

ETHACRIDINE LACTATE PLUS SULPROSTONE FOR SECOND TRIMESTER ABORTIONS—AN INTRAUTERINE PRESSURE MONITORING STUDY

By

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SUMMARY

Clinical studies have shown that the combination of extraamniotic ethacridine lactate and intramuscular prostaglandin is a safe and effective method for achieving second trimester abortions. Continuous intra-uterine pressure monitoring was utilised in fifteen patients in this study in order to objectively document the effectiveness of this technique. We confirmed that the efficacy of ethacridine lactate as an abortifacient can be markedly improved by using augmentary injection of a prostaglandin analogue, Sulprostone.

Introduction

The method of choice for inducing second trimester abortions remains a matter of controversy. Extensive clinical experience with extraamniotic ethacridine lactate over a number of years in many countries has confirmed that this is an exceptionally safe method, without a single death being attributed to it—an enviable record with which no other method can compare (Manabe, 1969).

Despite its excellent record of safety, ethacridine lactate has never been very popular. This is most probably related to the fact that it is a weak abortifacient, with a prolonged induction-abortion interval (mean induction-abortion interval: 36 hours) and a success rate of only 80% (Anjaneyulu *et al* 1977; Rajan *et al* 1978). These disadvantages have led obstetricians

to adopt other techniques, such as intra-amniotic saline, which may be more effective, but more dangerous (Butler, 1979).

In order to overcome the disadvantages of ethacridine lactate alone, a combination method of ethacridine lactate plus prostaglandin was proposed, so as to combine the safety of ethacridine lactate with the efficacy of prostaglandin. Though clinical trials (Raote, 1979) have demonstrated the superiority of this combination, objective studies are lacking. We carried out this study in order to objectively document the efficacy of this technique in a small number of patients by using continuous intra-uterine pressure monitoring.

Material and Methods

Fifteen patients undergoing second trimester abortion were selected for the study, after obtaining informed consent. The patients were randomly divided into two groups. 150 ml of ethacridine lactate was instilled extra-amniotically in all patients. For pati-

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ents in Group II, in addition, an augmentary injection of 500 ug of Sulprostone (16-phenoxy-w-17, 18, 19, 20-tetranor prostaglandin E2 methyl sulfonylamide, a prostaglandin analogue manufactured by Schering, Germany) was given intramuscularly 8 hours after the instillation of the ethacridine. The two groups were comparable and patient details are summarised in Table I.

failure was in Group I (Ethacridine only). This patient aborted after 64 hours, and required a reinstillation of 150 ml ethacridine 48 hours after the first instillation. All the abortions were complete and there were no significant complications in this study. The induction-abortion interval ranged from 16 hours to 30 hour 40 minutes (mean: 26 hour) for patients in Group I; and 10 hour 30 minutes to 20 hour 20 minutes

TABLE I
Patient Details

	Number of patients	Age (years)		Parity		Gestational age (weeks)	
		Mean	Range	Primi.	Multip.	Mean	Range
Group I Ethacridine	10	22	17-30	7	3	18	14-20
Group II Ethacridine + Sulprostone	5	18	17-20	5	0	19	18-20

Intrauterine pressure was monitored in all patients using the open-ended trans-abdominal catheter technique. The intrauterine catheter (epidural catheter manufactured by Vygon, France) was threaded into the amniotic cavity transabdominally and connected to a pressure transducer (manufactured by Gould-Statham, USA) which was connected to an amplifier-recorder (Grass Model 7D Polygraph, USA). Uterine activity was continuously monitored till the products were expelled. The criterion of success was an induction-abortion time of less than 48 hours.

The intrauterine pressure graphs were analysed in order to compare the differences in uterine activity generated as a result of the augmentary injection of Sulprostone.

Results

Fourteen of the 15 patients in this study aborted within 48 hours. The only

(mean: 16 hour 15 minutes) for patients in Group II.

The intrauterine pressure graphs with ethacridine lactate alone (Group I) showed little uterine activity until about 12-18 hours after instillation. After this time there was a gradual increase in the frequency and amplitude of uterine contractions, which persisted until the fetus was expelled in 9 of 10 patients. The induced uterine activity was physiological, with no hypertonus, thus documenting the safety of this technique. In the only failure, contractions were of a lower amplitude and died away after lasting for 8 hours.

