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Second Trimester Termination of Pregnancy by Ethacredine Lactate (A Review of 2760 cases)

Dilip S. Kamat, R. Anjaneyulu

Department of Obstetrics, Gynaecology & Family Welfare, B.J. Medical College and Sassoon General Hospitals, Pune, Maharashtra, India.

Summary

With advent of MTP Law in our country various methods were tried for safe termination of pregnancy. Ethacredine Lactate was used for termination of pregnancy in 2nd trimester. The first study report of extra-amniotic use of Ethacredine Lactate for termination of second trimester pregnancy was presented by Anjaneyulu (1975) at Bombay. Since then various schedules were tried to find out the optimum dose of Ethacredine Lactate with minimal induction abortion interval and with minimal side effects and complications. Similarly safety and mechanism of action of Ethacredine Lactate was studied.

Introduction

With the advent of MTP law in our country various methods were tried for safe termination of pregnancy.

Cohen in 1946 (Anjaneyulu 1977) first described the extra-ovular injection for termination of pregnancy in 2nd trimester. Kashiwara and Fujibayashi from Japan (1952) (Anjaneyulu 1977) described the technique of injection of Ethacredine Lactate by catheter in the extra-ovular space in 30 cases. Manabe from Japan (1969) studied in detail the mechanism of action of Ethacredine Lactate and the effect of such extra-ovular injection on circulating urinary steroid levels and consequently on placental function.

Lewis and Stillwel (1971) described the oxytocic effect of the acredine dyes and their use in termination of mid trimester pregnancy. Nabriski and Kalmanovitich (1971) modified the original catheter technique by removing the catheter immediately after the injection. However the quantity of solution used was larger and their success rate was 94%. Carl-Axel Ingemansan of Sweden (1973) compared the result of Ethacredine Lactate with extraamniotic injection of Hypertonic saline and concluded that the overall results with it were better and the initial rate of success was 74% with saline induction as compared to 94% in Ethacredine Lactate – catheter group with remarkably few complications.

The first ever study report of extraamniotic use of Ethacredine Lactate in 54 cases from Sassoon General Hospital Pune was presented by Dr. Anjaneyulu et al in 1975 at Mumbai in IInd international conference on fertility & sterility.

Since then various permutations and combinations were undertaken also involving a collaborative study with Ethacredine Lactate.

Materials and Methods

Total number of 2760 cases during the period of 1975 to 1996 were analysed.

After disinfection of the vagina and cervix, a sterilised Foley's catheter (No. 16) was introduced through the cervical canal. The catheter was inserted between the uterine musculature and fetal sac for 15-20

cm from the tip and 0.1% solution of Ethacredine Lactate was injected slowly. The bulb was inflated with 20ml of water. The outer end of catheter was folded and tied with sterile gauze strip. The catheter was kept in situ by a vaginal tampon.

Marital Status

1040 (37.68%) were unmarried and 1720 (62.51%) were married. Of the married women in 15 primigravidae pregnancy was terminated for therapeutic purposes in 2nd / 3rd trimester.

Overall success rate of schedule 1 to 7 was presented and published in our earlier study. The overall success rate varies from 80% to 90% in 72 hours and 100% after reinstallation (Table – I). The present report is updating the better success rate with minimum side effects.

The induction abortion interval was remarkably shorter to less than 24 hours in majority of the cases by using one tablet of Primiprost (Dinoprostone PGE_2 0.5 mg) along with Ethacredine Lactate.

However in the entire study none of the patients had cervical tear nor developed post abortal sepsis.

Follow up

Overall follow up rate is 62%. Follow up after one week after abortion has shown 20% patients complained of slight bleeding. In 4% cases bleeding did not stop. These patients responded to oral contraceptives. Follow up after one month has shown disturbed menstrual cycle without any symptoms in majority of the cases. In 72% of cases, cycles were delayed or irregular. They were regularised with the help of oral contraceptives.

In initial phase of the trial patients were followed for 6 months and in 10 cases, hysterosalpingogram was done 6 months after the termination of pregnancy by Ethacredine Lactate. Both the tubes were found to be patent showed that the drug does not produce tubal block and subsequent infertility.

