

[08-075]

## Characteristics and outcomes of monochorionic diamniotic twin pregnancies complicated by selective fetal growth restriction with intermittent absent end diastolic flow

JULIANA SANCHEZ GEBB<sup>1,2</sup>

<sup>1</sup>Childrens Hospital of Philadelphia Richard D Wood Jr Center for Fetal Diagnosis and Treatment

<sup>2</sup>Perelman School of Medicine of the University of Pennsylvania Department of Pediatric, Thoracic, and Fetal Surgery

**Introduction:** Describe characteristics of selective fetal growth restriction (sFGR) pregnancies with intermittent absent end diastolic flow (iAEDF) and compare outcomes in expectantly managed patients with iAEDF versus those with always forward flow (+EDF), no forward flow (A/REDF) and intermittent forward, absent, and reversed flow (iAREDF).

**Methods:** Retrospective analysis from a monochorionic registry. Pregnancies divided by the umbilical artery of smaller fetus: 1) +EDF; 2) iAEDF; 3) A/REDF; or 4) iAREDF. Characteristics compared and outcomes then compared in expectantly managed patients.

**Results:** Of 332 patients, 115 (34.6%) had +EDF, 91 (27.4%) had iAEDF, 70 (21.1%) had A/REDF and 56 (16.9%) had iAREDF. Gestational age (GA) at first evaluation was lower in those with A/REDF versus iAREDF and fetal intervention was higher in patients with iAEDF, A/REDF and iAREDF versus +EDF. In expectantly managed patients (n=196), median GA at delivery in weeks was higher in patients with +EDF (32.5) and iAEDF (32.3) versus those with A/REDF (27.4) and iAREDF (29.1). Total survivors to discharge were higher with +EDF versus A/REDF but not versus iAEDF or iAREDF.

**Conclusion:** Patients with iAEDF had similar survival to patients with A/REDF and iAREDF but delivered at a later GA that was similar to those with +EDF.

[08-076]

## Assessing Placental–Brain Oxygenation Relationships in Complicated Monochorionic Twins Using MRI

Ryne Didier<sup>1</sup>, Esra Abaci Turk<sup>3</sup>, Tiantian Lei<sup>3</sup>, Henry A. Feldman<sup>3</sup>, Aryn Lee<sup>3</sup>, Nneka Arinzech<sup>4</sup>, Crystalle Katte Carreon<sup>4</sup>, Claudio Schenone<sup>5</sup>, Elfar Adalsteinsson<sup>2,5</sup>, Eyal Krispin<sup>5</sup>, P. Ellen Grant<sup>1,5</sup>

<sup>1</sup> Boston Childrens Hospital Radiology

<sup>2</sup> Massachusetts Institute of Technology Electrical Engineering and Computer Science

<sup>3</sup> Boston Childrens Hospital Pediatrics/Newborn Medicine

<sup>4</sup> Boston Childrens Hospital Pathology

<sup>5</sup> Boston Childrens Hospital Fetal Care and Surgery Center

**Purpose:** Twin–twin transfusion syndrome (TTTS) and selective fetal growth restriction (sFGR) are major complications of monochorionic diamniotic twin pregnancies associated with placental vascular imbalance and impaired oxygen delivery. These abnormalities can impair oxygen delivery and compromise fetal development. We used MRI T2\* mapping as a relative marker of oxygenation to evaluate placental–fetal brain associations in complicated monochorionic twin pregnancies.

**Methods:** We analyzed 37 datasets from thirty monochorionic diamniotic twin pregnancies (14 sFGR, 8 TTTS, 8 both) underwent MRI at 16–32 weeks' gestation. Multi-echo gradient-echo EPI sequences were acquired, and placental and fetal brain T2\* maps were generated using mono-exponential fitting. Associations were assessed using linear mixed-effects models adjusting for gestational age, treatment status, and disease subgroup.

