopic pregnancy, multiple pregnancy and uterine anomalies were excluded. Detailed history was taken and a complete physical and obstetrical examination was done. Routine investigations including hemoglobin, urine analysis and blood group were done.

The women were admitted on the morning of the procedure and misoprostol was administered either vaginally or sublingually by doctors other than surgeons assessing the treatment outcome. Their pulse, blood pressure, temperature and other side effects associated with misoprostol including pain, nausea, vomiting, diarrhea, fever, shivering and bleeding per vaginum were recorded. The severity of preoperative abdominal pain experienced by the subject was assessed as Score 1 - no pain, Score 2 - mild pain and Score 3 - severe pain requiring analgesics. Similarly, preoperative vaginal bleeding was measured as: Score 1 - spotting or minimal bleeding, Score 2 - bleeding amount similar to menstrual flow and Score 3 - heavy bleeding with clots.

The abortion was carried out by suction evacuation under general anesthesia. After three hours, outcome measures assessed were cervical dilatation, duration of procedure, intraoperative blood loss and preoperative side effects. The degree of cervical dilatation before vacuum aspiration was measured by passing Hegar’s dilators. Duration of procedure was measured from the start of dilatation of cervical os until end of curettage and intraoperative blood loss was measured with a measuring cylinder.

Following the procedure, the subjects were kept in hospital for four hours for observation. The final outcome regarding efficacy, side effects and acceptability of treatment was assessed.

**RESULTS**

Table 1 summarizes the characteristics of subjects recruited in each group. There was no significant difference with respect to age, gravidity, parity and gestational age between the two groups.

Mean cervical dilatation achieved in sublingual group was significantly higher compared to vaginal group (8.34 ± 0.62 mm vs 7.60 ± 0.67 mm, \( p = 0.0001 \)) (Table 2).

The mean duration of procedure for sublingual group was significantly lower compared to vaginal group (2.62 ± 0.64 minutes vs 3.17 ± 0.71 minutes, \( p = 0.0001 \)). (Table 3)

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**Table 1. Subject Characteristics**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Sublingual group (Group A)</th>
<th>Vaginal group (Group B)</th>
<th>( p ) value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>29.78 ± 4.03</td>
<td>29.84 ± 3.61</td>
<td>0.93 ((&gt;0.05))</td>
<td>NS</td>
</tr>
<tr>
<td>Gravida</td>
<td>3.50 ± 0.86</td>
<td>3.46 ± 0.71</td>
<td>0.80 ((&gt;0.05))</td>
<td>NS</td>
</tr>
<tr>
<td>Parity</td>
<td>2.36 ± 0.80</td>
<td>2.32 ± 0.68</td>
<td>0.78 ((&gt;0.05))</td>
<td>NS</td>
</tr>
<tr>
<td>Gestational age</td>
<td>7.76 ± 1.37</td>
<td>7.60 ± 1.27</td>
<td>0.60 ((&gt;0.05))</td>
<td>NS</td>
</tr>
</tbody>
</table>

The values are expressed as mean ± SD.

**Table 2. Showing Comparison of Cervical Dilatation in Group A and B**

<table>
<thead>
<tr>
<th>Cervical dilatation (Hegar’s dilator) (mm)</th>
<th>Sublingual group (Group A)</th>
<th>Vaginal group (Group B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Range 7-10
Mean ± SD 8.34 ± 0.62 mm vs 7.60 ± 0.67 mm
'\( t \) and ‘\( p \)' value 5.732; <0.05
Significance S

**Table 3. Showing Comparative duration of Procedure in Group A and B**

<table>
<thead>
<tr>
<th>Duration of procedure (Minutes)</th>
<th>Sublingual group (Group A)</th>
<th>Vaginal group (Group B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>1-2</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>2-3</td>
<td>35</td>
<td>70</td>
</tr>
<tr>
<td>3-4</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>4-5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Range 1-5
Mean ± SD 2.62 ± 0.64 mm vs 3.17 ± 0.71
'\( t \) and ‘\( p \)' value 4.068; <0.05
Significance S
The mean intraoperative blood loss was found to be more in sublingual group as compared to vaginal group (34.90 ± 10.90 ml vs 32.90 ± 7.42 ml), but difference was not significant (p = 0.286) (Table 4).

