



Multiple Fetal Pregnancy Versus Singleton Pregnancy in Ain Shams Maternity Hospital during the Last Three years (2014- 2016)

Thesis

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Dedication

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List of Abbreviations

Abb.	Full term
<i>AECC</i>	<i>Autologous endometrial coculture</i>
<i>AH</i>	<i>Assisted hatching</i>
<i>ART</i>	<i>Assisted reproductive techniques</i>
<i>BPP</i>	<i>Biophysical profile</i>
<i>CBAVD</i>	<i>Congenital bilateral absence of vas deferens</i>
<i>CC</i>	<i>Clomiphene citrate</i>
<i>CDC</i>	<i>Centers for Disease Control and Prevention</i>
<i>CFMF</i>	<i>congenital fetal malformation</i>
<i>COH</i>	<i>Controlled ovarian hyperstimulation</i>
<i>CPD</i>	<i>Cephalopelvic disproportion</i>
<i>CTG</i>	<i>Cardiotocography</i>
<i>DCDA</i>	<i>Dichorionic diamniotic</i>
<i>DNA</i>	<i>Deoxyribonucleic acid</i>
<i>DZ</i>	<i>Dizygotic</i>
<i>FFTS</i>	<i>Fetal transfusion syndrome</i>
<i>FHRs</i>	<i>Fetal heart rates</i>
<i>FSH</i>	<i>Follicle stimulating hormone</i>
<i>GA</i>	<i>Gestational age</i>
<i>GnRH</i>	<i>Gonadotropin releasing hormone</i>
<i>GnRH-α</i>	<i>GnRH analogues (agonists)</i>
<i>GnRH-ant</i>	<i>GnRH antagonists</i>
<i>HCG</i>	<i>Human chorionic gonadotrophin</i>
<i>HFEA</i>	<i>Human Fertilization and Embryology Authority</i>
<i>HMG</i>	<i>Human menopausal gonadotrophin</i>
<i>HS</i>	<i>Highly significant</i>
<i>ICP</i>	<i>Intrahepatic cholestasis</i>
<i>ICSI</i>	<i>Intracytoplasmic sperm injection</i>
<i>ICU</i>	<i>Intensive care unit</i>

List of Abbreviations Cont..

Abb.	Full term
<i>IGF-1</i>	<i>Insulin-like growth factor</i>
<i>IQR</i>	<i>Inter quartile range</i>
<i>IUGR</i>	<i>Intra uterine growth restriction</i>
<i>IUGR</i>	<i>Intrauterine growth restriction</i>
<i>IV</i>	<i>Intravenously</i>
<i>IVF</i>	<i>In vitro fertilization</i>
<i>LBW</i>	<i>Low birth weight</i>
<i>LH</i>	<i>Luteinizing hormone</i>
<i>LSCS</i>	<i>Lower segment cesarean section</i>
<i>MCDA</i>	<i>Monochorionic diamniotic</i>
<i>MCMA</i>	<i>Monochorionic monoamniotic</i>
<i>MZ</i>	<i>Monozygotic</i>
<i>NCPP</i>	<i>National Collaborative Perinatal Program</i>
<i>NICE</i>	<i>National Institute for Health and Care Excellence</i>
<i>NICU</i>	<i>Neonatal intensive care unit</i>
<i>NS</i>	<i>Non significant</i>
<i>NSTs</i>	<i>Nonstress tests</i>
<i>OHSS</i>	<i>Ovarian hyperstimulation syndrome</i>
<i>ORs</i>	<i>Odds ratios</i>
<i>PE</i>	<i>Pre-eclampsia</i>
<i>PGD</i>	<i>Preimplantation genetic diagnosis</i>
<i>PGS</i>	<i>Preimplantation genetic screening</i>
<i>PPROM</i>	<i>Preterm premature rupture of membranes</i>
<i>RCOG</i>	<i>Royal College of Obstetricians and Gynaecologists</i>
<i>S</i>	<i>Significant</i>
<i>S&E</i>	<i>Suction and evacuation</i>
<i>SCBU</i>	<i>Special care baby unit</i>
<i>SEI</i>	<i>Socioeconomic Index</i>

List of Abbreviations Cont..

Abb.	Full term
<i>SPSS.....</i>	<i>Statistical Package for Social Science</i>
<i>SVD.....</i>	<i>Spontaneous vaginal delivery</i>
<i>TAPS.....</i>	<i>Twin anemia-polycythemia sequence</i>
<i>TRAP</i>	<i>Twin reversed arterial perfusion sequence</i>
<i>TTTS.....</i>	<i>Twin-to-twin transfusion syndrome</i>
<i>TVUS</i>	<i>Transvaginal ultrasonography</i>
<i>US.....</i>	<i>Ultrasound</i>
<i>VBAC</i>	<i>Vaginal birth after cesarean section</i>
<i>VLBW.....</i>	<i>Very low birth weight</i>
<i>Yrs.....</i>	<i>Years</i>

INTRODUCTION

A ‘multiple fetal pregnancy’ is the term used when you are expecting two or more babies at the same time. It occurs in about one in 80 pregnancies for twins and one in 8000 pregnancies for triplets. Fertility treatment increases the chances of multiple pregnancy (*George et al., 2015*). The incidence of multiple pregnancies varies worldwide, twin pregnancy comprise an increasing portion of total pregnancies in developed world due to the expanded use of fertility treatments and older maternal age at childbirth (*George et al., 2015*). In the United States, twin births account for 3.3 percent of live births in 2011 (*Stephen et al., 2015*). Twins pregnancy accounts for 96 percent of multiple births in United States. Dizygotic twins are more common than monozygotic twins 69 and 31 percent of twins’ birth (respectively in the absence of use of assisted reproductive techniques “ART”). The incidence of monozygotic twins is relatively stable worldwide at 3 to 5 of 1000 births (*Stephen et al., 2015*).