**Results:** Placental T2\* decreased significantly with gestational age ( $p < 0.001$ ), while fetal brain T2\* showed no significant association ( $p = 0.17$ ). Placental T2\* was independently associated with fetal brain T2\*; each 1 ms increase in placental T2\* corresponded to a 0.44 ms increase in brain T2\* (95% CI: 0.11–0.77,  $p = 0.009$ ). Disease subgroup and treatment status were not significant predictors.

**Conclusion:** Placental T2\* is independently associated with fetal brain T2\*, supporting placental–brain oxygenation coupling in complicated monochorionic twin pregnancies.

[08-077]

## **New Insights into Management and Outcomes of Monochorionic Diamniotic Twin Pregnancies with Discordant Fetal Anomalies**

**Gabrielle Katherine Smith, Sacha Bryan, Bill Goodnight**

University of North Carolina Hospitals Maternal-Fetal Medicine

**Introduction:** Monochorionic diamniotic (MCDA) twin pregnancies are associated with increased risk of discordant fetal anomalies (DA). Outcomes of DA MCDA pregnancies based on anomaly type and optimal management remain unclear.

**Methods:** The NAFTNet Complicated Monochorionic Twin Pregnancy Registry was used to describe anomaly types, management, and outcomes of DA MCDA pregnancies. MC twin pregnancies with a primary diagnosis of DA were included; primary diagnoses TTTS, TRAP, sTAPS excluded. Analyses performed using SPSS.

**Results:** 57 DA MCDA twin pregnancies were included. Cardiovascular anomalies were most common (20.2%). In 26% of pregnancies, both twins had anomalies. No fetal surgical intervention occurred in 70.2% of cases. RFA was the most common intervention (22.8%). Anomaly type did not significantly influence intervention rates. Gestational age at delivery was later (36.4w vs 33.0w;  $p<0.05$ ), birthweight larger (2758g vs 1950g), newborn hospitalization shorter (7.0 days vs 31.4 days) and cesarean rates lower (18.2% vs 60.6%,  $p<0.05$ ) in pregnancies after anomalous twin cord occlusion. IUFD rates did not statistically significantly differ (18.2% vs 4.5%,  $p=0.199$ ) among DA pregnancies with and without occlusion.

**Conclusion:** Selective reduction of anomalous twins in MC pregnancies did not affect IUFD risk. However, reduction was associated with vaginal delivery, later delivery timing, larger birthweights.

[08-078]

## Incidence and timing of preeclampsia in twin pregnancies: a nationwide Danish cohort study

Sara Bech Finsen<sup>1,5</sup>, Mads Langager Larsen<sup>1</sup>, Marie Elizabeth Helmbaek<sup>1,5</sup>, Iben Riishede<sup>1,2</sup>, Karoline Stjernstrom<sup>3</sup>, Line Rode<sup>1,4</sup>, Jacob Alexander Lykke<sup>3</sup>, Olav Bjørn Petersen<sup>1,5</sup>, Charlotte Kvist Ekelund<sup>1,5</sup>, Steffen Ernesto Kristensen<sup>1,5</sup>

<sup>1</sup> Rigshospitalet Center for Fetal Medicine, Department of Gynecology, Fertility and Obstetrics

<sup>2</sup> Aarhus University Hospital Department of Obstetrics and Gynecology

<sup>3</sup> Rigshospitalet Department of Gynecology, Fertility and Obstetrics

<sup>4</sup> Rigshospitalet Department of Clinical Biochemistry

<sup>5</sup> University of Copenhagen Faculty of Health and Medical Sciences, Department of Clinical Medicine

**Objective:** To quantify differences in gestational age (GA) at delivery and risk of early-onset and preterm preeclampsia (PE) in twin pregnancies by chorionicity, compared with singleton.

**Method:** A nationwide register-based cohort study including all dichorionic (DC) and monochorionic diamniotic (MCDA) twin pregnancies at first-trimester screening in Denmark, 2008-2018, compared with randomly selected singletons. Log-normal accelerated failure time models estimated GA differences (time ratios, % change) in PE-complicated pregnancies, adjusting for maternal age, BMI, parity, mode of conception, smoking and ethnicity.

