

Perinatal Outcome after Multifetal Pregnancy Reduction

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ABSTRACT

Objective. Multifetal pregnancy reduction is considered as a method of choice in multiple pregnancies, which are most often the result of ovulation induction or assisted reproductive techniques. However, not much has been studied about multifetal reduction in Indian context. The present study described the perinatal outcomes of 92 multifetal pregnancies which were reduced in our centre during the period from 1991 to March 2000.

Methods. It is a retrospective descriptive study. Subjects of this study were retrieved from a well maintained database. Fetal reductions were carried out using standard protocol.

Results. There were 92 pregnancies referred for fetal reduction during the study period. Twelve pregnancies (20.3%) had fetal or neonatal losses; of which complete pregnancy loss rate was 8.5% and partial pregnancy loss rate was 11.8%. Twenty one (35.6%) pregnancies had premature deliveries. The median birth weight was 2100 grams. Four babies were born alive with congenital anomalies.

Conclusion. The present study showed the median birth weight, rates of pregnancy loss and prematurity after the fetal reduction procedure was comparable with other studies. However, it must be noted that the rate of loss to follow up was higher in our study. [Indian J Pediatr 2008; 75 (9) : 907-909] E-mail: thangavelg@gmail.com

Key words : Perinatal outcome; Multifetal pregnancy; Fetal reduction

With the advent and widespread use of the assisted reproductive technology, (ART) the incidence of multiple pregnancy is on the rise.¹ Inherent complications of multiple pregnancy are high risk of perinatal mortality and morbidity coupled with maternal complication and socioeconomic problems.^{2,3} Although fetal reduction has widely been accepted as a method of choice in reducing the perinatal mortality and morbidity in multiple pregnancies⁴, very little has been studied in Indian context except the study done by Mittal *S et al.*⁵ In this study, we have described the perinatal outcomes of a large series of multifetal pregnancy reduction ever reported from India.

MATERIALS AND METHODS

The subjects of the present study had undergone multifetal reduction in our institute during the period

from January 1991 through March 2000. They were retrieved from the database. They were referred for fetal reduction from various institutions. Prior to the procedure, the couples were counseled regarding the nature, technique, benefits and risks. A written informed consent was then obtained from the couples.

TECHNIQUE OF FETAL REDUCTION

In our centre, trans abdominal rather than trans vaginal route is preferred, as it is easier and is better accepted by the patients. No anesthesia or sedation is required. However, in very apprehensive patients, local anesthesia may be given. The fetus / fetuses chosen to be reduced is decided after a detailed ultrasound evaluation of the size, morphology and nuchal translucency (NT) measurements. If all the fetuses appear normal and the NT is normal, the fetuses near the fundus which are technically easy to approach are chosen. However, if any of the fetuses appear abnormal or have an increased NT, those fetuses are chosen irrespective of their geographic location. Under continuous ultrasound guidance and strict aseptic precautions, a 22g 7" spinal needle is

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introduced into the thorax of the fetus to be reduced. After confirming the location of the needle tip, the stylet is removed and using a 1 ml syringe, aspiration is attempted. If blood is drawn, it signifies that the needle is in the heart, which is preferable. However, in majority of the cases, the needle may not be in the heart but may be in the thoracic cavity. 0.2 – 0.3 ml of undiluted KCL is injected through the needle and the cardiac activity is monitored. If the needle is in the heart immediate cessation of cardiac activity will be seen. If the needle is in the thorax cavity but outside the heart, bradycardia may be seen. Cardiac standstill usually occurs within a few minutes. In some cases, re-positioning of the needle and further instillation of potassium chloride may be required.

In the present series the maximum amount of KCL needed has not exceeded 0.5 ml, with most of the fetuses requiring only between 0.2 and 0.3 ml. Increased quantity of KCL may be required for fetuses beyond 13 weeks. In cases of reduction of higher order multiple gestations like quadruplets or more, each fetus may have to be approached with a different puncture unless they are geographically located in such a way that two fetuses can be approached with one puncture. After instillation of KCL, the needle should be withdrawn only after ensuring cardiac asystole for at least 1 minute. The patients are called in the next day to monitor the cardiac activity of the remaining fetuses and ensure that the reduced fetuses show cardiac asystole.

Pregnancy loss at < 22 weeks of gestation or < 500 g was classified as early fetal loss and deaths occurred after 22 weeks or > 500 gm was classified as late fetal death.⁶ Fetal loss rate was defined as the sum of both early and late fetal losses. For the purpose of the study, full term was defined as delivery at greater than 36 weeks of gestation. Follow-up of the subjects was obtained by calling the doctor who referred the cases. Outcome parameters assessed were pregnancy loss rate, premature delivery rate and mean birth weight. Descriptive statistical methods were used to analyse the data by using Microsoft Excel.

RESULTS

During the period, there were 92 women referred for multifetal reduction. Four of them were spontaneously

TABLE 1. Frequency of Mode of Conceptions.

Mode	N (%)
Spontaneous	4 (4.33)
Induced ovulation / IUI*	49 (52.1)
IVF* / ET**	22 (23.9)
Not known	17 (18.5)
Total	92

Intrauterine insemination; * Invitro fertilisation; ** Embryo transfer

conceived, mode of conception was not known for 17 subjects and the remaining were conceived after ovulation induction or ART (Table 1). There were two twins and one septuplets and the remaining were ranging between triplets to sextuplets. After reduction, there were six singletons, 78 twins and eight triplets (Table 2). The median maternal age of the referred women was 27 ± 4.6 years. Nine (9.8%) subjects were 35 years old or over. The median gestational age at reduction was 10 ± 2.3 weeks, of which 9 (10%) had undergone the procedure at greater than 14 weeks of gestation (Table 3).

TABLE 2. Frequency of Conceived and Reduced Fetuses Among Categories of Multiple Pregnancies.

Number conceived	N (%)	Reduced to		
		Singleton N (%)	Twins N (%)	Triplets N (%)
Twins	2 (2.2)	2 (100)	0	0
Triplets	57 (62.0)	3 (5.3)	54 (94.7)	0
Quadruplets	23 (25.0)	1 (4.3)	20 (87.0)	2 (8.7)
Quintuplets	7 (7.6)	0	3 (42.9)	4 (57.1)
Sextuplets	2 (2.2)	0	1 (50)	1 (50)
Septuplets	1 (1.1)	0	0	1 (100)
Total	92	6 (6.5)	78 (84.8)	8 (8.7)

TABLE 3. Frequency of Gestational Age at the Time of Fetal Reduction.

Weeks at Reduction	N (%)
<10 weeks	11 (12.0%)
10-12 weeks	62 (67.4%)
>12 weeks	19 (20.7%)
Total	92

Twenty eight (30.4%) subjects were lost to follow-up and for five (5.4%) subjects the outcome details were not clear. Hence, further statistical analysis was restricted to 59 subjects. These 59 pregnancies consisted of one twin, 41 triplets, 15 quadruplets and two quintuplets before reduction; they were reduced to four singletons, 54 twins and one triplet after the procedure. There were 21 (35.6%) premature deliveries. The median birth weight was 2100 g (SD – 400; Range 1150 – 2850 g).

Five (8.5%) reduced pregnancies were completely lost. Of which, three were early pregnancy losses; in one of the cases, the loss was due to single placental vessel communication, in another case the remaining fetus was aborted after a conjoined twin was reduced at 20 weeks and in the third case hysterectomy was done at 15 weeks to avert severe abdominal pain and bleeding in the mother. The first two (3.4%) losses happened within four weeks of the procedure. In the two late pregnancy losses, the death occurred at 24 weeks of gestation and the mother also expired after six months in one case; in the remaining case, one baby was stillborn with anencephaly and the other baby was born prematurely and died after one month.

However, apart from the five complete pregnancy losses, partial pregnancy loss was observed in another seven cases; *i.e.* only one of the fetuses was lost and the remaining was a liveborn at delivery. Four live born fetuses had congenital anomalies; one had lobar embhysema which was successfully operated postnatally, second one had congenital blindness, third had corrected transposition of great arteries and the fourth had omphalocele.

DISCUSSION

Women generally seek assisted ART due to infertility. But most of the time what those women get by this method is not one but two or more fetuses much to their dismay as because multiple pregnancies increase the risk of perinatal mortality and maternal complications.^{2,3} The alternate option available to them is to go for fetal reduction.⁴

In the present study, the median birth weight of babies born after the reduction was 2100 g, which is well in accordance with other studies.^{5,7} The rate of premature delivery was found as 35.6% in the present study as opposed to 75% observed in Mittal *et al*⁵, because only eight cases were analysed in their study. We found complete pregnancy loss rate as 8.5% which is comparable with studies done by Antsaklis AJ *et al*⁷ (10.6%) and Stone J *et al*⁸ (5.4%).

Groutz A *et al*⁹ reported that the mean gestational age at delivery and the mean birth weight in pregnancies who underwent multifetal reduction to twin were significantly lower than the twins which did not undergo multifetal reduction. However, the lack of appropriate control group in the present study did not allow us to ascertain this.

Some studies reported that the starting^{8,9,10} and ending number of fetuses^{8,10} before and after reduction was inversely correlated with birth weight, prematurity and pregnancy loss rate. But, we found starting number of fetuses was positively correlated with median birth weight (2100 g in quadruplets *vs* 2050 g in triplets), prematurity (25% in quadruplets *vs* 39% in triplets) and complete pregnancy loss (6.7% in quadruplets *vs* 7.3% in triplets). The possible reason for this completely different result in the present study is due to the fact that more cases were lost to follow-up in high ordered pregnancies

as compared to low ordered pregnancies. It has been demonstrated that pregnancy loss rate, prematurity rates decrease with increasing experience.^{8,10}

Since, our institution does not conduct deliveries, the follow-up of the cases was difficult to ascertain. That was the reason for the high rate of lost to follow-up. We don't know whether the group which was lost to follow-up was significantly different from the followed-up group. We collected follow-up details from the obstetricians who referred the cases. Although our descriptive study produced comparable results with other studies, we strongly feel that the results would have been much better had we achieved high follow-up rate.

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