

ORIGINAL ARTICLE

Medicine Science 2018;7(2):312-4

Our results of spontaneously conceived triplet pregnancies

Burcu Kisa Karakaya, Hatice Celik, Alev Esercan, Ayla Aktulay, Yaprak Ustun, Elif Gul Yapar Eyi, Salim Erkaya

Zekai Tahir Burak Women's Health Training and Research Hospital, Obstetrics and Gynecology, Ankara, Turkey

Received 02 July 2017; Accepted 14 December 2017
Available online 19.02.2018 with doi: 10.5455/medscience.2017.06.8748

Copyright © 2018 by authors and Medicine Science Publishing Inc.

Abstract

The natural incidence of spontaneous triplet pregnancy is approximately 1 in 8000 births. Premature delivery of one fetus, compromise of one fetus, and death of one fetus of a multiple gestation with healthy co-fetuses are complications unique to multiple gestations. Our purpose was to evaluate the outcome of spontaneous triplet gestations. In this retrospective study, maternal, neonatal data were collected from 25 sets of triplet pregnancies that were diagnosed between 2011 March and December 2013 in Zekai Tahir Burak Women's Health Education and Research Hospital - Obstetric Department. There were 15 sets of trichorionic triamniotic triplet pregnancies and 10 sets of triplet pregnancies with a monochorionic pair (ie, dichorionic triamniotic triplets). The mean maternal age was 28 (20-33). 75% of patients were primigravida. 50% of patients (12 patient) had abortus (gave birth before 20 weeks). 3 patients gave birth about 33 weeks, birth weights were about 2100-2150 grams. 4 patients gave birth about 30 weeks, with birth weights of 1800-1850 grams. 2 patients had spontaneous abortion of all fetuses after fetal reduction. Two patients (8%) had complication of postoperative endometritis. 3 patients had preeclampsia (12%). The incidence of dichorionicity in our study of spontaneous triplet pregnancy is 40%. Perinatal mortality was increased in dichorionic pregnancies. The abortus rate was 80%. Although abortus rate was high in spontaneous triplet pregnancy, gestational age at delivery was about 33 weeks. This is because of our hospital's condition to be a tertiary hospital in obstetrics and neonatology.

Keywords: Triplet pregnancy, spontaneous triplet pregnancy, fetal reduction

Introduction

The natural ratio of spontaneous triplet pregnancy is around 1 in 6000 to 8000 births [1]. To compare, triplet and more births represented 137 for every 100,000 live births in 2011 (i.e. 5417 triplet and more births) and less than 20 were naturally conceived [1].

The chorionicity of the multiple gestation should be determined at the time of diagnosis. Although most triplets are the product of different oocytes, monozygotic gestations can occur.

They appear to be more common in spontaneous conceptions than when three embryos have been placed via IVF. Monochorionic and dichorionic placentation confers a higher risk of adverse outcome in both spontaneous conceptions and those conceived with assisted reproduction technologies [3]. There is a significant possibility of spontaneous loss of one or more fetuses between the time of ultrasound diagnosis of the triplet pregnancy and delivery. As an example, a study of natural outcome of 38 pregnancies in which three gestational sacs were identified with transvaginal ultrasound, at 21 to 28 days after ART reported triplet, twin and singleton delivery rates of 47, 32 and 18 percent, respectively with miscarriage of all three fetuses in 3 percent [4].

Multiple pregnancies that experience spontaneous reduction, give birth sooner than unreduced pregnancies with a similar number of fetuses (e.g. triplets to singletons delivered 10 days earlier than unreduced singletons, triplets to twins delivered 4 days earlier than unreduced twins) [1].

The risk of aneuploidy in a triplet pregnancy is higher than in a singleton pregnancy since there are three fetuses, each of which is at risk [1]. Therefore, prenatal genetic testing is suggested at younger maternal age. Triplet pregnancy is related with notable high risks of maternal and neonatal morbidity in comparison to twin pregnancy. In a study where the results of 12,193 triplet pregnancies were compared with 316,996 twin pregnancies, the latter had greatly higher frequencies of diabetes, anemia, amniotic fluid abnormalities, pregnancy-associated hypertension, eclampsia, cervical insufficiency, uterine bleeding, use of tocolysis, caesarian delivery, abruption and placenta previa [3]. Preterm birth is a frequent, severe complication of triplet pregnancy: 75 to 100 percent of triplets are premature. The average period of time for singleton, twin and triplet gestations is 39, 35 and 32 weeks, respectively. Birth weight of approximately 95 percent of triplet babies is <2500 grams, while the remaining has a birth weight of <1500 grams. A prior gestation which resulted in the term delivery of an approximately mature neonate indicates a longer pregnancy and increased birth weight in a consecutive triplet gestation. In triplet pregnancy, the main reason for early labor is spontaneous

