

COMPARATIVE STUDY OF MID-TRIMESTER ABORTIONS WITH UNACREDIL, HYPERTONIC AND NORMAL SALINE

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Introduction

Among the widely used techniques for the mid-trimester termination of pregnancy, the intra-amniotic hypertonic saline is known to have some life-threatening complications. The scarce availability of Prostaglandins makes their utility limited. Operative procedure like hysterotomy has its own limitations. Recently, efforts have been concentrated on discovering the mechanical methods which would initiate uterine contractions resembling those of the normal labour. This has been achieved by instilling various agents in the extra-amniotic space. Most of the work in this connection has been reported from Japan.

The present study is a review of 200 cases of mid-trimester termination of pregnancy by extraovular instillation of Unacredil, hypertonic saline (20%) and normal saline (0.9%).

Material and Method

This study was conducted in the Department of Obstetrics and Gynaecology, Lady Hardinge Medical College & Smt. S. K. Hospital, New Delhi. Two hundred

patients were selected at random from among those seeking abortion (M.T.P.) in the gestation period of 12-20 weeks. The patients with a previous scar on the uterus such as at lower segment caesarean section, hysterotomy or myomectomy were excluded from this study.

The patients were divided into three groups:

Group A

This group consisted of 100 patients irrespective of age, marital status and parity. The abortion (M.T.P.) was induced by 0.1% Ethacridine lactate instilled in the extra-ovular space. The process of re-instillation was carried out only after 72 hours (3 days) in those patients who did not abort within this period.

Group B

This group consisted of 50 patients in whom there was no apparant contraindication for the usage of hypertonic saline. In this series of patients 20% saline was instilled in extra/ovular space and cut off period was 72 hours.

Group C

This consisted of 50 patients where abortion was induced by instillation of normal saline (0.9%) in the extra-ovular space. If patient did not abort within 72 hours, it was considered as a failure and

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the pregnancy was terminated by re-institution of unacredil.

Method

All patients seeking mid-trimester abortion (M.T.P.) were hospitalized after having been assessed from the O.P.D. Assessment of the patients included a detailed history, careful physical, systemic, abdominal and bimannual pelvic examinations alongwith certain relevant laboratory studies such as haemoglobin estimation, blood grouping, urinalysis and wet smear from the vagina. In group B, blood urea, serum electrolytes and clotting time was also done.

Dose Schedule

Ethacridine Lactate (0.1%)—10 c.c. per week of gestation with maximum of 150 ml.

Hypertonic saline (20%)—150 c.c. irrespective of period of gestation.

Normal saline (0.9%)—200 c.c. irrespective of the period of gestation.

The perineum was prepared. No pre-medication was administered. Instillation of the reagent was done in the operation theatre without any anaesthesia. The syringes, catheter and needles were all autoclaved for 20 minutes at 20 lbs/square cm. pressure at 240°F temp.

Procedure

The patients were advised to empty the bladder and then put in lithotomy position. Under all aseptic precautions, the perineum was cleaned and draped. Anterior

lip of the cervix was held with a sponge holding forceps. The Foley's catheter No. 16 was guided through the cervical canal into the extraamniotic space and pushed further with the help of a dissecting forceps for a distance of 15-20 cm. To facilitate the easy injection of the dye and to prevent the back flow, the end of the catheter was occluded by an auto-claved rubber band and the dye was injected with the help of a syringe and a needle by a needle puncture in the catheter. Bulb of the Foley's catheter was inflated with 10 c.c. saline at the end of the procedure. Catheter was packed in the vagina and removed 4 hours later.

Induction abortion interval was calculated from the time of instillation of the dye to the time of expulsion of the fetus. No prophylactic antibiotics were administered. Maximum period of pregnancy for M.T.P. was 20 weeks.

Observations

Patients of all age groups were included in this study. The youngest patient was 14 years and oldest was 42 years of age. The maximum number of patients 28% were those who had 3 children or above or who had completed their family and had come for M.T.P. Maximum number of patients (30.6%) came at 16 weeks of gestation.

The various indications for which pregnancy was terminated were as shown in Table I.

TABLE 1

Indication for M.T.P.	Total No. of cases 200	Percentage of cases
Unmarried	15	7.5
Widow	2	1
Divorcee	1	0.5
Mental strain (socio economic reason)	60	30
Spacing	20	10
Failed contraception	95	47.5
Medical ground	7	3.5

The medical grounds included rheumatic heart disease with mitral stenosis with anaemia, benign hypertension, Huntington's chorea, bronchial asthma with psychosis and hepatosplenomegaly.

