

# MULTIPLE PREGNANCIES AND THEIR COMPLICATIONS

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## SUMMARY

**Objective:** To investigate the complications observed in multiple pregnancies which are increasing in day by day.

**Material and methods:** We reviewed 173 multiple pregnancies that were followed up in the Department of Obstetric and Gynecology in Ege University during one year period and determined the preterm delivery ratio, discordance between fetuses and investigated the complications which occurred during pregnancy.

**Results:** 148 twin, 24 triplet and 1 quadripet pregnancies had been followed in a year. While 56 of twin pregnancies and 4 of the triplet pregnancies occurred spontaneously, others conceived with medical treatment or with assisted reproductive technology. Cerclage was performed in 11 pregnancies. Preeclampsia, gestational diabetes mellitus and cholestasis were observed in 12,26 and 8 patients respectively. Twin-to-twin transfusion syndrome was present in 4 patients and one patient had acardiac-acephalic twin pregnancy. Four patients had emergency cesarean section due to ablatio placenta. While 54 patients were hospitalized for one to twelve weeks because of preterm labour 36 women had preterm premature rupture of the membranes. Only 38 patients had no any problem during pregnancy.

**Discussion:** Developments in assisted reproductive technology have been increasing the number of multiple gestations and their complications. The complications due to preterm labor, increased requirement of neonatal intensive care units and hospital payments are all burden on the families as well as on the social insurance companies.

**Key words:** complication, multiple pregnancy

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## ÖZET

### ÇOĞUL GEBELİKLER VE KOMPLİKASYONLARI

**Amaç:** Son zamanlarda sayıları artan çoğul gebeliklere bağlı gelişen komplikasyonların incelenmesi

**Gereç ve yöntemler:** Son 1 yıl içerisinde Ege Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Bölümü'nde takip edilmiş 173 çoğul gebelik incelendi. Bu gebeliklerin hangi yöntemle oluştuğu, gebelik sırasında hangi komplikasyonların ortaya çıktığı, erken doğum oranları, fetuslar arasındaki diskordans, koryonisit ve amniyonisit hızları, koryonisit ile ilgili komplikasyonlar incelendi.

**Sonuç:** Toplam 148 ikiz, 24 üçüz ve 1 dördüz gebelik son 1 yıl içerisinde kliniğimizde takip edilmiştir. İkiz gebeliklerin 56'sı, üçüz gebeliklerin ise 4'ü spontan oluşmuştur. Diğerlerinde bir tedavi metodu kullanılmıştır. Gebelik sırasında 11 gebeye serklaj uygulanmıştır. 12 hastada preeklampsi, 26 hastada gestasyonel diabet, 8 hastada kolestaz gelişmiştir. İkizden ikize transfüzyon sendromu 4 gebede izlenirken 1 hastada akardiyak, asefalik ikiz gelişmiştir. Hastaların 4'ü ablasyo plasentaya bağlı acil sezaryene alınmıştır. Erken doğum eyleminden dolayı 54 hasta 1-12 hafta süre ile hospitalize edilirken, 36 hastada preterm erken membran rüptürü izlenmiştir. Sadece 38 hastanın gebeliği sorunsuz geçmiştir.

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**Tartışma:** Son yıllarda artan yardımcı üreme tekniklerindeki gelişmeler çoğul gebelik oranlarını ve komplikasyonları arttırmıştır. Erken doğumlara bağlı komplikasyonlar, artan kuvöz ihtiyacı ve hastane masrafları ailelerde ve sosyal güvenlik kurumlarında altından kalkamayacağı sorunlar ortaya çıkarmaktadır.

**Anahtar kelimeler:** çoğul gebelik, komplikasyon

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## INTRODUCTION

The incidence of spontaneous twin pregnancy is 1:90, the incidence of triplets is 1:8000, and the incidence of quadruplets is 1:700000 (among these the most frequent one is tetrachorionic tetraamniotic). Currently, these rates have increased by 300-400% by the development of assisted reproductive techniques. The accepted average week of birth for twin pregnancies is 36-37, while the accepted average week of birth is 33-34 for triplet pregnancies, and 30-31 for quadruplet pregnancies. Multiple pregnancies also bring some maternal and fetal risks with it. Premature birth, antepartum and postpartum hemorrhage, twin-to-twin transfusion syndrome, and preeclampsia are some of them. That's why, in order to avoid these complications fetal reduction is recommended at the end of the first trimester of pregnancy for triplet pregnancies and more (1-3).

