TWIN PREGNANCY
TIMING OF DELIVERY

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NUMBER OF TWIN BIRTHS IN THE UNITED STATES 1980-2006
(UNITED STATES NATIONAL VITAL STATISTICS REPORT 2006, VOL. 57 #7)
INCREASED RISK FOR

Miscarriage, hyperemesis, anemia, fetal death, prematurity, low birth weight, HTN, preeclampsia, gestational diabetes, cesarean section, hemorrhage, congenital malformations, neonatal death, cerebral palsy, post partum depression
WHO TAKES CARE OF PATIENTS WITH TWINS?

Maternal-Fetal Medicine
General Obstetricians
Family Practice
Certified Nurse Midwives
Lay Midwives
## Referral Patterns of Obstetricians

*(Clearly-Goldman et al. Obstet Gynecol 2007)*

<table>
<thead>
<tr>
<th></th>
<th>No Input From MFM</th>
<th>Complete T.O.C to MFM</th>
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<tbody>
<tr>
<td>Twins</td>
<td>62%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Triplets</td>
<td>4.9%</td>
<td>43%</td>
</tr>
<tr>
<td>Quads</td>
<td>0.6%</td>
<td>83%</td>
</tr>
<tr>
<td>&gt; Quads</td>
<td>0.3%</td>
<td>87%</td>
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</table>
DETERMINING CHORIONICITY

First trimester ultrasound is most accurate
  • Thick dividing membrane
  • “twin peak” sign
  • PPV 98%

Mid-trimester ultrasound
  • Membrane thickness
  • “twin peak” sign
  • Gender
  • Placentas
  • PPV 88%
## SONOGRAPHIC DIAGNOSIS OF CHORIONICITY

Analysis of the Effect of Maternal and Sonographic Factors on Correct Classification of Chorionicity (545 sets of twins)

<table>
<thead>
<tr>
<th>Factor</th>
<th>OR (95% CI)</th>
<th>P</th>
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<tbody>
<tr>
<td>1st-trimester sonography</td>
<td>0.47 (0.23–0.96)</td>
<td>.04</td>
</tr>
<tr>
<td>Maternal age</td>
<td>0.97 (0.92–1.03)</td>
<td>.35</td>
</tr>
<tr>
<td>Maternal BMI</td>
<td>1.02 (0.97–1.07)</td>
<td>.40</td>
</tr>
<tr>
<td>Nulliparity</td>
<td>1.11 (0.51–2.42)</td>
<td>.78</td>
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<tr>
<td>Prior cesarean delivery</td>
<td>1.10 (0.35–3.48)</td>
<td>.87</td>
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</tbody>
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For every week increase in gestational age at the first sonographic examination, the odds of misclassification rose by 10% (OR, 1.10; 95% CI, 1.01–1.2).

Blumenfeld et al: J Ultrasound Med 2014
DICHORIONIC TWINS
FIRST TRIMESTER
MONOCHORIONIC TWINS
FIRST TRIMESTER
MONOAMNIOTIC TWINS
FIRST TRIMESTER
CHORIONICITY DETERMINES MANAGEMENT

Genetic counseling

Management of fetal anomalies

Evaluation for Twin Twin Transfusion

Antepartum surveillance

Timing of Delivery
TIMING OF DELIVERY

“UNCOMPLICATED” TWINS

Concordant / Normal Growth
Structurally Normal
No Obstetric Indications for Delivery
No Maternal Indications for Delivery
No Twin Twin Transfusion
TIMING OF DELIVERY: “UNCOMPLICATED” DI-DI TWINS

Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD): 38 weeks

Society for Maternal-Fetal Medicine (SMFM): 38 weeks

American College of Obstetrics and Gynecology (ACOG): $38^{1/7} - 38^{6/7}$

National Institute for Health and Clinical Excellence (NICE): 37 weeks

TIMING OF DELIVERY
DI-DI TWINS

Prospective cohort study
801 pairs of dichorionic twins
Planned preterm delivery vs term delivery
Outcome: Fetal mortality
  Composite morbidity (RDS, NEC, HIE, PVL, sepsis)

No fetal deaths after 33 weeks gestation
Risk of morbidity @ 36 weeks: 4%
Risk of morbidity @ 38 weeks: 1%

MONOCHORIONICITY

Increased risk of adverse perinatal outcomes

No consensus for timing of delivery (32-38)

ACOG: 34-37/7

Iatrogenic preterm delivery to avoid potential perinatal complications is common
SURVIVAL CURVES FOR MCDA AND DCDA TWINS
LATE PRETERM BIRTH

Increased risk serious neonatal morbidity

Preterm Birth: greatest risk for twins (>50%)

Abnormal placental vasculature (10% of MCDA twins)
Gestational age–specific prospective perinatal mortality per 1000 fetuses at risk

Upward trend from gestational week 32 in MCDA twins was nonsignificant ($P = .13$ by 1-sided Cochran-Armitage trend test).
Serious adverse perinatal events: twins with nonindicated deliveries

![Chart showing serious morbidity per 1000 fetuses at risk against gestational age in weeks. The chart compares DCDA and MCDA with error bars indicating variability.](chart.png)
Neonatal serious adverse events per 1000 live births (current week) vs subsequent serious adverse events per 1000 fetuses at risk in monochorionic-diamniotic twins with nonindicated deliveries.
FIGURE 6
Mean neonatal hospital charges: current vs subsequent week

- Current week
- Subsequent weeks

Mean charge ($/1000)

Gestational age (weeks)

26- 28- 30  31  32  33  34  35  36

1000
100
10
1

Graph showing the mean neonatal hospital charges in current and subsequent weeks based on gestational age.
SUMMARY

Optimal timing of delivery for dichorionic twins: 38 weeks

Optimal timing of delivery for monochorionic twins: 37 weeks

Document chorionicity early