The cut off period in Group A, B and C was 72 hours. A case was considered to be successful if the process of abortion was initiated, irrespective of the fact whether abortion ended as complete or incomplete. The over all success rate is as shown in Table II.

Complications

The various complication seen in the unacredil series were slight rise of temperature upto 38°C in 24% cases which settled on its own with in 6-8 hours without any therapy. Incidence of incomplete abortion was 16% requiring evacuation. Due to spontaneous and sudden expulsion of the foetus, cervical tears were seen in 2 cases only. There were no serious complications in either un-

TABLE 2
Results According to Method Used

Method	Unacredil	20% saline	Normal saline
Success rate	100%	90%	68%
Complete abortion	84	18	2
Incomplete abortion	16	32	48

Complete abortion took place in 70 patients; out of these 30 fetuses were expelled with membranes intact (Group A). Unacridil was successful in 100% of the cases as an agent for mid trimester abortion. There was no failure in this series of 100 patients.

Hypertonic saline was successful in 90% of cases. Rest 10% comprised of the patients who either failed to respond or those in whom the procedure had to be abandoned as the patient complained of excessive thirst or flushing of face.

Normal saline (0.9%) instillation was successful only in 68% of the patients in this series of 50 patients. Induction abortion interval is seen in Table III.

acredil or saline (normal and Hypertonic) instillation series.

Discussion

The technique of instillation of various solutions in the extra-ovular space was described as early as 1825 by Schweighauser as a means of mechanical stimulation of uterus. In post-war era this method was widely used for termination of mid-trimester pregnancy. The effectiveness of extra-amniotic infusion of solutions is influenced by many factors such as its chemical composition, concentration, volume and stage of pregnancy.

The technique of extra-ovular instillation of Rivanol has been widely practise

TABLE 3
Induction-abortion Interval According to Method Used

Method	24 hrs	48 hrs	72 hrs	72 hrs	Reinstillation
Unacredil	44	28	14	8	6
Hypertonic saline	2	41	5	-	2
Normal saline	0	6	10	16	18

in Japan for last 20 years (Manabe 1969) to achieve mid-trimester abortions Nebriski *et al* introduced this method in Israel (1971). Its mechanism of action with special emphasis on its oxytocic property was studied by Lewis *et al* (1971) in the Britain. This method was also stated to be the most popular for the termination of the mid-trimester pregnancy in Sweden (Ingemanson 1973). Burnett *et al* (1974) considered it to be a highly effective with minimal evidence of sepsis.

This series of 200 cases shows that extra-ovular unacredil is a safe and effective method of termination of mid-trimester pregnancy. Hypertonic saline (20%) though nearly as effective as unacredil can not be used in cases of hypertension, cardiac disorders and renal impairment. Normal saline has the distinct disadvantage of having a very long induction-abortion interval. The antiseptic nature of unacredil makes its use safer even when it is used in cases where other solutions have failed to induce abortion.

Unacredil is said to have following mode of action:

1. Mechanical stimulation of the uterus and extensive detachment of the membranes (Manabe, 1962).
2. Reflex release of the oxytocin from the posterior pituitary (Manabe, 1967).
3. Increased oxytocin sensitivity of the uterine musculature by its direct action (Nishmiura and Manabe).
4. Direct oxytocic effect on the uterus (Lewis *et al*, 1971).
5. Decidual damage leading to release of hydrolytic enzymes causing liberation of prostaglandin precursors resulting in abortion.

It does not cause any fall in urinary estriol or pregnenediol excretion (Manabe, 1969). The fetus is usually born alive as compared to cases of hypertonic saline which causes fetal death by dessication.

Conclusion

This study reflects that of all the three solutions used namely unacredil, hypertonic (20%) saline and normal saline (0.9%) unacredil is the most effective and safest method and can be used in all high risk patients where the hypertonic saline is contra-indicated. The danger of sepsis is minimal and there are no serious side effects.

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References

1. Burnett, S. L., Wentz, A. C. and King, T. M.: *Obstet. Gynec. Survey.* 29: 6, 1974.
2. Ingemanson, C. A.: *Am. J. Obstet. Gynec.* 115: 211, 1973.
3. Lewis, B. V., Pybus, A. and Stillwell, J. H.: *J. Obstet. Gynec. Brit. C'wealth* 78: 838, 1971.
4. Manabe, Y.: *Am. J. Obstet. Gynec.* 98: 1087, 1967.
5. Manabe, Y.: *Am. J. Obstet. Gynec.* 165: 132, 1969.
6. Nabriski, S. A., Kalmanovitch, Lebel, R. Bodman, U.: *Am. J. Obstet. Gynec.* 110: 54, 1971.