Pre-operative cervical priming with prostaglandin (PG) analogues (misoprostol or gemeprost) and nitric oxide donors reduces the incidence of complications, duration of post-operative vaginal bleeding, readmission for abnormal vaginal bleeding, pelvic infection and the incidence of re-curettage.

Objectives: To compare the efficacy of a nitric oxide donor (glyceryl trinitrate) and a prostaglandin E1 analogue (misoprostol) for cervical priming before suction evacuation of first trimester abortion.

Methods: This was a randomized clinical trial conducted from August 2008 to January 2009 in the Department of Obstetrics & Gynaecology at All India Institute of Medical Sciences (AIIMS), New Delhi. Sixty healthy women requesting termination of pregnancy between 6 to 10 weeks gestation were randomized into two groups. Group I received intravaginal glyceryl trinitrate (0.5mg) and Group II received misoprostol (400 µg) 3 to 4 hours before suction evacuation. Side effects were assessed 3 hours after drug administration. The cervical dilatation, duration of operation and operative blood loss were measured.

Results: Women in the misoprostol group (7.8 ± 1.3 mm) had a significantly greater cervical dilatation as compared to glyceryl trinitrate group (6.9 ± 1.8 mm), who required additional dilatation. There was no difference in operative blood loss in the two groups. However, the time required for the operation (in minutes) was longer in the glyceryl trinitrate group. Shivering was the main side effect in the misoprostol group, which was statistically significant (p<0.002).

Conclusions: Intravaginal glyceryl trinitrate was less effective than misoprostol in cervical priming before suction curettage was performed in the first trimester.

Keywords: Misoprostol, Nitric oxide donor, Glyceryl trinitrate, Surgical termination of pregnancy.
outcomes analyzed were blood loss, duration of operation, side effects (excessive bleeding, cervical injury, retained products of conception and uterine perforation) and a record of adverse events (pelvic infection, incomplete evacuation and Asherman's syndrome). Routine follow up visit was scheduled at one and six weeks post abortion. Statistical analysis was done using STATA 9.0 (College station, TX, USA). The p-value less than 0.05 was considered statistically significant.

Results: The baseline characteristics (age, ethnicity, parity, history of uterine surgery, gestational age or time-interval between priming and procedure) of the patients in both the groups were comparable.

Table 1: Response to drugs

<table>
<thead>
<tr>
<th></th>
<th>Misoprostol (n=30)</th>
<th>GTN (n=30)</th>
<th>p value</th>
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<tbody>
<tr>
<td><strong>Primary outcome</strong></td>
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<tr>
<td>Dilatation (mm)</td>
<td>7.8 ± 1.3</td>
<td>6.9 ± 1.8</td>
<td>0.04</td>
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<tr>
<td><strong>Secondary outcome</strong></td>
<td></td>
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<tr>
<td>Blood loss (ml)</td>
<td>32.5 ± 10.5</td>
<td>31.1 ± 5.9</td>
<td>0.52</td>
</tr>
<tr>
<td>Duration of operation (min)</td>
<td>3.5 (2.1-7.0)</td>
<td>4.8 (2.2-10)</td>
<td>0.036</td>
</tr>
</tbody>
</table>

The baseline cervical dilatation was significantly higher in the misoprostol group II (mean +/- SD; 7.8 ± 1.3 vs 6.9 ± 1.8 mm, p=0.04) as compared to GTN group I (Table 1).

Most common side-effect was abdominal pain in both the groups. Shivering was statistically significant in the misoprostol group (p<0.002); nausea (14%), vomiting (2%) and vaginal bleeding (55%) was more common in the misoprostol group, while headache was common in the GTN group (40%). No cervical laceration was reported in either group. However, one woman had a uterine perforation in the GTN group. No significant change in systolic/diastolic blood pressure was observed in the GTN group after 3 hours intake of drug. Follow up at one and six weeks post abortion was uneventful in both groups.

Discussion: Misoprostol has been used for cervical ripening in first and second trimester pregnancy termination as well as in term pregnancy either alone or in combination with mifepristone, nitric oxide donors (GTN, isosorbide mononitrate). Vaginal application of NO donors has been shown to be effective in softening the cervix before first trimester curettage with only minor hemodynamic and no painful side effects. Makhlof AM et al showed that GTN does not stimulate uterine contractions but causes cervical priming. Radulovic N et al showed that misoprostol induced a more pronounced cervical ripening than isosorbide mononitrate (ISMN) when administered prior to first trimester surgical abortion. Our study also showed that GTN was less effective than misoprostol for cervical priming before suction evacuation. Li et al had a similar conclusion in his study, the main difference being the time interval between administration of the drug and the operation. In our study the drug was administered 3 hours prior to vacuum aspiration whereas Li et al kept the interval as 4-6 hours. Thomson et al compared ISMN with gemeprost in which results showed that operative blood loss and cervical resistance was more with ISMN. The main pitfalls of our study were small sample size, exclusion of nulliparous patients and failure to assess the VAS pain score.

Conclusions: To conclude, intravaginal glyceryl trinitrate was less efficacious than misoprostol in cervical priming before suction evacuation in the first trimester.

References: