

Comparison of pregnancy outcome of natural twin pregnancies versus multifetal pregnancies selectively reduced to twins

C. Dietterich, R.T., R.D.M.S., J. H. Check, M.D., D. Lurie, Ph.D.

The University of Medicine and Dentistry of New Jersey Robert Wood Johnson Medical School at Camden Cooper Hospital; University Medical Center Department of Obstetrics and Gynecology Division of Reproductive Endocrinology & Infertility, Camden, New Jersey (USA)

Received May 20, 1996; revised manuscript accepted for publication August 30, 1996

Summary

The high rate of multiple gestations following ovulation induction with and without assisted reproductive technologies (ART) has led to an increased interest in selective reduction. The aim of this study was to compare pregnancy outcome of 6 triplet and 2 quintuplet pregnancies following selective reduction to twins to a group of 30 natural twin pregnancies delivered during the same time period. Outcome variables compared included birth weights, gender, gestational age at delivery, route of delivery, and neonatal complications. Results failed to demonstrate an adverse effect of selective reduction on pregnancy outcome.

Key words: Multifetal selective reduction; Pregnancy outcome; Twins.

Introduction

There has been a significant increase in the number of multiple pregnancies in recent years due to the use of ovulation inducing drugs and, more recently, assisted reproductive technologies. Multifetal pregnancy greatly increases the risk of maternal and neonatal complications making the procedure of selective reduction a widely acceptable alternative to help reduce these risks. Several reports have demonstrated the use of selective reduction to be a reasonable therapeutic option for increasing the odds of delivering healthy babies because it reduces the incidence of premature deliveries [1-5].

In our own previously published study, pregnancy outcome was compared in women with triplets or higher who reduced multifetal pregnancies to twins to those who did not choose this option. In that study, all 7 women having selective reduction delivered viable babies, while only 76% of the women who opted against selective reduction delivered viable babies [1]. The objective of the current study was to gain more insight into the outcome of selective reduction by comparing infant and maternal outcome variables in twin deliveries following selective reduction to deliveries resulting from natural twin gestations.

Materials and Methods

The study population consisted of 8 women who conceived multiple gestations (6 triplet, 2 quintuplet) and opted for selective reduction. Two sets of triplets were conceived following ovulation induction only while the other 4 sets of triplets and 2 sets of quintuplets were conceived with assisted reproductive techniques. The study group was referred to as "selective reduction twins". A random sample of 30 natural twin pregnancies

that were delivered in the same time period were used for controls. The control group was referred to as "natural twins".

Initial ultrasound examinations at 21-25 days post-conception revealed the presence of multiple gestational sacs. a viable fetal pole was seen in each of these sacs in follow-up. Patients with more than 2 sacs were referred to one of two university centers for counseling. Selective reduction was performed between 9 and 13 weeks using potassium chloride pericardial injection of the most accessible fetus(es) as previously described [1, 3].

Outcome variables measured on infants were birth weights, gender, gestational age at birth, and incidence of neonatal complications. Outcome variables on mothers were age at delivery and route of delivery. All information on outcome variables was obtained by medical records, if available, or by telephone survey with the patient.

Statistical analysis included t-tests for independent groups to compare the weight and gestational age in the two groups. A p value $< .05$ was used.

Results

The mean birth weights of the twins in the selective reduction group were 6.0 ± 0.9 pounds for baby 1 and 5.6 ± 1.5 pounds for baby 2. In the group of natural twins the weights were 5.3 ± 1.5 pounds and 5.3 ± 1.6 pounds, respectively ($p = \text{NS}$). Babies in the selective reduction group were born at a mean gestational age of 36.6 ± 1.2 weeks, while the natural twins were born at a mean gestational age of 35.5 ± 3.3 weeks. The frequency of premature births (< 37 weeks) was 50% in the selective reduction group and 56.6% in the natural twins. None of the selective reduction babies were born before 34 weeks gestation, whereas 26.6% of the natural twins were born before 34 weeks. Among the selective reduction twins there were 62.5% male babies and 37.5% female babies.