**Results:** We included 1,911 MCDA and 9,600 DC twin pregnancies along with 19,341 singletons.

Among PE-complicated pregnancies, MCDA twin delivered at 13.0% lower GA than singletons (95% CI: -14.9 to -11.1%) and DC twins at 11.9% lower (95% CI: -13.0 to -10.8%). Risk of early-onset PE (< 34 weeks) was RR 6.99 (95% CI: 4.65-10.51) for MCDA and 4.95 (95% CI: 3.62-6.75) for DC vs singletons; risk of preterm PE (< 37 weeks) was 12.61 (95% CI: 9.98, 15.93) and 9.66 (95% CI: 7.96, 11.72), respectively.

**Conclusion:** Twin pregnancies carry a substantially higher risk of early-onset and preterm PE than singletons, and PE-complicated twin pregnancies deliver markedly earlier, particularly MCDA twins. These findings support chorionicity-specific surveillance and earlier delivery thresholds.

[08-079]

## From Prenatal care to Birth: Outcomes of Monochorionic Diamniotic Twin Pregnancies in a Publicly Funded Nationwide 11-Year Danish Cohort

Sara Bech Finsen<sup>1,2</sup>, Mads Langager Larsen<sup>1</sup>, Alan Wright<sup>1</sup>, Karin Sundberg<sup>1</sup>, Lotte Harmsen<sup>1</sup>, Ann Nygaard Jensen<sup>5</sup>, Puk Sandager<sup>3,5</sup>, Lene Sperling<sup>4</sup>, Kypros Nicolaides<sup>1</sup>, Olav Bjørn Petersen<sup>1,2</sup>, Steffen Ernesto Kristensen<sup>1,2</sup>

<sup>1</sup> Rigshospitalet Center for Fetal Medicine, Department of Gynecology, Fertility and Obstetrics

<sup>2</sup> University of Copenhagen Faculty of Health and Medical Sciences, Department of Clinical Medicine

<sup>3</sup> Aarhus University Hospital Department of Obstetrics and Gynecology, Center for Fetal Medicine

<sup>4</sup> Odense University Hospital Department of Obstetrics and Gynecology, Center for Ultrasound and Pregnancy

<sup>5</sup> Aalborg University Hospital Department of Obstetrics and Gynecology

**OBJECTIVE:** To establish nationwide benchmark estimates of outcomes and obstetric complications in unselected monochorionic diamniotic (MCDA) twin pregnancies.

**METHOD:** Nationwide register-based cohort study including all MCDA twin pregnancies with two live fetuses at first-trimester screening in Denmark, 2008–2018. Dichorionic diamniotic (DCDA) twins and singleton pregnancies served as comparison groups.

**RESULTS:** We included 2,029 MCDA, 9,563 DCDA, and 507,489 singleton pregnancies. Overall, 90.7% MCDA pregnancies resulted in two liveborn children. Miscarriage <24 weeks occurred in 4.0% (95% CI: 3.2–4.9%) and intrauterine fetal demise (IUFD) in 5.3% (4.3–6.3%). Among liveborn children, 2.8% (2.3–3.4%) were extremely preterm (<28 weeks), and 9.4% very preterm (<32 weeks). PPROM occurred in 11.1% (9.8–13.0%) and TTTS in 5.8% (4.8–6.9%). Fetal growth restriction (FGR) at birth affected 27% (26.0–28.0%) and selective FGR during pregnancy (Delphi consensus criteria) occurred in 55.7% (53.1–57.7%). IUFD risk was higher in MCDA than DCDA pregnancies (RR 3.94; 95% CI 3.06–5.07) and 22-fold higher versus singletons (RR 22.21; 18.1–26.9); risks were elevated for all outcomes compared with DCDA and singletons.

**CONCLUSION:** MCDA twin pregnancies carry substantial risks of fetal loss, preterm birth and growth complications; 90.7% result in two liveborn children. These nationwide benchmarks support the continued intensive monitoring of these high-risk pregnancies.

