Management of patients with intrauterine fetal death

L. VISENTIN - L. LEO - M.G. ALEMANNO - S. ARDUINO
R. BELLINO - M. TESSAROLO - T. WIERDIS - A. LANZA

Summary: Fetal death incidence is 5-10 per 1,000 births. About 25% of the women who carry a dead fetus for more than 4 weeks will show significant alterations in their coagulation system.

The treatment for a patient with endouterine fetal death depends on when the pregnancy is terminated, based on the ecographic fetus age. There were 15,070 births from January 1983 to December 1994 in Department B of the Institute of Obstetrics and Gynecology, University of Torino. We took into consideration the cases ofintrauterine fetal death between the 26th and 40th week before labour. This study is based on a cohort of 57 cases of intrauterine fetal demise from the 24th to the 40th week of pregnancy before spontaneous labour.

Key words: Fetal death; Pregnancy complications; Twin.

INTRODUCTION

According to the WHO definition and the recommended FIGO modifications, when dealing with fetal death statistics the following must be considered: "Fetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of umbilical cord, or definite movement of voluntary muscles" ([1]).

In Great Britain, "fetal death" includes only those fetuses who have completed 28 weeks (196 days) in the womb. However, it has recently been made mandatory to register all stillbirths from the 24th to the 27th complete week along with those after the 28th week ([2]).

The limits between internal abortion and fetal death vary from one nation to another. The Italian law linit is at 180 days of amenorrhoea.

The WHO distinguishes:

– Late fetal death: death before birth of a fetus which weigh at least 1,000 g at birth;

– Precocious fetal death, death before bird of a fetus which weighs between 400 g (the limit is probably movable to 350 g) and 999 g ([1]).

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The term internal fetal abortion should be used to define the death of a fetus which weigh less than 350 g at birth.

Fetal death is calculated as a ratio between the number of fetal deaths and the comprehensive number of births (of fetus either dead or alive) per 1,000 ([1]).

The present figures show fetal death to be in the order of 5-10 per 1,000 births. As long as the membranes are not ruptured, the dead fetus is aseptic, spontaneous labour may be waited for, which, in 80% of the cases occurs within 15 days.

It has been reported that about 25% of women who carry a dead fetus for more than four weeks will show significant alterations in their coagulation system.

In particular, hypofibrinogen, plasminogen and platelets decrease and an FDP (fibrinogen degradation products) and antitrombin III increase. The association between fetal death and CID is also defined as fetal death syndrome. Then fetal death tromboplastin tissue is released, it stimulates the coagulation system with fibrin deposits and a consumption of coagulation factors, primarily V, VIII, fibrinogen, protrombin and platelets.

The probability that the syndrome will develop is related to the length of time the dead fetus remains in the uterus ([3, 4]).

The question of fetal death in multiple gestation is yet another problem. Fetal death in twins, is quite common, about 60% in the first trimester. The percentage drops to 0.5-6.8% in the 2nd and 3rd trimesters, even if there is a 17-46% risk factor for the surviving fetus, in as much as he may be exposed to the same factors that caused the death of the first fetus.

A bilateral renal cortical necrosis and necrosis of cerebral white matter could occur. The mother is also at risk for CID (disseminated intravascular coagulation).

If the pregnancy is near to term and the lungs are developed, then delivery is advisable.

Delivery is advisable if the fetus is at high risk, even if the pregnancy is not at term ([5, 6]).

This study was carried out from 1983 to 1994 and is based on a cohort of 57 cases of intrauterine fetal demise from the 24th to the 40th week of pregnancy before spontaneous labour. There are four cases of the death of one twin included in the study group.

MATERIALS AND METHODS

There were 15,070 births from January 1983 to December 1994 in Department B of the Institute of Obstetrics and Gynecology, University of Torino, Italy.

We took into consideration the cases of intrauterine fetal death between the 26th and the 40th week before labour.

The treatment of a patient with endouterine fetal death depends on when the pregnancy is terminated which is based on the ecographic fetus age. Table 1 shows our actual treatment.