*Corresponding Author: Burcu Kisa Karakaya, University of Health Sciences Zekai Tahir Burak Women's Health Education & Research Hospital
E-mail: kisaburcu@gmail.com

early delivery with or without preterm premature rupture of membranes (PPROM). The most frequent reasons for indicated early delivery include preeclampsia and fetal growth restriction. These complications are more common in multiple pregnancies and account for a large proportion of the excess rate of preterm birth. Intrahepatic cholestasis is observed more commonly in multiple gestations [3].

PROBLEMS UNIQUE TO MULTIPLE GESTATION: - The complications that are specific to multiple pregnancies include preterm delivery of one fetus, compromise of one fetus and mortality of one fetus in a multiple pregnancy [3]. The risks for surviving fetuses and possible interventions are partly associated with chorionicity.

Delayed interval delivery – Case reports of early spontaneous delivery of one fetus, typically prior to viability, followed by attempts to prolong the pregnancy for the remaining fetuses, have described sporadic successes. Tocolysis, antepartum corticosteroid administration, and prophylactic antibiotics were employed in various combinations to prevent delivery. Cerclage did not appear to be beneficial. The overall success rate and morbidity of this approach is not known; each patient must be treated individually. Delayed-interval delivery is reviewed separately.

Twin-twin transfusion-A 2012 review of the literature identified 27 cases of twin-twin transfusion in monochorionic triplet pregnancies. Overall survival was 51 percent (38/75 fetuses), which was lower than in dichorionic triplets (76 percent, 220/291 fetuses). This shows that gestational age at delivery was also younger (28 weeks versus 31 weeks) [3]. Just like in twin pregnancies, the therapy of choice for serious twin-twin transfusion is laser photocoagulation.

Compromised fetus – When fetal monitoring of a singleton preterm fetus is nonreassuring, the decision to intervene is determined by whether the fetus' risk from remaining in utero exceeds that from premature delivery. In multiple pregnancies, an ethical dilemma arises when one fetus is in jeopardy, but the others are not. An analysis of this issue for trichorionic triplets concluded that prior to 26 weeks of pregnancy, delivery placed all three fetuses at significant risk of mortality. For this reason, intervention before 26 weeks should rarely be considered. In 32nd week of pregnancy or afterwards, morbidity risk for healthy fetuses was very low that intervention due to concern for one fetus was almost always suitable. Between 26 and 32 weeks, no single strategy was appropriate; thus, parental preference after counseling of individual risks should guide decision-making [1].

This model does not apply to monochorionic multiples because the death of one fetus impacts the well-being of the survivors. In trichorionic triplets, death of one fetus is not, by itself, a strong indication for intervention to deliver the surviving triplets. However, if a condition affecting all three triplets is present (e.g., preeclampsia, chorioamnionitis), then close surveillance and timely intervention for the surviving triplets is indicated to prevent more fetal losses. In a study including 5356 triplet pregnancies, survival of the remaining triplets after the death of one was inversely related to the gestational age when the death occurred [3]. In monochorionic gestations, death of one fetus increases the risk of morbidity and mortality in surviving monochorionic siblings; however, it is unclear whether prompt delivery is helpful,

as in twin pregnancies [3].

Material And Method

In this retrospective study, maternal and neonatal data were gathered from 25 series of triplet pregnancies. They were diagnosed in our hospital between March 2011 and December 2013. Local Ethics Committee approval was obtained. Maternal demographic data, gestational age at hospitalization and indications for hospitalization were collected as obstetric data. Gestational age at labor, birth weight, Apgar scores and neonatal morbidity were the neonatal data. Study includes 15 series of trichorionic triamniotic gestations and 10 series of triplet gestations having a monochorionic pair, in other words dichorionic triamniotic triplets. The result of these gestations was evaluated according to chorionicity.