[08-080]

## Pregnancy outcome after fetal reduction (FR) of dichorionic triamniotic (DCTA) triplets: a nationwide Danish register-based cohort study from 2008 to 2018

Steffen Ernesto Kristensen<sup>1,2</sup>, Alan Wright<sup>3</sup>, David Wright<sup>3</sup>, Sara Bech Finsen<sup>1,2</sup>, Puk Sandager<sup>4</sup>, Ann Nygaard Jensen<sup>4</sup>, Lene Sperling<sup>4</sup>, Karin Sundberg<sup>1</sup>, Andrew McLennan<sup>5</sup>, Olav Bjørn Petersen<sup>1,2</sup>

<sup>1</sup> Copenhagen University Hospital - Rigshospitalet Department of Gynecology, Fertility, and Obstetrics

<sup>2</sup> Faculty of Health and Medical Sciences, University of Copenhagen Department of Cellular and Molecular Medicine or Department of Clinical Medicine

<sup>3</sup> University of Exeter Institute of Health Research

<sup>4</sup> Aarhus University Hospital, Aalborg University Hospital or Odense University Hospital Department of Obstetrics and Gynecology

<sup>5</sup> The University of Sydney Faculty of Medicine and Health

### Objective

To compare pregnancy outcomes after FR to a singleton (3-1 FR) versus non-reduced DCTA triplets (NR-T).

### Methods

We included all DCTA triplet pregnancies with three viable fetuses at the first-trimester ultrasound; all women were offered FR. Adverse pregnancy outcome (APO) was defined as miscarriage <24 weeks, stillbirth ≥24 weeks, or intrauterine fetal death (IUFD) of one or two fetuses; very preterm birth (PTB) as <32 weeks; Small-for-gestational-age (SGA) birthweight as <10th centile.

### Results

Of 77 DCTA pregnancies, 52 (67.5%) underwent 3-1 FR, 8 (10.4%) 3-2 FR, and 17 (22.1%) were NR-T. Median gestational age at 3-1 FR was 11+6 weeks (IQR 11+6 to 12+4). Compared with NR-T, 3-1 FR was associated with lower risk of APO (7.7% vs 41.2%), very PTB (2.1% vs 18.9%) and SGA (6.5% vs 33.3%). Miscarriage occurred in 3.8% of 3-1 FR, compared to 11.8% in NR-T. Stillbirth occurred in 3.8% of 3-1 FR versus 0% of NR-T, but single and double IUFD affected 11.8% and 17.6% of NR-T, respectively.

### Conclusions

For DCTA triplets, 3-1 FR was associated with lower risks of APO, severe PTB and SGA birthweight; despite a small stillbirth signal, overall fetal loss ≥24 weeks remained markedly lower than in NR-T.

[08-081]

## Neonatal outcomes of dichorionic (DC) twins: a nationwide Danish register-based cohort study from 2008 to 2018

Steffen Ernesto Kristensen<sup>1,2</sup>, Sara Bech Finsen<sup>1,2</sup>, Maria Kierbye Rasmussen<sup>1</sup>, Mads Langager Larsen<sup>1</sup>, Alan Wright<sup>3</sup>, David Wright<sup>3</sup>, Gorm Greisen<sup>2,4</sup>, Kypros Herodotou Nicolaides<sup>5</sup>, Olav Bjørn Petersen<sup>1,2</sup>

<sup>1</sup> Copenhagen University Hospital - Rigshospitalet Department of Gynecology, Fertility and Obstetrics

<sup>2</sup> Faculty of Health and Medical Sciences, University of Copenhagen Department of Cellular and Molecular Medicine or Department of Clinical Medicine

<sup>3</sup> University of Exeter Institute of Health Research

<sup>4</sup> Copenhagen University Hospital - Rigshospitalet Department of Neonatology

<sup>5</sup> Kings College Hospital Harris Birthright Research Centre for Fetal Medicine

### Objective

To quantify neonatal mortality, morbidity, and treatment burden in dichorionic (DC) twins compared with singletons.