Discussion

When first introduced, Ethacredine Lactate solution was used in the concentration of 1 in 2000. It was thought that this solution in addition to its bactericidal effect, also increased the tonus of uterine contraction. Manabe (1969) reviewed the work of various Japanese authors and advocated 50 ml of solution to be injected through sterilized Nelaton catheter (No 12) the catheter was left in the uterus till complete abortion occurred. Nabriski and Kalmanovitich (1971) advocated dose of 150 ml of each lunar month of pregnancy. Volume of Ethacredine Lactate injected varied from 500 to 700 ml. The underlying principle was to separate the ovum from the uterine wall. First time in India Anjaneyulu et al (1977) reported success rate of 81.4 in 72 hours and 100% success rate after reinstillation by using of 1.% solution with a dose of 10ml. per week of pregnancy to a maximum of 150 ml (Table V) Bhathena et al (1990) has claimed that induction abortion interval can be reduced by supplementary prostaglandin (1997). Similarly Inan et al (1997) has supported the use of PGE_2 to reduce induction abortion interval.

Inspite of different dosage schedule it is seen from Table No. VI that procedure has a high percentage of success. In the Ethacredine Lactate catheter method it was usually thought that whether the catheter does play a great role in initiation of uterine contractions.

In the present study Ethacredine Lactate was used to find out its effectivity, safety and combinations

Table – I
Groups of Regimes

Nos.	Schedules	No. of Cases
1.	E.L. 10ml / wk> 150 ml + Catheter 4 hr	950
2.	E. L. 10 ml /wk> 150 ml +Catheter 24 hr	150
3.	E. L. 10 ml + Catheter 24 hr	60
4.	E. L. 100 ml + Catheter 24 hr + (Pitocin/ Unitocin 300 mg) I.V.	100
5.	E. L. 100 ml + Catheter 4 hr	50
6.	E. L. 50 ml + Catheter 4 hr.	50
7.	E. L. 50 ml + Catheter 24 hr	50
8.	E. L. 150 ml + Pitocin 4 U + Catheter 4 hr	1100
9.	E. L. 150 ml + Primiprost – 1 Tab + Catheter 4 hours	250
	Total No. of Cases	2760

Table – II: Success Rate – Schedule 8
(E.L. 150 ml + Pitocin 5 U + Catheter 4 hours) – Cases 100

	Time period				
Wks of Gest	**24 hr.**	**36 hr**	**48hr**	**> Reinst**	
12-16 wks	186	133	75	24	418
(418 cases)	47%	32%	18%	5.7%	100%
17-20 wks	354	259	54	15	682
(682 cases)	52%	38%	8%	2.1%	100%

Table – III
Success Rate – Schedule 9
(E. L. 150ml + Primi Prost 1 Tab + Catheter 4 hours) – cases 250

	Time Period		
Wks of Gest	**24 hr.**	**36 hr**	**48 hr**
12 – 16 wks	61	22	5
(88 cases)	70%	25%	5%
17-20 wks	129	30	3
(162 cases)	80%	18.5%	1.8%

Table IV
Complications and Side Effects

Incomplete	15%
Px with evacuation	10%
Pitocin drip	12%
Failure	14%
Vomiting	8%
Headache	4%
Diarrhoea	2%
Rigor	2%
Temp. rise	1.5%

were tried to reduce induction abortion interval in a safe manner (Table II & III).

Bacteriologial study of Ethacredine Lactate in induced abortion was conducted in 1976.

The result in 25 cases where the cervical swab culture was done before the introduction of catheter and after 24 hours. In 9 cases there was no growth of organism when initial swab culture was sterile. In 13 cases the organism actually disappeared when initial swab culture was positive. In only 3 swab gave positive result for the same organism observed initially. In just one case fresh growth of organism was observed. These observations confirmed the antiseptic properties of Ethacredine Lactate (Table VI)

Histological Study

Histological study of placenta in the present study showed no remarkable placental pathology except for occasional areas of necrosis involving maternal aspect of placenta. Decidual structures showed infiltration with polymorphs and some degenerative changes. Gustavi (1974) has suggested that the damage to the decidual Lysosomes is followed by the synthesis and release of prostaglandins resulting in uterine contractions and finally in abortion.