Statistical Analysis: IBM SPSS for Windows 22.0 statistical package was used for statistical analyses. Continuous variables were defined as standard deviation of mean or median (minimum-maximum). Categorical variables were defined in frequencies and percentages. The Pearson's coefficient correlation was used to forecast univariate relations among the variables. Any p value under 0.05 was deemed significant.

Results

The mean maternal age was 28 (20-33). The mean gravida was 1.72 (1-5). 72% of patients were primigravida. It was found that 15 sets had trichorionic triamniotic triplet gestation and 10 sets had triplet gestations with a monochorionic pair, in other words dichorionic triamniotic triplets (Table 1).

Table 1. Demographic Characteristics

Maternal Age	
Mean(min-max)	28(20-35)
Gravida	
Mean(min-max)	1,72(1-5)
Chorionicity (n, percent%)	
Dichorionic	10(%40)
Trichorionic	15(%60)
Peripartum Maternal Complication	
Preeclampsia	3(%12)
Postoperative endometritis	2(%8)

50% of patients (12 patient) had abortus (gave birth before 20 weeks).6 patients gave birth about 26- 27 weeks and birth weights were approximately about 770-800 grams. 3 patients gave birth about 33 weeks, birth weights were about 2100-2150 grams.4 patients gave birth about 30 weeks, with birth weights of 1800-1850 grams (Table 2).

Table 2. Perinatal Outcome

Gestational Age (n,percent %)	
<20 weeks	12 (48)
20-30.week	6 (24)
30.week	4 (16)
33.week	3 (12)
Birth Weight (gr)	
Mean(min-max)	1418 618,32(770-2140)

60% of patients had no chronic illnesses, 25% of them had thrombophilia and 16% of them had goiter. None of the patients smoked. None of the patients had multiple pregnancy before. 2 patients had spontaneous abortion of all fetuses after fetal reduction.2 patients (%8) had complication of postoperative endometritis. 3 patients had preeclampsia (12%). Neither eclampsia nor diabetes occurred.

The incidence of dichorionicity in our study of spontaneous triplet pregnancy is 40%. Perinatal mortality was increased in dichorionic pregnancies. The abortus rate in dichorionic triplets was 80% ($p<0.05$) (Table 3).

Table 3. Abortus/Chorionicity relation

Abortus	Dichorionic	Trichorionic	P
Yes	8	4	0,013
No	2	11	

Discussion

The natural ratio of spontaneous triplet pregnancy is around 1 in 6000 to 8000 births. To compare, triplet and more births represented 137 for every 100,000 live births in 2011 and less than 20 were naturally conceived [1]. In our study, we collected 25 naturally conceived triplet pregnancies approximately in 3 years by retrospective analysis of 59,160 live births between March 2011 and December 2013. It was found that spontaneous triplet pregnancy had an incidence of 1 per 4550. This may be higher due to being a tertiary obstetrical center hospital. There is a significant possibility of spontaneous loss of one or more fetuses between the time of ultrasound diagnosis of the triplet pregnancy and delivery. As an example, a study of natural outcome of 38 pregnancies in which three gestational sacs were identified with transvaginal ultrasound, at 21 to 28 days after ART reported triplet, twin and singleton delivery rates of 47,32 and 18 percent, respectively with miscarriage of all three fetuses in 3 percent [2]. In our study 50% of patients (12 patient) had abort (gave birth before 20 weeks). Those who are multiple pregnant and experience spontaneous reduction give birth before compared to unreduced gestations with equivalent fetuses (e.g. triplets to singletons delivered 10 days earlier than unreduced singletons, triplets to twins delivered 4 days earlier than unreduced twins) [2]. In this study, 2 patients experienced abortus after fetal reduction. We did not have living reduced twins to decide about time of delivery. Diabetes, anemia, amniotic fluid abnormalities, pregnancy-associated hypertension, eclampsia, cervical insufficiency, uterine bleeding, use of tocolysis, cesarean delivery, abruption and placenta previa were in greatly often in triplet gestations [2]. In our study, 60% of patients had no chronic illnesses, 25% had thrombophilia and 16% had goiter. 2 patients (8%) had complication of postoperative endometritis. 3 patients had preeclampsia (12%). Neither eclampsia nor diabetes occurred. Preterm birth is a frequent, severe complication of triplet pregnancy: 75 to 100 percent of triplets are premature. The average period of time for singleton, twin and triplet gestations is 39, 35 and 32 weeks, respectively. Birth weight of approximately 95 percent of triplet babies is <2500 grams, while the remaining has a birth weight of <1500 grams [1]. 24% of patients gave birth in about 33rd week and their birth weights were about 2100-2150 grams. 12% patients have birth in about 30th week with birth weights of 1800-1850 grams. In triplet pregnancy, the main reason for early labor is spontaneous early delivery with or without preterm premature rupture of membranes (PPROM). The most frequent reasons for indicated early delivery include preeclampsia and fetal growth restriction. These complications are more common in multiple pregnancies. In our study, preeclampsia rate was 12%. Also, 8% of patients had postoperative endometritis, which was maybe because of PPRM.