### Methods

Liveborn neonates >24 weeks gestation from 2008–2018 in the Danish Medical Birth Register were included. Primary outcomes were neonatal mortality (death  $\leq 28$  days), severe morbidity (IVH grade III–IV, PVL, ROP, NEC, BPD, or seizures), invasive treatment (mechanical ventilation, surfactant, or parenteral nutrition), and uncomplicated course (5-minute Apgar  $\geq 7$ , discharged alive, no severe morbidity). Relative risks (RR) with cluster-robust 95% CIs compared DC twins with singletons.

### Results

18,371 DC twin and 632,009 singleton neonates were included. Preterm birth <32 weeks occurred in 7.2% of DC twins versus 0.7% of singletons. Neonatal mortality was 0.5% in DC twins versus 0.1% in singletons (RR 4.0, 95% CI 3.3–4.9), severe morbidity 2.4% versus 0.4% (RR 6.4, 5.8–7.1), and invasive treatment 4.9% versus 0.7% (RR 6.7, 6.2–7.2). An uncomplicated course occurred in 93.5% of DC twins versus 98.6% of singletons (RR 0.95, 0.94–0.95).

### Conclusions

Most DC twins (93.5%) have an uncomplicated neonatal course, only 5 percentage points below singletons. However, mortality, severe morbidity, and invasive treatment are 4- to 7-fold more frequent, providing concrete absolute risks for counselling parents of twin pregnancies.

[08-082]

## **Fetal Medicine Foundation (FMF) singleton and twin-specific growth charts classify different proportions of intrauterine fetal demise (IUFD) as small-for-gestational-age (SGA) in dichorionic (DCDA) and monochorionic (MCDA) twin pregnancies — a nationwide Danish cohort study of 11,055 twin pregnancies, 2008–2018**

**Steffen Ernesto Kristensen<sup>1</sup>, Alan Wright<sup>2</sup>, David Wright<sup>2</sup>, Sara Bech Finsen<sup>1</sup>, Puk Sandager<sup>3</sup>, Ann Nygaard Jensen<sup>3</sup>, Lene Sperling<sup>3</sup>, Karin Sundberg<sup>1</sup>, Andrew McLennan<sup>4</sup>, Kypros Herodotou Nicolaides<sup>5</sup>, Olav Bjørn Petersen<sup>1</sup>**

<sup>1</sup> Copenhagen University Hospital - Rigshospitalet Department of Gynecology, Fertility, and Obstetrics

<sup>2</sup> University of Exeter Institute of Health Research

<sup>3</sup> Aarhus University Hospital, Aalborg University Hospital or Odense University Hospital Department of Obstetrics and Gynecology

<sup>4</sup> The University of Sydney Faculty of Medicine and Health

<sup>5</sup> Kings College Hospital Harris Birthright Research Centre for Fetal Medicine

### Objective

Compare FMF singleton and chorionicity-specific twin growth charts for proportions of twin pregnancies and IUFDs classified as SGA at the last scan.

### Methods

Estimated fetal weight at the last scan was converted to z-scores on both references; small-for-gestational age (SGA) was <10th centile.

### Results

9,131 DCDA and 1,924 MCDA pregnancies were included; IUFD occurred in 96 (1.0%) and 92 (4.6%). The singleton chart classified 51.5% (DCDA) and 63.4% (MCDA) as SGA at the last scan, versus 27.9% and 30.1% with the twin chart. Among IUFDs, the singleton chart classified more as SGA than the twin chart: 67.7% versus 52.1% (DCDA;  $\Delta$  15.6%, 95% CI 9.0–24.5%) and 65.2% versus 51.1% (MCDA;  $\Delta$  14.1%, 95% CI 7.7–23.0%). Fifteen DCDA and 13 MCDA IUFDs SGA on the singleton chart became AGA on the twin chart (Intermediate SGA group); the reverse never occurred. IUFD incidence in this group was 0.7% (DCDA) and 2.0% (MCDA), above 0.23% in singletons. The group received ~0.8 additional scans/pregnancy; twin-chart-based surveillance would spare 3.4% (DCDA) and 2.4% (MCDA) of scans.

