

## ETHACRIDINE LACTATE (UNACREDIL) IN SECOND TRIMESTER ABORTION

by

R. ANANTHAKRISHNAN,\* M.D., D.G.O., D.F.P.

R. COMPANIWALLA,\*\* M.B.B.S.

VEENA B. RAOTE,\*\*\* M.D., D.G.O.

S. G. GOGATE,\*\*\*\* M.D., F.C.P.S., D.G.O. D.F.P.

USHA R. KRISHNA,\*\*\*\*\* M.D., D.G.O.

and

V. N. PURANDARE,\*\*\*\*\* M.D., F.R.C.S.

### Introduction

Abortion laws being liberalised, there is a demand for safer, reliable and better methods for second trimester abortion. As more countries accept abortions, efforts will probably increase for finding a safe drug. The commonly used solutions, 20% saline and 50% Glucose have many drawbacks. The search for safer drug led to the discovery of Rivanol or Acrinol Lactate (Ethacridine lactate).

Cohen in 1846 described the extra-ovular route for termination of pregnancy in second trimester. Kashiwara and Fujibayashi of Japan (1952) described the technique of injection of Rivanol by catheter in extra-ovular space. Manabe (1969) also from Japan studied in detail the mechanism of action of Rivanol.

Ethacridine lactate is a derivative of acridine a yellow dyestuff with antiseptic action. It is used as 0.05% to 0.2% solution either locally as a surgical skin antiseptic or internally as a disinfectant for gastro-intestinal tract. 0.1% solution used as an abortifacient is free of any cardiac and Renal toxicity.

### Material and Methods

Ninety women were subjected to medical termination of pregnancy by extra-amniotic instillation of Ethacridine Lactate in 3 different trials with different dose schedules, under strict aseptic conditions in theatre.

*Trial No. 105:* 100 ml. of 0.1% Ethacridine lactate with 10 units of pitocin was given extra-amniotically by Foley's Catheter, 4 hours later 50 ml. of Ethacridine lactate with 5 units of pitocin was instilled. Catheter was removed half an hour after the second instillation.

*Trial No. 106:* 100 ml. of Ethacridine lactate with 10 units of pitocin was given extra-amniotically by means of Foley's Catheter. Catheter was removed after 4 hours.

\*Research Officer.

\*\*M.T.P. Houseman.

\*\*\*Research Officer.

\*\*\*\*Research Officer.

\*\*\*\*\*Hon. Assoc. Prof. of Obst. & Gynec.

\*\*\*\*\*Head, Dept. of Obst. & Gynec.

From: Department of Obstetrics & Gynaecology, K.E.M. Hospital, Parel, Bombay-400 012 (India).

Accepted for publication on 31-8-1977.

Injection pitocin 5 units was given intramuscularly, 4 hourly for 4 doses.

*Trial No. 107:* 100 ml. of Ethacridine lactate with 10 units of pitocin was given extraamniotically by means of plain catheter, patient was given 20° trendelenburg position for about half an hour. Catheter was removed after 4 hours.

All patients were given vaginal pessaries after instillation to prevent any ascending infection.

There were 30 patients in each trial.

#### Observations

*Age:* Patients included in the study were of all ages. The youngest was, of 16 years age. The oldest was of 40 years age.

#### Marital status

More than 50% of the patients belonged to the unmarried group as indicated in Table I.

TABLE I  
Marital Status

Marital Status	Trial No.		
	105	106	107
Married	11	15	12
Unmarried	18	14	16
Widow/Divorced	1	1	2
Total	30	30	30

*Gravida:* Table II indicates that about 62% of the cases were in the primigravidae group.

TABLE II  
Gravida

Gravida	Trial No.		
	105	106	107
1	19	18	19
2	3	4	2
3	4	3	4
4 & Above	4	5	5
Total	30	30	30

*Gestation Period:* Table III shows that 55 cases out of 90 (61%) were between 13-16 weeks and the rest between 17-20 weeks of gestation. The mean gestation period ranging from 16.4 to 16.8.

TABLE III  
Gestation weeks

Gest. Week	Trial No.		
	105	106	107
13-14	11	7	8
15-16	7	13	9
17-18	7	1	6
19-20	5	9	7
Total	30	30	30
Mean	16.4	16.8	16.8

*Success rate:* The maximum success is found in trial 106 as indicated in Table IV, here Ethacridine lactate was supplemented with intramuscular injection of 5 units of pitocin 4 hourly for 4 doses.

*Failure:* Minimum failure was seen in trial 106, both gravida wise and gestation week wise as indicated in Tables V and VI.

