

INCREASING MORBIDITY AND MORTALITY IN MID-TRIMESTER ABORTIONS

by

MALINI A. DESHMUKH,* M.D.

NERGISH D. MOTASHAW,** M.D., F.R.C.S.

PRATIBHA R. VAIDHYA,*** M.D., D.G.O., D.F.P.

and

A. P. KULKARNI,*** M.D., D.G.O., D.F.P.

Pressing population problem and realisation of almost fatal outcome of the social evil of criminal abortions brought about changes in abortion laws in India and abroad.

New methods being tried every day, clearly indicate that we have still not found an effective and safe method. Some of the abortifacients presently employed are hypertonic saline (Mehta 1974; Wagatsuma 1965), hyperosmolar urea (Rajan 1976; Burnett *et al* 1974), prostaglandins (Brenner *et al* 1973; Wentz

et al 1973), extraovular rivanol (Anjaneyulu *et al* 1977) and mannitol (Deshmukh *et al* 1976, Puram and Anjaneyulu 1976). Even medical termination of pregnancies performed in teaching institutions still carry a shocking morbidity and mortality rate.

Material and Method

Mortality and morbidity in 898 second trimester abortions, performed at the K.E.M. Hospital, Bombay, during the year 1975 have been analysed. Cases interfer-

TABLE I
Methods of Midtrimester Abortions

| Methods | 13-15 weeks | 16-20 weeks | Total |
|-------------------------|-------------|-------------|-------|
| 1. Hypertonic saline | 85 | 422 | 507 |
| 2. Prostaglandins F2 | 59 | 160 | 219 |
| 3. Hysterectomy | 5 | 47 | 57 |
| 4. Vaginal hysterectomy | 1 | 3 | 4 |
| 5. Ethacredine Lactate | 13 | 63 | 76 |
| 6. Mannitol 20% | 14 | 26 | 40 |
| Total | 177 | 726 | 898 |

*Hon. Assoc. Professor.

**Hon. Professor.

***Assoc. Professor.

****House Officer.

Department of Obstetrics and Gynaecology,
K.E.M. Hospital and Seth G.S. Medical College,
Parel, Bombay, 400 012, India.

Accepted for publication on 16-2-79.

ed outside and later transferred to the hospital, have been excluded. During this period, there were a total of 1726 abortions performed at the K.E.M. Hospital. Out of these, 828 were first trimester abortions.

Table I shows the alarming number of

late terminations. Majority of the patients are quite unaware of the dangers of mid-trimester termination and are under the wrong impression that termination at all stages simply involves a dilation and curettage.

Table II shows 373 (41.5%) patients were unmarried women under the age of

TABLE II
Age and Parity

| Parity | Age and Parity | |
|------------|------------------------|------------------------|
| | Age less than 20 years | Age more than 20 years |
| 0 | 373 | 77 |
| 1 | 19 | 72 |
| 2 | 7 | 106 |
| 3 and over | — | 244 |

20 years. In India because of illiteracy, ignorance, fear and excessive prudery, women, especially unmarried girls come late in pregnancy for an abortion. The large number of married women coming late for induction of abortion is mainly due to ignorance.

Table III shows the various complications. Both prostaglandin and mannitol

in PG F_{2α} series, 88.8% in the mannitol group and 80% in ethacridine lactate cases.

Sensitivity Reaction

Two patients collapsed due to drug sensitivity. One after extraovular PGF_{2α} 250 mg and one after ethacridine lactate 0.1% 200 ml given extraamniotically. Both patients, however, recovered with resuscitative measures. Testing for drug sensitivity should be mandatory before the use of any new drug under trial.

Pelvic Infection

In this series with various midtrimester procedures, pelvic infection was seen in 29 (3.2%) cases. The incidence was highest in the hysterotomy group, as compared to the other groups but the infection was mainly local wound sepsis.

Infection results from contamination of the amniotic sac at the time of injection or ascending infection from the genital tract.

Burnett *et al* (1974) give the incidence

TABLE III
Complications

| Complications | Hypertonic Saline | | Prosta- glandins | | Ethacridine Lactate | | Mannitol | | Hystero- tomy | | Hysterec- tomy | |
|-------------------------|-------------------|-------|------------------|------|---------------------|------|----------|------|---------------|------|----------------|------|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Total | 507 | | 219 | | 78 | | 40 | | 52 | | 4 | |
| 1. Incomplete abortions | 126 | 24.8 | 71 | 32.4 | 21 | 27.6 | 15 | 37.5 | — | — | — | — |
| 2. Drug sensitivity | — | — | 1 | 0.45 | 1 | 1.31 | — | — | — | — | — | — |
| 3. Pelvic infection | 15 | 2.95 | 2 | 0.9 | — | — | 3 | 7.5 | 9 | 17.3 | — | — |
| 4. Cervical tear | 2 | 0.394 | 1 | 0.45 | — | — | — | — | — | — | — | — |
| 5. Haemorrhage | 5 | 0.98 | — | — | — | — | 1 | 2.5 | 1 | 1.92 | 1 | 0.25 |
| 6. Mortality | 5 | 0.98 | — | — | — | — | 1 | 2.5 | — | — | — | — |

series showed a high rate of incomplete abortions. Maximum success rate was in the saline group 93.1% while it was not very different in the other groups, 87.5%

of infection in various midtrimester procedures between 2 to 6%. The incidence of infection can be reduced by meticulous attention to sterile technique and

by not taking up previously interfered or infected cases before complete control of infection.