### Conclusions

FMF twin charts halve SGA prevalence but reclassify one in seven IUFDs as AGA. Twin charts describe expected growth, not IUFD screening; chart-discordant pregnancies need close surveillance.

[08-083]

## **Microwave ablation and radiofrequency ablation demonstrate comparable outcomes for selective reduction in monochorionic diamniotic twin pregnancies**

**David Rosas**

University of California, Davis Surgery

We present the UC Davis experience with microwave ablation (MWA) compared to radiofrequency ablation (RFA) procedures for selective reduction in monochorionic-diamniotic (MCDA) twin pregnancies.

We performed a retrospective analysis of 30 patients with MCDA pregnancies treated with selective reduction via MWA or RFA at the UC Davis FCTC from 2018 to 2026.

A total of 30 patients were reviewed. 25 patients underwent MWA and 5 underwent RFA. The mean maternal age was 30.6 years with a range of 19 to 43. The indications for the ablations were sIUGR (n = 8), TRAP sequence (n = 2), TTTS (n = 14), or other anomalies (n = 6) – all procedures intended to selectively reduce one fetus. The mean GA at the time of procedure was 20.7 weeks. The mean GA at delivery was 32 weeks. The rate of preterm birth was 48% in the MWA group compared to 60% in the RFA group (p = 0.62). The survival rate following the procedure was 16/25 (64%) in the MWA group and 4/5 (80%) in the RFA group (p = 0.49).

MWA and RFA are comparable options for selective reduction in MCDA pregnancies with similar survival rates and rates of preterm delivery.

[08-084]

## Starting Strong or Starting Slow? The Effect of Starting Wattage on Microwave Cord Occlusion Outcomes for Multifetal Pregnancy Reduction

Gabrielle Katherine Smith<sup>1</sup>, Hannah Bowers<sup>2</sup>, Courtney Stephenson<sup>2</sup>, Bill Goodnight<sup>1</sup>

<sup>1</sup> University of North Carolina Fetal Care Center

<sup>2</sup> Cleveland Clinic Hospital Fetal Care Center

**Introduction:** Techniques are variable for energy application in microwave cord occlusion (MCO) for multifetal pregnancy reduction. Our study investigates MCO outcomes based on low vs high initial application of microwave energy, case complexity, and indication.

**Methods:** This two-center retrospective cohort study reviewed maternofetal outcomes in 21 MCO procedures. Cases were divided into low (<40W, n=16) vs high (>40W, n=5) starting wattage. Simple and complex case designations were made based on total energy used and need for secondary intraoperative procedure. Statistical analyses were performed using SPSS.

**Results:** 21 MCO procedures were included. The median GA at procedure was 19w6d. Primary procedural indications included: sFGR (33.3%), TTTS/TAPS (19%), elective (14.3%), fetal anomaly (19%) and TRAP (14.3%). AR was done in 19% of procedures. Outcomes in low vs high wattage included: co-twin loss: 6.25% vs 20% (p=0.361); GA at delivery: 37w1d vs 35w4d (p=0.153); PPRM rate: 7.14% vs 20% (p=0.421). No significant differences were noted in energy used, burn time, or cycle number. Similarly, complex vs simple case type had no difference in neonatal or maternal outcomes.

**Conclusions:** Starting wattage does not appear associated with maternal or neonatal outcomes, although larger sample sizes may be needed to detect statistically significant differences in outcomes.

