OBSTETRIC OUTCOME AFTER FETAL REDUCTION

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ABSTRACT

Objectives: To study maternal and fetal outcome after fetoreduction in multifetal pregnancy.
Methods: This retrospective study of 33 medical records was conducted between August 2007 and July 2010. Multifetal pregnancy reduction (MFR) was performed through transabdominal intrathoracic injection of potassium chloride at 10–12 weeks and maternal and fetal conditions were analyzed. The main outcome measures were uterine contraction, leaking membranes, bleeding, miscarriage, and birth weight. Results: Out of these 35 patients, 25 patients (75.7%) delivered twins after 36 weeks and 6 patients (18.2%) delivered twins before 36 weeks gestation. Two patients had premature ruptured membrane. Two patients had miscarriage few weeks after fetoreduction. There were no serious maternal or perinatal complications .
Conclusion: Multifetal pregnancy reduction has been established as an efficient and safe way to improve the outcome of multiple pregnancy. It can reduce the perinatal morbidity of the remaining fetuses and maternal distress with minimal or no adverse affects.
Key words: Multifetal pregnancy, fetoreduction, multiple gestation

INTRODUCTION

The incidence of multifetal pregnancies has increased dramatically over the past two decades, mainly because of the widespread use of ovulation induction and assisted reproduction techniques(ART)[1]. The procedure of ART often results in multifetal pregnancy due to multiple implantations in an effort to increase the chance of successful outcome because of both prospective parents and ART programs interests[2].
These techniques have been a matter of concern since twin and higher order pregnancies have long been associated with an increased risk of maternal complications as well as a high prevalence of prenatal and neonatal morbidity and mortality[3]. Potential maternal complications associated with multiple pregnancies are increased such as, spontaneous miscarriage, preterm labor and delivery, hypertensive diseases of pregnancy, antepartum bleeding, postpartum hemorrhage, polyhydramnios and severe anemia, as well as thromboembolism and psychological disorders .
Multifetal pregnancy reduction(MPR) is defined as a first trimester or early second trimester procedure for termination of one or more fetuses in a multifetal pregnancy, to increase the chances of survival of the remaining fetuses and decrease long-term morbidity for the delivered infants[4]. It is an outpatient procedure commonly performed between 10-12 weeks (put reference). By this time natural reduction would have occurred and subtle signs of fetal abnormality would have been detected . This procedure has, in recent years, become both clinically and ethically accepted as a therapeutic option in these pregnancies[5]. Although in our country this procedure is not ethically and clinically accepted by all people and it is not done in all centers, we do it in our center because there is no strict control on the number of transferred embryos resulting in increased incidence of high order multiples.
The procedure has been shown to be relatively safe and to result in

improved pregnancy outcome, with a decrease in the morbidity and mortality rates of the surviving fetuses[6]. On the other hand, the procedure is invasive and not without risk. It may cause miscarriage and total fetal loss as well as maternal infections. Therefore, indications suggested by different researchers are: Four or more embryos, triplets having serious maternal diseases, poor uterine conditions, previous caesarean section, History of previous preterm birth and embryo affected by serious diseases.

Several methods of MPR have been reported[7]. Currently, the most popular method is the transabdominal intrathoracic injection of potassium chloride performed at 10–12 weeks[8]. It has been reported that MPR performed at later gestational ages may be accompanied by an increased risk of pregnancy loss[9]. There are few reports about multifetal pregnancy reduction in Jordan and the Middle East. This study was carried out with an aim to evaluate maternal and fetal outcome after MPR in multiple gestation in our area.

METHODS

This descriptive study was conducted between the 1st of Aug 2007 and the end of July 2010. Thirty three cases of multifetal pregnancy reduction were performed. Data were collected from case notes and retrospective analysis of maternal and fetal conditions was performed.

Most of our patients (88%) conceived after fertility treatment in our IVF center. Informed consent was obtained from all patients. Patients were counseled regarding risks of abortion and maternal infection, bleeding and other rare complications. The procedure was carried out transabdominally with a 22 gauge spinal needle between 10-12 weeks. One ml potassium chloride was injected into the heart of each fetus and the needle was kept there till cessation of cardiac pulsation. If no fetal anomaly was suspected, the reduction of the lower sac was avoided. There were no complications during the procedure. Prophylactic tocolytic therapies were not used.

We excluded from the study all patients with a known uterine anomaly and triplets pregnancies with monochorionic twins. It's advised to avoid performing the procedure in the presence of vaginal bleeding, therefore , the procedure was performed a week after cessation of vaginal bleeding. Patients were monitored by Ultrasound weekly for the first two weeks, monthly till 20 weeks and every two weeks from then onwards. Uterine contraction, leaking membrane, bleeding, infection, abortion, gestational age and birth weight were the main outcome measures in this study.