It must be kept in mind that a second procedure like curettage for completion of the third stage is often necessary in 30 to 40% of the patients and infection can occur at this stage.

Cervical Injuries

There were 3 cervical injuries in the series, 2 after hypertonic saline (without oxytocin) and 1 after prostaglandins. All were nulliparous patients. This injury probably occurs when the external os is relatively inelastic.

Rajan *et al* (1978) give a 0.7% incidence of cervical injuries in their series and out of 4 patients 3 were in nulliparous women.

Kajanoja *et al* (1974) reported 5 (2.7%) cases of rupture of cervix in 412 intraamniotic prostaglandins, all were primiparous patients. Wentz *et al* (1973) had an incidence of 2% in prostaglandin series.

Cervical injuries are seen in practically all the intraamniotic and extraamniotic agents used, including prostaglandins but the exact frequency is uncertain, because for diagnosis routine cervical inspection, post-abortion, is necessary. Some lacerations due to pressure necrosis are not associated with active bleeding and will be missed. (Neubardt and Schulman 1972). Evidence from Hungary suggests that the incidence of premature labour due to cervical damage is trebled in post-abortal patients (Stallworthy *et al* 1971).

Haemorrhage

The most dreaded complication in mid-trimester procedure is haemorrhage, and it is defined as blood loss in excess of 500 cc. It may be due to retained products of

gestation, atony, lacerations and coagulopathy. (King *et al* 1975). The incidence of haemorrhage, requiring blood transfusion in the present series was 0.9%. Transfusion was necessary in 5 cases after saline abortions.

Neubardt and Schulman (1972) reported 1.1% and Wagatsuma (1965) 3.7% incidence of blood transfusion in saline abortions, while Brenner (1975) gives an incidence of 1.7% with PG F2 α series. No patient in the prostaglandin series in the present study required blood transfusion.

Mortality

In the present small series there were 6 deaths, 5 in 507 saline abortions and 1 in mannitol series. Out of the 5 deaths in saline abortions, 3 were due to bleeding disorders, and 2 following infection. In all these cases the usual adequate precautions were taken. The volume of 20% saline did not exceed 140 ml, the amniotic taps were not bloody and the patients were carefully selected and were continuously under observation. In spite of this 3 patients died from blood coagulopathy.

Bleeding disorders have been reported more commonly with the use of hypertonic saline. Studies by Shaw and Ballard (1974) indicate that most subjects infused with hypertonic saline develop a transient coagulopathy detectable only by laboratory means within 24 hours following infusion, the factors return to the normal levels after abortion. Most of the patients who develop significant haemorrhage probably abort at the time of maximum defibrination. Oxytocin along with hypertonic saline has been shown to increase coagulopathy. Studies on Prostaglandins do not show decrease in clotting factors. In fact, platelets, fibrinogen and factors V and VIII are all increased

significantly after induction of abortion by Prostaglandin F_{2α}. Profibrinolysin and fibrinolytic inhibitors are also higher. These are the very factors that fall during saline induced abortions. (Brenner *et al* 1973, Burnett *et al* 1974).

Two deaths in the saline series occurred from septicaemia. Both these patients were discharged after saline abortions, but were readmitted a few days later with signs of sepsis and died within a week following generalised septicaemia. Septicaemia, peritonitis and paralytic ileus are potentially fatal complications and the risk of death increases if they occur after the patient is discharged from the hospital and there is delay in the diagnosis (Stallworthy *et al* 1971).

Intraamniotic saline has almost become the accepted procedure for inducing abortions in most parts of the world. As experience in the method has developed, it is becoming apparent that deaths due to coagulopathy still continue to occur, while new causes of death are becoming increasingly common. Other causes reported by Schiffer and Pakter (1975) were complications secondary to incomplete abortion, such as sepsis and bleeding and complications from the use of other agents used to shorten instillation abortion time. Another serious aspect of saline instillation is the seeming ease with which it is accomplished leading relatively inexperienced personnel to become involved in carrying out these procedures (Shaw *et al*, 1974).

However, Soderstrom and Hyden (1977) have reported 1000 cases of mid-trimester out patient saline abortions without major complications or a fatality.

There was 1 death where mannitol 20% was used extraamniotically as an abortifacient. It was a new batch of mannitol used in only 3 cases and all

developed severe rigors with temperature and the above case, which should not have been taken up for mannitol infusion (as she had previously been interfered with) developed a coagulation disorder and expired. Two deaths due to endotoxic shock following induction of abortion with mannitol have been described by Rajan *et al* (1978) in their series.