TABLE IV  
Success Rate

	105	106	107
Net Success	17 (56.7%)	22 (73.3%)	18 (60%)
Success in 48 hours	16 (53.4%)	20 (66.7%)	14 (46.7%)
Av. Ind. Ab. Interval	27 hrs. 36 min.	28 hrs. 10 min.	33 hrs. 52 min.
m.			
Min.:	11 hrs.	11 hrs.	14 hrs.
m.			
Max.:	48 hrs.	54 hrs.	52 hrs.
Incomplete 3rd stage	4 (13.3%)	10 (33.3%)	3 (10%)

TABLE V  
Failure (Gravidawise)

Gravida	Trial No.		
	105	106	107
1	8	5	5
2	-	2	2
3	2	-	4
4 & above	3	1	1
Total	13	8	12

TABLE VI  
Failure (Gestation weekwise)

Gest Week	Trial No.		
	105	106	107
13-14	5	2	4
15-16	3	3	3
17-18	3	-	4
19-20	2	3	-
Total	13	8	11

#### Management of Failures

Table VII indicates the management of failure cases, by other methods.

TABLE VII  
Management of Failures

	No. of Cases	Success	Failure	Treatment of failure
I.A.S.	5	4	1	D & C done
Pitocin	7	7	-	-
E.A.S.	16	13	3	2 cases D & C 1 case pitocin
D & C	4	4	-	-
Vaginal P.G.	1	1	-	-
Total	33	29	4	-

Complications: Table VIII shows that,

TABLE VIII  
Complications

Complication	z	Trial No.		
		105	106	107
Incomplete abortion		4	10	3
Sepsis		—	1	—
Haemorrhage		—	—	—

Incomplete abortions were seen in 17 out of the 18 complications. Most of these were found in the 13-16 week gestation group.

Sepsis was seen in one patient who came for follow up after 10 days, she showed signs of peritonitis, about 500 ml. of pus was drained, she was treated and discharged 4-6 weeks later.

#### Follow-up

Twenty-seven patients came for follow up after one month. None of these cases showed any clinical features of complication.

#### Discussion

The exact mechanism of action of Ethacridine lactate is not known. Manabe (1962) suggested that extra amniotic instillation of Ethacridine Lactate causes mechanical stimulation of uterus.

Extensive detachment of membranes and stimulation of uterus caused by Ethacridine Lactate can precipitate labour. Mechanical stimulation can also cause reflex release of oxytocin.

Manabe in 1969 reported that urinary steroid levels and plasma progesterone do not drop significantly during the course of treatment, suggesting that disruption of placental function is not the cause of uterine contractility.

Gustavi (1973) suggested that extra-amniotic procedures act by releasing lyso-

somal hydrolytic enzymes within the decidual cells, which help in the release of the prostaglandin precursors from membrane phospholipids and thereby help in the synthesis of prostaglandins, resulting in uterine contractions and finally abortions.

#### Advantages

(i) Ethacridine lactate has a wide margin of safety.

(ii) Its potent and widespread bactericidal action minimizes the danger of per vaginal infection after extraovular injection.

(iii) Technique is simple, no complicated set of instruments are needed. No dilatation of cervix is required.

(iv) Method can be used in patients whose heart and kidney functions are impaired.

(v) Manabe observed that Ethacridine lactate produces far more physiological labour unlike hypertonic solutions.

(vi) There are hardly any side effects.

#### Summary

(1) Ninety patients were studied under different trials.

(2) Trial 106 was found to have maximum success, in which Ethacridine lactate was supplemented with I.M. pitocin.

(3) There were hardly any side effects.

(4) The success of Ethacridine lactate does not improve by addition of pitocin extra-amniotically, or intramuscularly.

(5) We have had better success by addition of spartine sulphate extra-amniotically—89.85% intramuscularly—91.40%.

(6) The success rate is also higher with intramuscular prostaglandin—88%.

#### Conclusion

Amongst the available methods for midtrimester termination of pregnancy,

ethacridine lactate mimics physiological labour.

Ethacridine lactate has a prolonged induction abortion time with respect to other abortifacient drugs.

**Acknowledgement**

We thank Dr. C. K. Deshpande, the Dean Seth G.S. Medical College and K.E.M. Hospital for allowing us to use the hospital Data, we also thank Mr. A. V. Mody of Unichem Laboratories for supplying the drug (Unacredil) for trial, Mr. J. S. Kanitkar for helping with Calculations and tables and late Sister Kadam for helping in theatre procedures.

**References**

1. Gustavi, B.: Am. J. Obst. & Gynec. 120: 531, 1974
2. Manabe, Y.: Am. J. Obst. & Gynec. 105: 132, 1969.
3. Manabe, Y.: Obst. & Gynec. Survey. 27: 701, 1972.
4. Gogate, S., Mhatre, V., Krishna, U. R., Sheth, U. K., Purandare, V. N., Gupta, K. C., Arya, R. and other contributors: Fourth Transaction of scientific papers at the Ind. FRP contributors conference (1977) 91.
5. Raote, V. B., Ananthakrishnan, R., Ganguli, A. C., Krishna, U. R.: The Augmentary Egect of intramuscular prostaglandin on Ethacridine Lactate. Accepted for publication in Journal of Post Graduate Medicine.