

STUDY OF THE EFFECT OF HYPERTONIC SALINE IN SECOND TRIMESTER OF PREGNANCY

by

(MRS.) MANJULA RANI SAHA,* M.B.,B.S., M.S. (Pat.)
MUKESH KUMAR SINGH,** B.Sc., M.B.,B.S.

and

(MRS.) ALKA PANDEY, M.B.,B.S.

Introduction

Hypertonic saline given either intra-amniotically or extraamniotically for termination of pregnancy in the 2nd trimester is a popular method. Amongst other methods, as Prostaglandins, are not easily available and are very costly. Urea in Saline and mechanical stimulation to the uterus in combination with oxytocin are not very safe.

The main aim of the present study is to evaluate the safety, efficacy and reliability of Hypertonic Saline in induction of abortion.

Materials and Method

500 cases of second trimester of pregnancy were taken either from Magadh Medical College Hospital or from private clinic.

Detailed history, and clinical examination were made. Product of conception was examined to know the completeness of abortion. 10 mg i/v or i/m Diazepam with 1 amp. of atropine sulphate was given to all patients.

Aseptic precaution were taken. The

*Acting Head of Deptt. Obstetric and Gynaecology, M.M.C.H. Gaya.

**House Surgeon.

Accepted for publication on 15-4-82.

spinal needle of 18 gauze diameter was introduced into the amniotic cavity by abdominal route. When the free flow of clear liquor was seen, then the bottle containing 20% Saline was connected to the spinal needle and was allowed to flow to a minimum of 150 cc and maximum of 200 cc. In some of the cases where uterine size was too small or too large, the Saline (20%) was injected transvaginally, extra-amniotically or intra-amniotically.

Transfusion complication, like sensation of heat over face, abdominal pain, headache, intense thirst, prickly heat were also noted. If any of these symptoms occurred, immediately 5% Glucose saline was given i/v along with other resuscitative measures after discontinuing the Hypertonic Saline.

Prophylactic antibiotic was given to all patients.

Observation

Majority of the patients (84%) were Hindus. Most of them belonged to the rural areas (70.2%). This is because of the lack of facility and ignorance.

Majority belonged to the age group 20-35 years (92%), the youngest was 14½ years and the oldest was 46 years. 27% of the patients were either widows or unmarried women. They came mostly in between 20-24 wks. of gestation. 10%

were either nulli para of para I. 63% were having parity 2 or more. Ratio of legitimate/illegitimate pregnancy was 4:1. Illegitimate termination usually came in the late gestation period because of the fear of society and to avoid hospitalisation. Contraception acceptance in urban area was 86% and in rural areas it was almost negligible.

Table I shows relationship between parity and induction-abortion time. Majority of the patients aborted between 12-48 hours (89.9%). Relationship between size of uterus and induced abortion

time showed that when the size of the uterus was between 20-24 weeks, majority aborted between 10-12 hours and when the size was between 12-14 weeks majority aborted between 48-72 hours.

Table III shows cumulative success rate. The success rate was 72% in between 10-48 hours.

Table IV shows failure to induce in the second trimester pregnancy. There was only I failure in 500 cases. This case was again given hypertonic saline and then the patient aborted within 26 hours.

TABLE I
Induction—Abortion Time

Injection—abortion interval	Unmarried	Married nulli part or Para I	Parity 2 or more
Less than 10 hours	Nil	Nil	Nil
10-24 hours	92 (75%)	26 (52%)	283 (86%)
24-36 hours	20 (16.6%)	22 (44%)	40 (12%)
36-48 hours	6 (5%)	2 (3%)	7 (2%)
48-72 hours	2 (1.6%)	—	—
Total:	120 (24%)	50 (10%)	330 (66%)

TABLE II
Relation Between Size of Uterus and Induction—Abortion Interval

Gestational age	Nos. of Pts.	Abortion—interval time		
		10-24 Hrs.	24-48 Hrs.	48-72 Hrs.
12-14 wks.	150	6% (9)	12% (18)	82% (123)
14-16 wks.	75	2.7% (2)	85.3% (64)	12% (9)
16-20 wks.	50	2.6% (13)	70% (35)	4% (2)
20-24 wks.	225	82.2% (185)	15.1% (34)	2.7% (6)

TABLE III
Cumulative Success Rate Irrespective of Gestational Age

Within 10-24 Hrs.	Within 24-48 Hrs.	Within 48-72 Hrs.
41.8%	30.2%	28%

TABLE IV
Failure in Second Trimester Abortion

	No. of cases	Management
— Failure to enter in amniotic cavity	Nil	Nil
— Failure to abortion	1	Repeated hypertonic saline after 72 hours and good result was obtained within 26 hours.