[08-085]

## Selective reduction in monochorionic pregnancies with selective fetal growth restriction: systematic review and meta-analysis

Akihiro Hasegawa<sup>1</sup>, Ehsan Rojhani<sup>1</sup>, Claudio V. Schenone<sup>2</sup>, Nikan Zargarzadeh<sup>2</sup>, Ahmed Hashem Fathallah<sup>3</sup>, Faezeh Aghajani<sup>2</sup>, Eyal Krispin<sup>2</sup>, Francesco D'Antonio<sup>4</sup>, Hiba Mustafa<sup>5</sup>, Asma Khalil<sup>6</sup>, Ramen H. Chmait<sup>7</sup>, Alireza A. Shamshirsaz<sup>1</sup>

<sup>1</sup> Division of Fetal Medicine and Therapy, Department of Women's Health, Dell Medical School, The University of Texas at Austin, Austin, TX, USA

<sup>2</sup> Fetal Care and Surgery Center, Boston Children's Hospital, Harvard Medical School, Boston, MA, USA

<sup>3</sup> Faculty of Medicine, Minia University, Minia, Egypt

<sup>4</sup> Center for Fetal Care and High-Risk Pregnancy, Department of Obstetrics and Gynecology, University of Chieti, Chieti, Italy

<sup>5</sup> Division of Maternal-Fetal Medicine, Indiana University School of Medicine, Indianapolis, IN; Fetal Center at Riley Children's and Indiana University Health, Indianapolis, IN, USA

<sup>6</sup> Fetal Medicine Unit, St George's Hospital, St George's Hospital Medical School, London, United Kingdom

<sup>7</sup> Los Angeles Fetal Surgery, Department of Obstetrics and Gynecology, Keck School of Medicine, University of Southern California, Los Angeles, CA, USA

**Objective:** To estimate co-twin intrauterine fetal demise (IUFD), neonatal demise (ND), and gestational age (GA) at delivery following selective reduction (SR) for monochorionic pregnancies complicated by selective fetal growth restriction (sFGR), and compare outcomes by technique.

**Study Design:** We searched major databases through May 2026. We included studies reporting MC pregnancies complicated by sFGR undergoing SR with data on co-twin IUFD or ND and GA at delivery. A random-effect model estimated the pooled means and proportions and corresponding 95% confidence intervals (CI). Outcomes were compared between radiofrequency ablation (RFA) vs. bipolar cord coagulation (BCC).

**Results:** Twenty-two studies (686 pregnancies) were included. The overall rates of co-twin IUFD and co-twin ND were 15% and 4%, and the GA at delivery was 35.4 weeks (95% CI: 34.2-36.6). Co-twin IUFD occurred more frequently after RFA than BCC (20% vs. 9%;  $p=0.02$ ). ND rates were similar between techniques (BCC 5% vs. RFA 3%;  $p=0.42$ ). GA at delivery was lower following BCC than RFA (34.5 weeks vs. 36.8 weeks;  $p=0.052$ ).

**Conclusion:** Following SR for MC pregnancies with sFGR, co-twin IUFD and ND rates were 15% and 4%, respectively. BCC may be associated with lower co-twin IUFD rates and earlier delivery compared with RFA.

[08-086]

## North American Fetal Therapy Network: Obstetric outcomes after selective reduction in complicated monochorionic twin pregnancies

Stephen Paul Emery<sup>1</sup>, William Goodnight<sup>2</sup>

<sup>1</sup>UPMC Magee-Womens Hospital Obstetrics, Gynecology, and Reproductive Sciences

<sup>2</sup>University of North Carolina Obstetrics and Gynecology

**Objective:** To describe obstetric outcomes following selective reduction (SR) in complicated monochorionic (MC) twin pregnancies.

**Methods:** MC twins in the NAFTNet Complicated MC Twin Registry undergoing SR were analyzed by indication, technique, and delivery outcomes using descriptive statistics (percent, median, IQR) and Chi-square/Mann-Whitney U tests.