RESULTS

Baseline Characteristics of patients are shown in table I. These include age, type of treatment and number of fetuses prior to fetoreduction. Out of the 33 patients, 4 patients had spontaneous multiple gestations, 6 patients due to ovulation induction drugs while the remaining 23 patients had been treated with ART procedures. Also 8 patients had triplets, 5 patients had quintuplets while the remaining 20 patients had quadruplets.

Table II illustrates outcome of the the procedure. Twenty five patients delivered twins after 36 weeks and their antenatal period was uneventful and one patient who suffered from leaking membrane and infection. Six patients delivered twins before 36 weeks with no serious maternal or fetal complications, but only two patients had premature ruptured membrane. Unfortunately two patients had

miscarriage, the first occurred one week after the procedure, while the second occurred 4 weeks after fetoreduction. The average birth weight was 2.54 kg.

There was no serious maternal complication except pyrexia in one patient. Also, there was no perinatal death among all babies delivered.

Table I : Patients Characteristics

Parameters	No.	%
Type of RX		
-spontaneous	4	12.1
-Ovulation induction	6	18.2
-ART	23	69.7
Number of fetus		
- Triplets	8	24.2
- Quadruplets	20	60.6
- Quintuplets	5	15.2

Table II: Outcome of fetoreduction

Outcome	N	%
Miscarriage	2	6.1
Premature ruptured membrane	2	6.1
Infection	1	3.0
Delivery before 36 weeks	6	18.2
Delivery after 36 weeks	25	75.7
Perinatal death	0	0
Birth weight (kg) (Mean)	2.54	-

DISCUSSION

Spontaneous occurrences of multifetal pregnancies have always been a medical problem. More recently, increased use of potent ovulation induction drugs and assisted reproductive technology (ART), have been effective in the treatment of infertility but subsequently also increased the risk of multifetal pregnancy thereby creating potentially serious problems[10]. In almost all cases, it's preferable to terminate an ovulation induction cycle or limit the number of embryos to be transferred to prevent a situation in which fetal reduction will have to be considered. In Jordan , there are no regulations and laws governing the number of embryos transferred in an IVF cycle. However, it is common practice to transfer 4 or more embryos. This policy still results in a significant number of multiple pregnancies

including triplets and higher order multiple pregnancies.

In multifetal pregnancy reduction, healthy embryos are sacrificed in order to maximize the chances of survival of the remaining embryos or to allow the mother to choose the number of babies she wishes to deliver. Although no physician need to perform fetal reduction if they believe that such procedures are morally unacceptable, all obstetricians should be aware of the medical and ethical issues in these complex situations.

Nonetheless, patients should not be given the impression that multifatal pregnancies are without problems because fetal reduction is available. Pregnancy loss rates of approximately 4-6% have been reported for triplets-to-twins reduction in large samples[11], but higher rates also have been reported[12].In our series pregnancy loss rates is about 6.1% which is similar to these results. In this study there were two miscarriages, one of which may not be procedure related because fetuses continued to grow till 14 weeks, thereafter died in utero 4 weeks after the procedure. The other miscarriage took place one week after the procedure.

Multifetal pregnancy reduction reduces extreme prematurity before 32 weeks and improves fetal growth without excessive fetal loss. This is reflected on cost of intensive care and long term problems associated with preterm delivery.

Kol et al[13] reported that spontaneous fetal death occurred in 5% of multiple pregnancies. These data suggest that the spontaneous loss rate in women carrying three fetuses may be similar to, or even higher than, the fetal loss rate observed following fetoreduction.

In our study the majority of fetoreduction was done to reduce quadruplets (60.6%), only 8 patients had triplets and 5 patients had quintuplets. Reducing quadruplets to twin has tremendous beneficial effect. There is debate about reducing triplets to twin but many researchers showed significant decrease in prematurity in reduced group[14]. Antsaklis et al showed that embryo reduction from triplet to twin significantly reduces the risk of extreme prematurity by about one-third, and consequently that it may reduce the risk of having a severely handicapped child due to extreme prematurity[15].

In this study majority of the patients delivered after 36 weeks of gestations (75.7%), only 6 patients (18.2%) delivered before 36 weeks. Of them 2 patients delivered at 34 weeks due to premature ruptured membrane. No perinatal death occurred in this study and no one had extreme low birth weight and birth asphyxia. There was no serious maternal complication except rise of temperature in one patient. Ten days after the procedure, the patient developed leaking membranes of existing sac and subsequently rise of temperature and uterine contraction. After addition of antibiotics temperature subsided and the patient continue her pregnancy.

CONCLUSION

We conclude that multifetal pregnancy reduction has been established as an efficient and safe way to improve outcome of multiple pregnancy. Although the number of cases in present study is too small to draw any conclusion, we did not find any adverse affect after fetoreduction.

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