In the ethacridine lactate plus Sulprostone (Group II), there was a dramatic difference in the induced uterine contractions, following the Sulprostone injection. After the injection, there was a marked and prompt rise in the baseline tone in 2-4 minutes. In 15-20 minutes, small contractions were superimposed on the hypertonus, until

gradually, over a period of 30-60 minutes, the hypertonus was replaced by regular, physiologic, strong contractions. The hypertonus persisted for 4-6 hours, and the contractions maintained their high amplitude, till the patient aborted.

Representative graphs of uterine activity from the two patient groups are reproduced (Figures 1 and 2).

The efficacy of ethacridine lactate as a second trimester abortifacient was found to be markedly improved by using an augmentary injection of intramuscular Sulprostone. This combination technique was safe and effective and was not associated with a significant increase in the incidence of side effects.

Discussion

Though ethacridine lactate is a very safe technique for inducing second trimester

abortion, it has the disadvantage of being a weak abortifacient. In order to overcome this disadvantage, the combination method of extraamniotic ethacridine lactate plus prostaglandin was proposed—as a technique which would combine the safety of ethacridine with the efficacy of prostaglandins.

When compared with ethacridine alone, this combination has the advantage of a decreased induction-abortion interval, with an apparent increase in success rate.

The advantage of this combination technique as compared to repeated intramuscular injections of prostaglandin analogues is that only a single dose of prostaglandin is required to effect the abortion. Not only does this reduce the incidence of the unpleasant prostaglandin induced side-effects (such as vomiting and diarrhoea), but also reduces the cost.

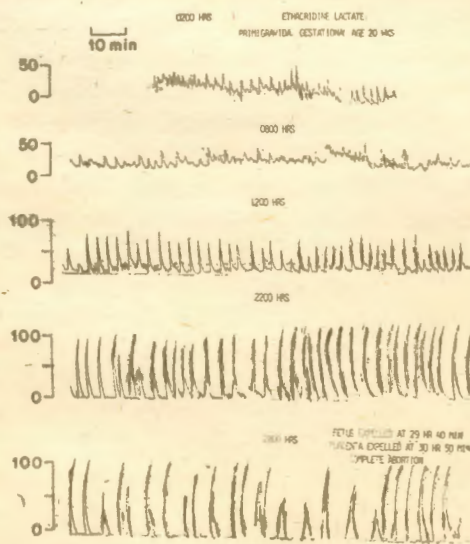


Fig. 1

Representative Intrauterine Pressure Tracing from a Patient in Group I (Ethacridine only).

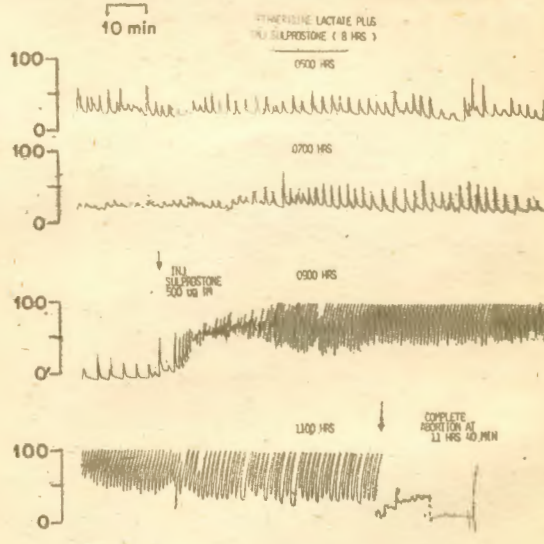


Fig. 2

Representative Intrauterine Pressure Tracing from a Patient in Group II (Ethacridine plus Sulprostone).

Note the marked augmentation of uterine contractility induced by the Sulprostone in Figure 2; the physiologic nature of the induced uterine contractions; and the significantly shorter induction-abortion interval in Figure 2.

This study has objectively confirmed that the combination of extraamniotic ethacridine and intramuscular Sulprostone is a safe and effective method for inducing second trimester abortions, and deserves wider acceptance.

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