Endotoxic shock is well known to trigger off a coagulopathy and this case, where a previous attempt at termination had failed was probably harbouring a sub-clinical infection and the poor quality mannitol precipitated the reaction.

Mannitol is being freely given I.V. in medicine and surgery but even innocuous solution can be dangerous, if strict quality control is not enforced.

Comments

In the K.E.M. Hospital for the year 1975, deaths following medical terminations of pregnancy headed the list of maternal deaths. There were 35 maternal deaths, out of which 13 were following medical termination of pregnancies. The mortality rate for second trimester termination was 6 out of 898, an unpardonable figure. Hysterotomy with sterilisation is far from being a satisfactory solution.

Hysterectomy is indicated even less frequently. It may be the primary procedure of choice when there are myomas or other pelvic pathology and it may be mandatory in the management of serious trauma, haemorrhage or infections.

New York city department of health reported that from 1970-1975 for second trimester abortions there were 78,251 saline instillations performed with 10 known deaths (Douglas and Stromme 1976). Thus the risk of complications is increased several fold as compared to suction curettage. Although the morbidity and fetal potential of criminal

abortion is accepted widely, the public is misled into believing that legal abortion is a trivial incident, even a lunch hour procedure, which can be used as a mere extension of contraceptive practice (Stallworthy *et al* 1971). Fatal results in the present series are all the more striking considering the fact that the procedures were carried out in a teaching institution, with due precautions under proper guidance and where all the facilities like blood bank were present.

Let us therefore not undertake pregnancy termination especially in the second trimester lightly, especially with hypertonic saline; the dangers are far from eliminated. Adequate evaluation and understanding of the underlying risks of each method is absolutely essential.

Summary

This paper is a study of 898 cases of midtrimester abortions performed at the K.E.M. Hospital, Bombay, India during the year 1975. It shows the high morbidity and mortality associated with the various methods currently used. Fatal results are all the more striking considering the fact, that the procedures were carried out in a teaching institution, with due precautions, under proper guidance and where all the necessary facilities like blood bank were present. Attention is drawn to the very high mortality of hypertonic saline 5 deaths in 507 cases and a plea is made to discontinue the same.

Acknowledgement

We thank Dr. C. K. Deshpande, Dean, K.E.M. Hospital and Seth G.S.M. College, Bombay and Dr. V. N. Purandare, Head of the Department of Obstetrics & Gynaecology, K.E.M. Hospital and Seth G.S.

Medical College, Bombay for allowing us to present the hospital data.

References

1. Anjaneyulu, R., Dani, S. P. and Kamat D. S.: *J. Obstet. Gynec. India.* 27: 30, 1977.
2. Brenner, W. E., Fisburne, J. I. Mc Millan, C. W., Johnson, A. M. and Hendrics, C. H.: *Am. J. Obstet. Gynec.* 117: 1080, 1973.
3. Burnett, L. S., Wentz, A. C. and King, T. M.: *Obstet. Gynec. Survey.* 29: 6, 1974.
4. Deshmukh, M. A., Shah, S. H., Shah, S. and Joglekar, S. J.: *J. Post. Medicine.* 22: 23, 1976.
5. Douglas, R. G. and Strome W. B.: *Operative Obstetrics 3rd Ed. p. 185 Appleton century crofts/New York 1976.*
6. Kajanoja, P., Junger, G., Widholm, O., Karjalainem, O. and Seppala. *Obstet. Gynec. Brit. C'wlth.* 81: 242, 1974.
7. King, T. M., Burtman, R. T., Burnett, L. S. and Atlenza, M. F.: *Advances in planned parenthood.* 10: 204, 1975.
8. Mehta, A.: *J. Obstet. Gynec. India.* 24: 199, 1974.
9. Neubardt, S. and Schulman, H.: *Techniques of Abortion 1st Ed. p. 125 Little Brown & Co. Boston 1972.*
10. Puram, U. P. and Anjaneyulu, R.: *J. Obstet. Gynec. India.* 26: 21, 1976.
11. Rajan, R.: *J. Obstet. Gynec. India,* 26: 795, 1976.
12. Rajan, R., Nair, M. S. and Devi, L. U.: 28: 785, 1978.
13. Schiffer, M. A., Pakter, J. C.: *Obstet. Gynec.* 42: 759, 1975.
14. Shaw, S. T. and Ballard, C. A.: *Am. J. Obstet. Gynec.* 118: 1081, 1974.
15. Suderstrom, R. M. and Hyden, G. E.: *Advances in planned Parenthood.* 12: 98, 1977.
16. Stallworthy, J. A., Moolgaokar, A. S. and Walsh, J. J.: *Lancet.* 2: 1245, 1971.
17. Wagatsuma, T.: *Am. J. Obstet. Gynec.* 93: 743, 1965.
18. Wentz, A. C., Thompson, B. H. and King, T. M.: *Am. J. Obstet. Gynec.* 115: 1107, 1973.