In the present study, subjects in sublingual group experienced more preoperative side effects as compared to vaginal group such as pain (18 vs 16, p = 0.0715), bleeding (14 vs 12, p = 0.814), nausea (7 vs 2, p = 0.081) and shivering (7 vs 3, p = 0.183). None of the subjects in present study experienced fever, diarrhea or vomiting. But, the difference of side effects in both the groups was not statistically significant (Table 5).

No complication occurred in either of the two groups during surgery or in the period of observation. Out of a total of 50 subjects in vaginal group, in 11 (22%) subjects, tablet was only partially absorbed, while in sublingual group, drug was absorbed completely in 5-10 minutes in all the subjects. Sublingual route was more acceptable to the subjects than vaginal route and none of the subjects in sublingual group complained of any unpleasant taste.

**DISCUSSION**

First trimester abortion by surgical methods has been widely used in modern obstetrics. Vacuum aspiration is a commonly used method for first trimester abortion and is one of the most common surgical procedures performed worldwide. Cervical dilatation is the most critical step in vacuum aspiration as most cervical and uterine injuries are due to forceful dilatation of cervix. Adequate dilatation decreases pain and duration of surgery and increases operative ease. Previously, laminaria tent, gemeprost and PGE2 gel have been used for cervical ripening. These days misoprostol, a synthetic PGE1 analog, has become popular for its effectiveness and for its other advantages like less cervical injuries, minimal intraoperative blood loss, reduced requirement of general anesthetics and availability in different dosage forms. It can be given by oral, intravaginal, sublingual or intrarectal route.

The present study observed that the cervical dilatation achieved with misoprostol was favorable among the sublingual group compared to the vaginal group. The observed difference can be attributed to the different absorption kinetics and subsequent more systemic bioavailability with the sublingual and vaginal routes. Similar results were found by Saxena et al, Parveen et al and Vimala et al.

The duration of procedure was less in the sublingual group. This can be explained on the basis of the more cervical ripening and dilatation achieved in this group. Saxena et al, Parveen et al and Vimala et al have also reported similar findings.

The mean intraoperative blood loss was found to be slightly more in sublingual group as compared to vaginal group, which is same as reported by Parveen et al and Tang et al, which was not significant.

In the present study, subjects in sublingual group experienced more preoperative side effects as compared to vaginal group, the most common being the pain (18 vs 16, p = 0.0715). Other side effects like bleeding (14 vs 12, p = 0.814), nausea (7 vs 2, p = 0.081) and shivering (7 vs 3, p = 0.183) were also seen slightly more frequently in sublingual group. This increased frequency of side effects may be explained by the
higher bioavailability of sublingual misoprostol. None of the subjects in the present study experienced fever, diarrhea or vomiting. But, the difference of side effects in both the groups was not significant.

CONCLUSION

It is concluded from the present study that sublingual misoprostol is better than vaginal misoprostol for pre-operative cervical priming in first trimester abortion. The operative time is also decreased with sublingual route and it has good patient acceptability rate and no significant difference in side effects experienced by the subjects.

REFERENCES


Subtle Cognitive Declines follow Menopause

The year after a woman’s final menstrual period - a phase classified as early postmenopause - is a time in which subtle changes in cognition occur, researchers found. Compared with women in an earlier stage of menopause known as the late menopausal transition phase, those in early postmenopause scored worse on tests of verbal learning (B = -0.93, p < 0.01) and verbal memory (B = -0.80, p = 0.01), according to Miriam T Weber, PhD, of the University of Rochester in New York, and colleagues. In addition, women in early postmenopause fared worse on measures of fine motor skills (B = -0.70, p = 0.0) and attention/working memory (B = -0.55, p = 0.04), the researchers reported online in Menopause.

Source: Medpage Today