Complications are shown in Table V. Five cases had shock. Four cases showed vaso-vagal attack. Three patients had retained product of conception and 2 showed pelvic infection. The complications were treated promptly according to the need of the patient.

TABLE V
Complication in Second Trimester Abortion

Complications	No. of cases	%age
Incomplete abortion	nil	nil
Retained product of conception	3	0.6%
Pelvic infection	2	0.4%
Vaso-vagal attack	4	0.8%
Shock	5	1.0%
Haemorrhage	nil	—
Coagulopathy	nil	—
Maternal death	4	0.8%

Discussion

Majority of the patients (70.2%) belonged to the rural areas. Dass and Mukopadhyaya (1972), Shah (1980) showed 68% and 63.6% belonged to the rural areas respectively.

Success rate was mostly in between 10-24 hours. 41.8% aborted in between 10-24 hours and 30.2% in between 24-48 hours, 28% in between 48-72 hours. Choudhary (1980) showed 78-80% success within 48 hours and 88% within 72 hours. In Mehta's series (1975)

majority aborted between 24-48 hours. Dass series (1975) average induced abortion interval was 26.7 hours. Shah (1980) reported it in between 13-48 hours. In Kunder *et al* series (1964) induced abortion interval varied in between 5-52.5 hours with mean of 31 hours. Goodlen (1971) reported it to be 36.4 hours with its reduction to 23 hours by use of pitocin. Most of the workers have agreed that induction-abortion interval was within 48 hours.

In 13 cases (2.6%) amniocentesis failed and to them transvaginally hypertonic saline was given either intra-amniotically or extra-amniotically. Mehta's series showed 2.85%, Dass (1975) 10% and Shah (1980) showed 5.3% failure in amniocentesis. These figures are similar to our failure case.

Retained products of conception were found in 0.6% of cases, whereas other workers have found it in between 5-7.85%.

Four maternal deaths occurred in the present series, whereas Dass (1973), Mehta (1975), Alwans (1975), Shah (1980) reported no maternal death. Wagat Series (1965) reported 25 such maternal death in Japan in between 1946-1957. Cameron and Dayal (1966) reported 2 deaths due to cerebral infarction.

Summary

Five hundred cases of midtrimester termination with hypertonic saline instilla-

tion were studied. Majority of the patients were Hindus (84%) and from middle socioeconomic group. Average induction-abortion interval was in between 12-36 hours. The overall complication rate was 2.8%.

When the size of uterus was between 20-24 weeks, the induction abortion time was within 12 hours. Lesser the period of gestation, greater was the induction abortion time. The solution used was 20% hypertonic saline and amount given ranged between 150-200 cc.

Since the complications were very few (2.8%) and the success rate was 99.6% hypertonic saline in induction of abortion in second trimester of pregnancy is a very safe, effective and reliable one.

Acknowledgement

I am thankful to Dr. C. S. Singh, Superintendent, M.H.C.H., Gaya and Dr. A. P.

Singh, Superintendent, Lady Elgin Zanana Hospital, Gaya for generous attitude in carrying out this series of work and for their permission to publish the paper.

References

1. Alwani, C. M., Gogte, S. G. and Purandare, V. N.: *J. Obstet. Gynaec. India*, 25: 176, 1975.
2. Chaudhary, S. K.: *J. Obstet. Gynec. India*, 30: 53, 1980.
3. Cameron, J. M. and Dayan, A. D.: *Brit. Med. J.* 1: 1010, 1966.
4. Dass, A. P., Mukhopadhyay, P. and Dhawan, S.: *J. Obstet. Gynec. India*, 25: 323, 1975.
5. Goodlin, R. C.: *Am. J. Obstet. Gynec.* 110: 885, 1971.
6. Kunder, P. and Hemalatha, H.: *J. Obstet. Gynec. India*, 22: 160, 1972.
7. Mehta, A. Popat, N. and Purandare, B. N.: *J. Obstet. Gynec. India*, 25: 155, 1975.
8. Shah, H. N. and Bhatt, K. M.: *J. Obstet. Gynec. India*, 30: 882, 1980.