Intravenous sulprostone and uterine scarring based upon 22 cases of therapeutic abortion during 2nd and 3rd trimesters of pregnancy

L. Marpeau\textsuperscript{a}, M. Percque\textsuperscript{a}, L. Larue\textsuperscript{a}, X. Guettier\textsuperscript{a}, T. Jault\textsuperscript{a}, A. Pigne\textsuperscript{b} and J. Barrat\textsuperscript{a}

\textsuperscript{a}Department of Gynecology and Obstetrics, Saint Antoine Hospital, \textsuperscript{b}Department of Gynecology and Obstetrics, Rotschild Hospital, 75012 Paris, France

Accepted for publication 8 February 1993

Summary

A preliminary study in 22 patients with uterine scarring was undertaken using sulprostone by intravenous infusion when therapeutic abortion was deemed necessary during the 2nd and 3rd trimesters of pregnancy. The dosage used was 500 $\mu$g by slow infusion lasting 10 h. There were no cases of ruptured uterus. Adverse reactions were absent. Results were satisfactory. Mean induction-expulsion duration: 11 h. Expulsion rate in 24 h: 63%. With strict monitoring and in a specialized center, this technique may be suggested when a late therapeutic abortion with a scarred uterus is indicated.

Patients and Methods

Eighteen patients with a single uterine scar and four with two uterine scars, were informed of the risks involved and having given their agreement to participate, were hospitalized for therapeutic abortion by intravenous infusion of sulprostone. Other contraindications governing the use of the drug were complied with, e.g. asthma, cardiovascular, renal, respiratory, hepatic, thyroid and ophthalmological disease.

The route of administration was invariably intravenous. Before setting up the infusion, hemostasis was evaluated including platelet count, prothrombin time and activated partial thromboplastin time.

The dosage of sulprostone was reduced by half.
in comparison with already published studies concerning the healthy uterus [1–3]: 500 μg diluted in 1 l of isotonic saline solution given as a 10-h infusion. The same protocol was repeated in the absence of expulsion and after a 24-h rest period.

Epidural analgesia was used as requested by patients and without restriction.

The uterus was routinely explored after delivery in order to detect any possible dehiscence of the uterine scar.

Results

General remarks

The mean age of the patients was 31 years, range 23–43 years. The mean time of therapeutic abortion was at 24 weeks amenorrhea with a range of 18–30 weeks (Fig. 1).

Indications for sulprostone were dominated by groups of fetal deaths in utero (FDIU), 9 out of 22 cases (40%), and fetal morphological or chromosomal abnormalities, 8 out of 22 cases (36%) (Table I).

Epidural analgesia was used in 7 cases. The mean number of ampoules of sulprostone used was 1.8/patients, with a range of 1–7.

The cumulative expulsion rate measuring the time which elapsed between the start of the infusion of sulprostone and expulsion is shown in Fig. 2. Half the patients were delivered within 20 h, 13% being resistant to treatment 65 h after the start of the infusion.

Expulsion within 24 h was obtained in 63% of cases with a mean induction-expulsion interval of 11 h in these cases.

Adverse events

No gastrointestinal nor respiratory intolerance occurred.

Table I

<table>
<thead>
<tr>
<th>Indication</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetal death in utero</td>
<td>9</td>
</tr>
<tr>
<td>Morphological abnormalities</td>
<td>6</td>
</tr>
<tr>
<td>Chromosomal abnormalities</td>
<td>2</td>
</tr>
<tr>
<td>HIV seropositivity</td>
<td>3</td>
</tr>
<tr>
<td>Rubella seroconversion</td>
<td>1</td>
</tr>
<tr>
<td>Spontaneous rupture of the membranes</td>
<td>1</td>
</tr>
</tbody>
</table>

Fig. 1. Distribution of patients in relation to length of pregnancy at abortion.
Adverse events are summarized in Table II. There were no cases of uterine rupture. No significant factor was found in the two cases of hemorrhage.

The case of uterine dehiscence was a routine discovery at post-delivery evaluation of the uterus and did not require any surgery. The uterus concerned had two scars.

**Discussion**

A large number of studies involving the use of sulprostone for therapeutic abortions during the 2nd and 3rd trimesters have already been carried out, comparing the three possible routes of administration: vaginal, intramuscular and intravenous. These studies have involved only patients with a healthy uterus, uterine scarring being considered as a contraindication to the use of sulprostone.

Intravenous administration offers the advantage of better gastrointestinal acceptability and greater safety, since the infusion can be stopped at any time [1–5].

Dosages usually used for the healthy uterus are 500 µg diluted in 500 ml of isotonic saline solution infused over a 5-h period. Reported induction-expulsion duration in the studies is between 7 and 10 h 20 [6]. This induction-expulsion duration is shorter if the fetus is dead or if the patient is multiparous [6].

The suggested dose reduction usually causes

---

**TABLE II**

<table>
<thead>
<tr>
<th>Number</th>
<th>Pregnancy duration</th>
<th>Indication</th>
<th>No. ampoules</th>
<th>Adverse event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23</td>
<td>Trisomy</td>
<td>3</td>
<td>Hemorrhage during labor DIVC = 0 Transfusion = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>FDIU</td>
<td>1</td>
<td>Hemorrhage during labor Cesarean DIVC = 0 Transfusion = 0</td>
</tr>
<tr>
<td>3 (two</td>
<td>26</td>
<td>Trisomy</td>
<td>2</td>
<td>Dehiscence of uterine scar discovered by chance at routine UE</td>
</tr>
<tr>
<td>scars)</td>
<td></td>
<td>21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FDIU, fetal death in utero; UE, post-delivery uterine evaluation.
delayed induction of labor, while the duration of the latter remains unchanged. In contrast, adverse reaction appears to be inexistent as compared with those described [1]. Furthermore, the expulsion rate is 88.7% in 24 h [1].

The incidence of ruptured uterus during dynamic trial of labor at term after cesarean section is currently between 0 and 2.3% [7,8]. No clinical or paraclinical arguments predictive of the risk of uterine rupture exists [9]. Rupture of the uterus may lead to hysterectomy, to damage to the maternal bladder, and to a complicated postoperative course [9,10].

To the best of our knowledge, no publication exists concerning sulprostone used by intravenous infusion in patients with a scarred uterus.

There were no ruptures in the present series, but this risk certainly exists since a case of rupture of a healthy uterus has been reported elsewhere [11].

**Conclusion**

From a preliminary series of 22 cases, sulprostone by intravenous infusion would appear to be appropriate for therapeutic abortion during the 2nd and 3rd trimesters of pregnancy, even in the presence of uterine scarring.

Potential risks of rupture of the uterus require continuous monitoring as well as a medical team equipped for emergency cesarean section.

**References**