Hormonal Study

Placental hormones were studied before and after abortions induced with Ethacredine Lactate has shown that the disruption of the placental function is not the mode of action as the steroid levels did not drop significantly during the course of treatment. Manabe (1969) has similar findings in a perfusion experiment with hormonal study.

Use in High Risk Cases

41 cases with different medical/obstetrical complications were included in this study.150 ml. of Ethacredine Lactate through Foley's catheter No. 16 and

Table – V
Comparison of Results

Author	Cases	Method	Dose of	Time for E.L. catheter	Success rate removing
Nabriski and Kalmanovitich (1971)	52	Rivanol	150 ml/Lunar mth. After instillation oxytocin drip in 90% cases	10min	93% in 24 hours
Carl Axel Ingemanson (1973)	53	Rivanol Catheter	10 ml/wk >150 ml	Till abortion	94% in 72 hours
Anjaneyulu et al (1975)	54	Unacredil Catheter	—"—	4 hours after instillation	81.4% in 72 hours 100%>reinst.
Bhatena RK et al (1997)	(a) 207 (b) 108	Eth. Lactate El+6 hrs> 1.5 meth PGF2 alfa	150 ml 250 mgm	—	a) 92% b) 98%
Present Study (1996)	250	Emcredil Catheter Primiprost	150 ml + Primiprost 1 tablet	4 hours	100% in 48 hours

Table – VI
Bacteriological Study
Swabs 24 hours after instillation

Organism	Swab before Instillation No. of cases	Continued	Disappeared	Newly appeared
E. Coli	7	2	4	1
Cleb. Pune	2	1	1	-
B. Aerogen	1	-	1	-
Non-Patho. Staph	3	-	2	-
Sterpto-Non Hemolytic	2	-	2	-
Path. Stph	1	-	2	-
No organism	9	9	-	-
Total cases	25			

was kept in situ for 4 hours. No prophylactic antibiotic was given as a routine. Pitocin drip and evacuation for complication of abortion were done as and when required (Table VII)

Summary and conclusions

1. Ethacredine Lactate is found is found to be safe in high risk cases.
2. 100% success rate can be achieved by its use for termination of pregnancy.
3. It has minimal side effects or complications.
4. It can be safely used for termination of cases with medical and obstetrical complications.
5. Use of Oxytocin or prostaglandins in a minimal dose has reduced the induction abortion interval less than 24 hours without rise in the incidence of side effects and complications.

Table VIII

Results of Termination of [illegible] Cases

Diseases	No. of cases	Age in years	Parity	Height of the Uterus in Wks	Mean induction Abortion Interval
Heart disease with pregnancy	4	20-28	[illegible]	20-24	36 hrs 36 mins
Eclampsia	3	20-28	[illegible]	28-32	16 hrs 30 mins
P.I.H.	4	[illegible]	[illegible]	22-24	15 hrs 20 mins
P.I.H. with renal failure	1	32	[illegible]	[illegible]	[illegible]
Chronic Nephritis	1	[illegible]	[illegible]	24	[illegible]
Missed abortion	8	[illegible]	[illegible]	[illegible]	[illegible]
Intrauterine death	6	[illegible]	I	[illegible]	[illegible]
Previous caesarean section	6	[illegible]	[illegible]	16	[illegible]
Carcinoma of breast	1	[illegible]	[illegible]	[illegible]	28 hrs 30 mins
Renal artery stenosis with hypertension	1	[illegible]		[illegible]	[illegible]
[illegible]	2	[illegible]		[illegible]	[illegible]
T.B. [illegible]	1	28	I	[illegible]	[illegible]
[illegible]	1	[illegible]	II	[illegible]	[illegible]
[illegible] pregnancy	[illegible]	[illegible]	III	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]

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