Twins can be: (*Stephen et al., 2015*).

- Dichorionic diamniotic (DCDA) – if two eggs are fertilised or if one egg splits soon after fertilisation, each baby has its own placenta with its own outer membrane called a ‘chorion’ and its own amniotic sac
- Monochorionic diamniotic (MCDA) – if the fertilised egg splits a little later, the babies share a placenta and chorion but they each have their own amniotic sac; these babies are always identical

- Monochorionic monoamniotic (MCMA) – much less commonly, the fertilised egg splits later still and the babies share the placenta and chorion and are inside the same amniotic sac; these babies are always identical; this is rare and carries additional risks. Similarly, triplets can be trichorionic (each baby has a separate placenta and chorion), dichorionic (two of the three babies share a placenta and chorion and the third baby is separate), or monochorionic (all three babies share a placenta and chorion). If your babies share a placenta, they are identical or ‘monozygotic’. Most babies who do not share a placenta are non-identical or ‘dizygotic’. However, it is possible for babies not sharing a placenta to be identical as well. This is because nearly a third of monozygotic or identical twins will each have their own placenta and hence will have the same appearance on ultrasound scans as the DCDA (non-identical or dizygotic) twins. (*Stephen et al., 2015*).

Maternal morbidity:

Multiple-gestation pregnancies are associated with a significantly higher maternal complication rate than are singleton gestations. Multiple-gestation pregnancies carry an increased risk of hypertensive disorders of pregnancy; gestational diabetes mellitus; hyperemesis; preterm labor; premature rupture of membranes; anemia; placental abruption; postpartum hemorrhage; cardiac complications, such as myocardial infarction and left ventricular heart failure;

operative deliveries, both vaginal and cesarean; required hysterectomy; and prolonged hospital stay (*Stephen et al., 2015*).

Any problems that arise in any pregnancy are more common with twins and include: (RCOG)

- Anaemia – this is usually caused by a shortage of iron because developing babies use up a lot of iron
- Pre-eclampsia – a condition that causes high blood pressure and protein in your urine; for further information, see the RCOG patient information Pre-eclampsia.
- A higher chance of bleeding more heavily than normal after the birth – doctors and midwives are trained to deal with these situations; for more information, see the RCOG patient information Heavy bleeding after birth (postpartum haemorrhage).
- A higher chance of needing a caesarean section or assisted vaginal delivery to deliver your babies (***RCOG guidelines***).

Fetal/neonatal morbidity

The increase in fetal and neonatal morbidity and mortality associated with multiple- gestation/birth pregnancies correlates with an increased risk of preterm delivery, low birth weight, and intrauterine growth retardation. The neonatal

mortality rate in multiple-fetus pregnancies is similar to singleton rates, increasing with decreasing gestational age.

The average gestational age for twin deliveries is 35.3 weeks; for triplet deliveries, 32.2 weeks; and for quadruplet deliveries, 29.9 weeks. (*George et al., 2015*).

Prematurity

You are more likely to have your babies early if you are expecting twins or triplets:

- About 60 in 100 sets of twins will be born spontaneously before 37 weeks of pregnancy
- About 75 in 100 sets of triplets will be born spontaneously before 35 weeks
- In comparison, only about 10 in 100 women who are pregnant with one baby will give birth before 37 weeks. 3 Babies born earlier than 37 weeks of pregnancy have an increased risk of problems, particularly with breathing, feeding and infection. The earlier your babies are born, the more likely this is to be the case. They may need to be looked after in a neonatal unit. You will be supported to spend as much time as you can with them and you will be encouraged to breastfeed. For more information, see the RCOG patient information Premature labour. Having a baby born early can be worrying and distressing for parents. Your babies are more likely to need special care after birth. Your doctor

or midwife will be happy to talk to you about this and can give you information about support groups that you might find helpful (*RCOG guidelines*).

Problems with growth Having twins increases the chance of the placenta not working as well as it should. This can affect the babies' growth and wellbeing.

Twin-to-twin transfusion syndrome (TTTS) Twins sharing a placenta (monochorionic pregnancies) also share the blood supply. the incidence of TTTS is 1:40 to 1:60 twin pregnancies (*Martin et al., 2005; Lewi et al., 2007; Dickinson and Evans, 2000; Lutfi et al., 2004*), 9 to 15 percent of monochorionic diamniotic pregnancies (*Lewi et al., 2007*), and 6 percent of monoamniotic pregnancies (*Baxi and Walsh, 2010*). In one report, monochorionic diamniotic twins conceived by in vitro fertilization had a lower incidence of TTTS than those conceived naturally (1/43 [2 percent] versus 36/284 [13 percent]) (*Ben-Ami et al., 2016*). In around 15 in 100 monochorionic twin pregnancies, the blood flow may be unbalanced. This is called twin-to-twin transfusion syndrome (TTTS). One baby, the 'donor', receives too little blood and has a low blood pressure while the other baby, the 'recipient', receives too much blood and has a high blood pressure. You will be monitored with frequent scans for signs of TTTS. It can be mild and may not require any treatment, or it can be serious, in which case you will be offered treatment in a hospital with specialist expertise.