## MATERIALS AND METHODS

We have reviewed 173 of multiple pregnancies that were followed-up in Ege University, Faculty of Medicine, Division of Obstetrics and Gynecology for the last 1 year. Whether these pregnancies occurred spontaneously or with treatment, if it occurred with the treatment what kind of assisted reproductive technology was used, which complications occurred during the pregnancy, preterm birth rates and status of discordance between the fetuses, preterm birth rates in pregnancies that fetocide was applied, chorionicity of twin pregnancies and presentation at birth were examined.

## RESULTS

A total of 148 twins, 24 triplets and 1 quadruplet pregnancies were followed in our clinic during the last 1 year. 56 of the twin pregnancies (37%) occurred

spontaneously, while 12 (8%) of them got pregnant via intrauterine insemination (IUI), 68 (46%) of them via intracytoplasmic sperm injection (ICSI), 2 of them via in vitro fertilization, 5 of them solely via induction of ovulation and 3 patients gave birth in our clinic following donation. 4 of the triplet pregnancies were spontaneous, 1 of them occurred as a result of IUI and 19 ICSI.

Dichorionic-diamniotic placenta was found in 120 of Twin pregnancies, 24 of them had monochorionic diamniotic placenta, and 4 of them had monochorionic-monoamniotic placenta. The most common presentation of twin pregnancies was head-head which was followed by head-breech, breech-breech, breech-head presentation. Among 13 pregnancies fetocide was performed, 9 (69%) of them could reach term.

During the pregnancy, cerclage was performed in 11 pregnant women and 8 of them reached term. Elective cerclage was done when cervical incompetence was suspected previously during the hysteroscopy or to patients with recurrent miscarriages during the 2nd trimester (73%) and emergency cerclage was performed in 3 patients (27%).

12 patients (6%) developed preeclampsia, 26 patients (15%) GDM (gestational diabetes) and 8 patients (4%) cholestasis (Table I). The patients followed up after they were hospitalized. Even though the preterm birth rates in spontaneous multiple pregnancies were less than the pregnancies occurred with treatment, the incidence of diseases such as preeclampsia and gestational diabetes were similar in both groups. While twin-to-twin transfusion syndrome was observed in 4 pregnant (14% of monochorionic twins), acardiac twin was seen in 1 patient. Emergency cesarean section was performed in 4 patients due to placental abruption. 54 patients were hospitalized and received tocolytic treatment because of preterm labor, while in 36 patients preterm premature rupture of membranes were observed (Table II). Only 38 (22%) patients had an uneventful pregnancy.

**Table I:** Complications that developed during pregnancy in multiple pregnancies between 2008-2009.

Complications	Number of cases (n)
Preeclampsia	n: 12
Gestational diabetes	n: 26
Cholestasis	n: 8
TTTS	n: 4
Preterm premature rupture of membranes	n: 36

**Table II:** The relationship between gestational weeks and advanced maternal age in twin pregnancies followed-up in 2008-2009.

Twin pregnancies (n: 148 pregnant)	<35 age (n: 124)			>35 age (n:24)		
	<24. wk	between 24-34 wk	>34. wk	<24. wk	between 24-34 wk	>34. wk
Spontaneous (n: 56 pregnant)	5	17	28	1	1	4
With treatment (IUI, ICSI, IVF etc) (n: 92 pregnant)	14	29	31	2	9	7

Among the pregnant women that fetocide was performed 9 of triplets were reduced to twins; others were reduced to twins from quadruplets<sup>(2)</sup>, twins from quintuplets and singleton from triplets. A total of 23 multiple pregnancies resulted in stillbirth before the 24<sup>th</sup> week of pregnancy. One of the donation pregnancies had a stillbirth during the early weeks of gestation, 2 of them gave birth to healthy twins. While in 4 of the twin pregnancies the other fetus was lost during pregnancy, growth retardation in the other fetus was observed in 7 pregnancies. Discordance between the twins was observed in 14 fetuses without any reason, and it has been noted that 3 of these twins had monochorionic placenta.