In the study [5], maternal, neonatal and chorionicity data were gathered from 88 series of triplet gestations that gave birth at >20 weeks of pregnancy from 3 tertiary referral institutions in England.

It included 49 sets of trichorionic triamniotic triplet gestations and 39 sets of triplet pregnancies with a monochorionic pair, which means dichorionic triamniotic triplets. The result of these gestations was evaluated with respect to chorionicity.

It was found that the risk of adverse perinatal outcome is 5.5 times greater in dichorionic triamniotic triplets mainly due to twin-twin transfusion syndrome and premature rupture of membranes. In our study, the incidence of dichorionicity of spontaneous triplet pregnancy is 40%. Perinatal mortality was increased in dichorionic pregnancies. The abortus rate in dichorionic triplets was 89% ($p<0.05$). Although abortus rate was high in spontaneous triplet pregnancy, gestational age was about 33 weeks at birth. In our study, only 2 dichorionic pregnancies had an outcome of live births about 26-27 weeks while trichorionic had live births of 26-33 weeks. Monochorionic and dichorionic placentation confers a higher risk of adverse outcome in spontaneous conceptions like pregnancies with assisted reproduction technologies [6-9].

Conclusion

In conclusion; our results show that the incidence of dichorionicity was 44% in spontaneously triplet pregnancy. Perinatal mortality was increased in dichorionic pregnancies. The chorionicity of the multiple gestation should be determined at the time of diagnosis. Monochorionic and dichorionic placentation confers a higher risk of adverse outcome in both spontaneous conceptions and those conceived with assisted reproduction technologies.

The limitation of our study is lower number of patients and less number. We think that further studies with more participants should indicate better results to evaluate spontaneously conceived triplet pregnancies.

Competing interests

The authors declare that they have no competing interest.

Financial Disclosure

The financial support for this study was provided by the investigators themselves.

References

1. [http://www.uptodate.com/Triplet Triplet Pregnancy/Early Pregnancy Management/](http://www.uptodate.com/Triplet%20Pregnancy/Early%20Pregnancy%20Management/) www.uptodate.com access date 30 September 2011
2. [http://www.uptodate.com/Triplet Triplet Pregnancy/Mid and late pregnancy complications and management/](http://www.uptodate.com/Triplet%20Pregnancy/Mid%20and%20late%20pregnancy%20complications%20and%20management/)www.uptodate.com. access date 30 September 2011
3. Neonatal outcome, complications and management of multiple births/ www.uptodate.com. access date 24 October 2017
4. Morikawa M, Cho K, Yamada T, Yet al. Clinical features and short-term outcomes of triplet pregnancies in Japan. *Int J Gynaecol Obstet.* 2013;121(1):86-90.
5. Adegbite AL, Ward SB, Bajoria R. Perinatal outcomes of spontaneously conceived triplet pregnancies in relation to chorionicity, *Am J Obstet Gynaecol.* 2005;193(4):1463-71.
6. Adams DM, Sholl JS, Haney EI, et al. Perinatal Outcome associated with outpatient management of triplet pregnancy. *Am J Obstet Gynecol.* 1998;178(4):843-7.
7. Kaufman GE, Malone FD, Harvey-Wilkes KB, et al. Neonatal morbidity and mortality associated with triplet pregnancy. *Obstet Gynecol* 1998;91(3):342-8.
8. Devine PC, Malone FD, Athanassiou A, et al. Maternal and neonatal outcome of 100 consecutive triplet pregnancies. *Am J Perinatol* 2001;18(4):225-35.
9. Bortolus R, Parazzini F, Chatenoud L, et al. The epidemiology of multiple births. *Human Reprod Update* 1999;5(2):179-87.