Up to the 14th week, the uterine cavity was emptied by means of curettage or aspiration as first choice treatment. From the 14th to the 20th week, cervical preparation is normally required. We chose to administer PGE_2 at 0.5 mg to obtain softening, flattening and dilatation. If the uterine cavity was not completely emptied a surgical revision was carried out. Cervical pre-

Table 1. — *Management of fetal death in uterus.*

<12 to 14 weeks
Dilatation and curettage or suction curettage
14 to 20 weeks
– if cervix is closed: PGE_2 endocervical and if necessary strumental emptying and curettage;
– if cervix is dilatated strumental emptying and curettage
20 to 30 weeks
PGE_1 vaginal suppositories 1 mg every 3 hours up to 6 suppositories
> 30 weeks
Pelvic score of Bishop:
if < 4 PGE_2 intracervical 0.5 mg;
if > 4 PGE_2 intravaginal (1-2 mg) + Oxytocin

Table 2. — *Results of management of fetal death with prostaglandin.*

	PGE_1	PGE_2
Number of patients	10	32
Gestation age		
Range	24-30	31-40
Mean	21.1	36.2
Dose/Interval (mg/hr)	1 mg/3 h	1 mg/24 h
Mean total (mg)	3.3 mg	2 mg
Induction-delivery Interval		
Mean (hrs)	7.5	12
Range (hrs)	3-16	3.30-22
Success rate (%)	90%	68.7%
Required curettage (%)	40%	31.2%
Concurrent oxytocin	10%	31.2%
Nausea, vomiting or diarrhea	10%	12.5%
Pirexia	10%	12.5%
Required transfusion	10%	28.2%
Coagulation disorders	10%	12.5%

paration is a must to avoid lacerations during surgical dilation when removing the dead fetus.

From the 20th to the 30th week PGE_1 was administered at a dosage of one vaginal suppository of 1 mg every three hours up to a maximum of six.

If labour was not induced, the treatment was repeated after 24 hours, oxytocin was added if the response was incomplete.

Oxytocin should be used with caution in patients known to be sensitive to prostaglandins and in those with cardiovascular insufficiency, ophthalmic diseases (glaucoma, intraocular hypertension) or inflammatory pelvic diseases. Patients with asthma, hypertension, epilepsy or diabetes should also be treated with caution.

Our protocol includes premedication to avoid common side-effects such as nausea, vomiting and diarrhea.

After the 30th week, Bishop's pelvic score was used. If the score was < 4, PGE_2 was administered intracervical to the posterior fornix at a dose of 1 or 2 mg according to necessity and based on the following criteria: 2 mg in the case of a scarse response, 1 mg to increase the response obtained with the initial dose.

The concomitant use of oxytocin in the case of poor kinetic myometrial response, must be calculated taking into consideration also the fact that the oxytocin response may be increased due to the previous administration of PGE_2.

Our Division did not use prostaglandins until 1986; six out of 12 patients went into spontaneous labour, and contractions were kept under control by oxytocin; two cesarean sections were performed for the endouterine death of one twin in two pregnancies; one patient was given a cesarean section delivery after having had a previous cesarean birth, and the three remaining patients were given oxytocin to induce labour.

RESULTS

Table 2 shows the results obtained, in 42 cases treated with prostaglandins. Of the other 15 cases: six underwent cesarean section, two due to previous cesarean births within a two-year period; prostaglandin or oxitocin labour stimulation was not used due to the risk of cervical laceration. Four patients were treated for the endouterine death of one twin, two were near to term (one 38 weeks, one 39 weeks): after check-up and tests for disseminated intravascular coagulation both were given cesarean selection delivery; each patient gave birth to a live and vital fetus. The other two were pre-term (28 and 31 weeks): these patients remained hospitalized for daily check-ups for coagulation, fetal monitoring and antibiotic therapy.

Once lung maturity was reached at the 36th week, both were given a cesarean section and gave birth to a live and vital fetus. Coagulation factors for these cases can be seen in Fig. 1.

Seven patients began spontaneous labour, oxytocin and antispastic drugs were administered to control contractions; labour lasted for an average of 12 hours (from 4.30 to 18 hours).