## DISCUSSION

In dizygotic twins (fraternal twins), two egg cells are fertilized at the same time by two sperms. 70% of them will be same gender. Their placenta and amnions are diverse. In monozygotic twins (identical twins) 1 egg is fertilized by 1 sperm as in singleton pregnancies, and then they would be divided into two. Genders are always the same. Genetic structures are the same. If this division occurs in the first 3 days following the fertilization diamniotic dichorionic pregnancy (two amniotic sacs, two placentas), if it happens between 4-8 days monochorionic (two amniotic sacs, one

placenta), if it happens after the 8<sup>th</sup> day monochorionic monoamniotic (one amniotic sac, one placenta) twin pregnancies are seen. Divisions that take place after this period result in Siamese twins (or conjoined twins).

The majority of twin births in our clinic during the last 1 year consist of dichorionic-diamniotic twin gestations.

In multiple pregnancies there are many complications that arise during pregnancy. The most common complication is premature birth; the frequency is about 20-50%. Pregnancy induced hypertension, placenta previa, antenatal and intrapartum bleeding, hyperemesis gravidarum and premature rupture of membranes are the common complications of multiple pregnancies<sup>(4)</sup>. Devine PC and colleagues have reported premature birth (78%), preeclampsia (26%), premature rupture of membranes (24%), anemia (24%), eclampsia (1%) in triplet pregnancies in their study<sup>(5)</sup>. Wein P et al<sup>(6)</sup> have reported that GDM is more common in twin pregnancies compared to singleton pregnancies, and this rate seems to change between 6-9%. In our study, pre-eclampsia was observed in 7% of the patients, gestational diabetes in 14%, cholestasis in 4% and premature rupture of membranes in 20%.

There are a number of approaches in order to limit the complications seen in multiple pregnancies. One of them is limitation of the number of embryos to be replaced during in-vitro fertilization to two. This results in reduction of pre-and postnatal complications of pregnancy without pregnancy or baby being effected<sup>(7)</sup>. The other one is multifetal reduction. Even though reduction of twin pregnancies into singleton decrease complications related to twin pregnancies a consensus on this matter could not be achieved. However, multifetal reduction is recommended in triplets or more pregnancies<sup>(8)</sup>. 69% of pregnancies in our study that fetal reduction was applied successfully reached to term.

Multiple numbers of transfers performed in some of the in vitro fertilization centers increases the possibility of heterotopic pregnancy as well as the rates of multiple pregnancies.

Twin-to-twin transfusion syndrome (TTTS), a complication of monochorionic multiple pregnancies is defined as ultrasonographic finding of a combination of oligohydramnios in one sac and polyhydramnios in the other sac in monoamniotic dichorionic twins. While various criteria (such as hemoglobin between twins,

weight and abdominal circumference) were used in the previous years, currently, the definition of polyhydramnios-oligohydramnios simplifies and standardizes the definition of TTTS<sup>(9)</sup>. In our series, 4 out of 28 monochorionic twins (14%) developed TTTS and 1 acardiac twin was found (Figure 1). El Kateb et al<sup>(10)</sup> has observed 15% TTTS in monochorionic twin pregnancies and reported that the mortality rate reaches to 90%. Again in different studies the incidence of TTTS was reported between 3-24%<sup>(11)</sup>.



**Figure 1:** Acardiac twin pregnancy that was seen during the one-year follow up of multiple pregnancies.

In twin pregnancies, caesarean section is recommended in the existence of monoamniotic twins, conjoined twins, foot presentation in one of the twins, placental disorders, breech presentation and existence of weight difference of more than 20% between the twins. In our clinic, caesarean section is recommended to all the mothers of twins over 24 weeks.

10-12% of perinatal deaths consist of multiple pregnancies<sup>(12)</sup>. The high frequency of prematurity, preeclampsia, hidramnios, placenta previa, abrupsiyo placenta and cord prolapsus increase the mortality in these pregnancies<sup>(13)</sup>. In monozygotic twins the incidence of congenital anomalies is higher compared to dizygotic twins or singleton babies. Furthermore, preterm birth was observed more in twin pregnancies that occur after a treatment compared to ones that happen spontaneously.

With the advances in reproductive technologies multiple pregnancies are encountered more. While the number

of multiple pregnancies followed up in our clinic was 102 in 2007, in 2008 this number increased to 127, and in 2009 it reached to 174. We should be always prepared for possible complications in multiple pregnancies. Long-term hospitalization due to threat of premature birth and the need for incubators following the unavoidable premature births puts the families and physicians in a stressful situation.

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