Table 1. — *Infant outcomes*

	Selective reduction twins (n = 8)	Natural twins (n = 30)
Birth weights (lbs)*		
Baby 1	6.0±0.9	5.3±1.5
Baby 2	5.6±1.6	5.3±1.6
Gender*		
Male	62.5% (5)	50% (15)
Female	37.5% (3)	50% (15)
Gestational age (weeks)*	36.6±1.2	35.2±3.3
Premature delivery rate* (<34 weeks)	0.0% (0)	26.6% (8)

*p = NS

Table 2. — *Maternal variables*

	Selective reduction twins (n = 8)	Natural twins (n = 30)
Maternal age at delivery* (years)	35.2±4.4	32.0±4.4
Route of delivery*		
Vaginal	25% (2)	46% (14)
C-section	75% (6)	54% (16)

*p = NS

Among the natural twins, males and females were equally distributed (50/50) (Table 1).

Information was available for all selective reduction babies at birth, but only 50 babies in the natural twins group. Only one of 16 (6.2%) babies from the selective reduction group had a complication, i.e., respiratory distress. Six of 50 (12%) babies from the natural twins group had neonatal complications; 3 had problems secondary to premature delivery, one had hyperthyroidism, one had respiratory distress, and one had a hyaline membrane.

The mean age of the mothers in the group with selective reduction was 35.2±4.4 years. The mothers in the group with natural twins were younger, with a mean age of 32.0±4.4 years. Seventy-five percent of the group with selective reduction and 54% of the natural twins group delivered by cesarean section (Table 2).

Discussion

There was no adverse effect of selective reduction on the birth weight or gestational age of the delivered twins. In fact, although not significant, the twins in the selective reduction group had a mean birth weight of 0.3 to 0.7 pounds higher than observed in natural twins. No differences were observed in the frequency of premature births between the groups. Though not statistically significant, the group of natural twins did, however, have a higher rate of early premature deliveries (<34 weeks). Whether these slight differences were due to the mothers in the group with selective reduction being monitored more closely because they were older and had the selec-

tive reduction procedure performed is not known. Many physicians will treat twin pregnancy as low-risk and not refer the patient to high-risk tertiary care centers.

Ethical considerations for the physician and emotional/psychological ramifications of the mothers and their families are other factors to be considered in the recommendation of selective reduction. From the ethical standpoint, our practice is endocrinology/infertility based and has a negative viewpoint on the issue of therapeutic abortion. However, since multifetal selective reduction increases the probability of a favorable pregnancy outcome in comparison with that of high order multiple gestations, we support this option with a positive attitude. Kanhai *et al.*, reported that, having been given the proper counseling before, during, and after selective reduction, none of the mothers or their families in their study experienced adverse psychological effects as a result of the procedure [2].

Conclusions

The number of multifetal pregnancies is on the rise largely related to ovulation induction medication and assisted reproductive technology. Every effort should be made to lessen this occurrence. Patients should be educated as to this risk before undergoing ovulation inducing therapy. In the event a multifetal pregnancy occurs, patients should be counseled in regard to their options. The study presented provides more data to support the use of selective reduction in multiple gestations. Whatever the decision may be, the physician should be supportive.

References

- [1] Check J. H., Nowroozi K., Vetter R., Rankin A., Dietterich C., Schubert B.: "The effects of multiple gestation and selective reduction on fetal outcome". *J. Perinat. Med.*, 1993, 21, 299.
- [2] Kanhai H. H. H., de Hahn M., van Zanten L. A., Geerinck-Vercammen C., van der Ploeg H. M., Bennebroek-Gravenhorst J. B.: "Follow-up pregnancies, infants, and families after multifetal reduction". *Fertil. Steril.*, 1994, 62, 955.
- [3] Wapner R. J., Davis G. H., Johnson A., Weinblatt V. J., Fischer R. L., Jackson L. G., Chervenak F. A., McCullough L. B.: "Selective reduction of multifetal pregnancies". *Lancet*, 1990, 335, 90.
- [4] Boulot P., Hedon B., Pelliccia G., Lefort G., Deschamps F., Arnal F., Humeau C., Laffargue F., Viala J. L.: "Multifetal pregnancy reduction: a consecutive series of 61 patients". *B. J. Obstet. Gynaecol.*, 1993, 100, 63.
- [5] Lipitz S., Yaron Y., Shalev J., Achiron R., Zolti M., Mashiah S.: "Improved results in multifetal pregnancy reduction: a report of 72 cases". *Fertil. Steril.*, 1994, 61, 59.

Address reprint requests to:
JEROME H. CHECK
7447 Old York Road
Melrose Park, PA 19027 (USA)