At diagnosis of fetal death, coagulation parameters were determined (fibrinogen, platelets and fibrinogen degradation products) in an effort to keep the membranes

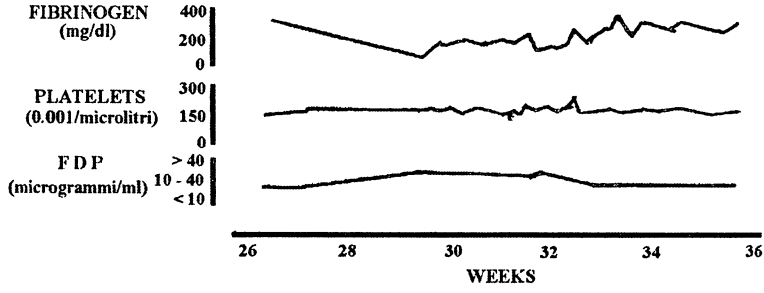

Fig. 1. — Concentration of coagulation factors.

intact to avoid the feared onset of infection after rupture.

Prophilactic antibiotic therapy was carried out.

There were no cases of disseminated intravascular coagulation in our group. Coagulation factors were kept under constant control throughout labour and postpartum.

There were three cases of fever which were checked by large spectrum antibiotic therapy (Imipenem for one week postpartum).

Two cases had hemorrhages checked by post-partum revision and medical treatment.

Six cases needed transfusions. Bacteriological studies were carried out on fetus biopsies as were autopsies.

DISCUSSION

Early in this century the diagnosis of missed abortion or intrauterine fetal death presented a management dilemma as there were no efficent methods for diagnosing fetal death and the majority of women went into spontaneous labour. Therefore, the diagnosis was often made at the time of labour.

Tricomi *et al.* reported that 75% of patients within two to three weeks following the death of a fetus went into spontaneous labour ([7]).

Although, in a significant number of cases, spontaneous labour failed with an increased risk of coagulopathy with hypofibrinogemia especially after six weeks from the IUDF ([8, 9, 10]).

Pritchard *et al.* reported a 40% risk of coagulopathy testing fibrinogen and other hemostatic factors in a study with patients with IUDF and delayed delivery ([11]). Fortunately, at present, the drugs most commonly used for labour induction are prostaglandins administered by various routes, with or without oxytocin. In this way management of fetal demise has changed from watchful waiting to active intervention, decreasing complications.

In this study we did not observe any case of maternal disseminated intravascular coagulation (generally referred to as to the "fetal death syndrome"): coagulation indexes were monitored and no heparin was administered as in other reports ([6, 9, 11, 12]).

The PGE_2 success rate for labour induction for IUDF was high.

Southern *et al.* reported 97.6% in a multicentric study, while Laversen *et al.* 97.5% for 80 patients ([8, 13]).

With a cohort of 42 patients with a mean age of 31 we observed a success rate of 90% over a one week period.

Our mean induction - delivery time of 7.5 hours was comparable to the 7.9 hours in the study by Kent *et al.* and associated

to the 10.9 hours reported by Southern *et al.* on 12 women from more than 17 medical centers using vaginal PGE_2 suppositories. In this group of patients there was a 1% concurrent use of oxytocin infusion ([13, 14]).

In our cases caution was used due to the high possibility of uterine rupture in pretreated PGE_2 patients with concurrent use of oxytocin infusion.

After vaginal treatment curettage was performed to retain placental tissue in two cases. For these reasons vaginal PGE_2 for IUDF should be used only in a medical center and after typing cross-matching and securing an adequate blood replacement supply.

To avoid psychological consequences in the case of these unexpected complications during pregnancy, the patient may require psychological support in hospital after the infant diagnosis. The doctor should be given complete information about the possibility of another pregnancy and the kind of treatment.

The low incidence of side effects in our report was influenced by the use of premedication to prevent gastrointestinal side-effects. However it is important that nursing staff and doctors be prepared to recognize and deal with the complications of vaginal PGE_2 suppositories.

In our opinion PGE_2 intravaginal administration continues to act as a potent therapy for the indication of missed abortion and IUDF with a higher degree of efficacy and safety and with few side effects. However, thme doctor should not ignore the psychological impact this unexpected complication during pregnancy can have on the patient.

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