**Results:** Among 5,227 MC twin pregnancies, 148 (2%) underwent SR. Indications included TTTS (53/4123; 1.3%; 35.8% of SR), sFGR (35/554; 5.9%; 23.6%), TRAP (40/61; 39.6%; 27.0%), discordant anomalies (17/116; 12.8%; 11.5%), and monoamniotic twins (3/75; 3.8%; 2.0%). Radiofrequency ablation (RFA, 79.1%) and bipolar cord coagulation (10.1%) were the most common techniques. RFA was more frequent in TRAP (85%), sFGR (97%), and discordant anomalies (82%), whereas bipolar was more common in monoamniotic twins (66%) ( $p < 0.001$ ). Median gestational age at SR was 19.4 weeks; median delivery occurred at 33.4 weeks. Survival of the co-twin was 89.9%, with no difference between RFA and bipolar cord occlusion (88.6% vs 90.0%,  $p = 0.76$ ; delivery GA 33.9 vs 31.0 weeks,  $p = 0.49$ ).

**Conclusion:** SR is an uncommon intervention in MC twins, most often performed for TRAP. Co-twin survival approaches 90%, though preterm birth remains common.

[08-087]

## **Microwave Ablation for TRAP Sequence: A Three-Arm Comparison with Radiofrequency Ablation and Bipolar Cord Coagulation at a single center**

**Sami Backley<sup>1,2</sup>, Ramesha Papanna<sup>1,2</sup>, Anthony Johnson<sup>1,2</sup>, Felicia LeMoine<sup>1,2</sup>, Jimmy Espinoza<sup>1,2</sup>**

<sup>1</sup> Division of Fetal Intervention Department of Obstetrics, Gynecology and Reproductive Sciences, McGovern Medical School at UTHealth Houston

<sup>2</sup> UTHealth Houston Fetal Institute

With RFA (radio frequency ablation) limited by procurement constraints, MWA (microwave ablation) has emerged as a promising alternative for TRAP sequence. This study compares outcomes across MWA, RFA, and BPC (bipolar cord coagulation) at a single fetal therapy center.

This is a retrospective cohort of RFA (n=26), MWA (n=7), and BPC (n=11) cases. Primary outcomes were live birth rate and pump twin survival to discharge.

Live birth rates were 92%, 100%, and 73% for RFA, MWA, and BPC (p=0.149). Survival to discharge was 100% across all arms. GA at intervention differed significantly (p=0.040); BPC was preferentially used in monoamniotic gestations (36% vs. 0%), reflecting higher-complexity cases. Post-procedural MCA elevation occurred in 38% of RFA cases versus 0% in MWA and 10% in BPC (p=0.064).

Early MWA experience, though preliminary (n=6), demonstrates promising technical efficacy and a favorable hemodynamic profile. MCA elevation following RFA may reflect hemodynamic redistribution after a cardiac flow interruption and merits prospective evaluation. The lower live birth rate in BPC reflects high-risk monoamniotic case selection rather than a modality-specific effect. These data support MWA as a first-line alternative warranting multi-institutional validation.

[08-088]

**TRAP Sequence Treatment at < 15 Weeks Using Interstitial Laser****Nicholas Behrendt<sup>1,2</sup>, Michael Zaretsky<sup>1,2</sup>, Sarkis Derderian<sup>1,3</sup>, Abby Larson<sup>1,3</sup>, Henry Galan<sup>1,2</sup>**<sup>1</sup> Colorado Fetal Care Center Children's Hospital Colorado<sup>2</sup> University of Colorado Department of Obstetrics and Gynecology Maternal-Fetal Medicine<sup>3</sup> University of Colorado Department of Surgery Pediatric Surgery

**Introduction:** TRAP Sequence is an uncommon but significant source of complications in monochorionic gestations. Treatment with RFA or cord coagulation limited to the 2<sup>nd</sup>/3<sup>rd</sup> trimesters improves outcomes but cannot prevent losses in the late 1<sup>st</sup> trimester/early 2<sup>nd</sup> trimester. A newer approach is treatment in this earlier timeframe with interstitial fetal laser (IFL). We present our experience with this innovative approach. **Methods:** All patients with TRAP pregnancies evaluated at our institution since 2018 were reviewed. Data collected are described below.

**Results:** Of 30 cases evaluated, 8 were <15 weeks and 6 were treated (average gestational age 14w1d) with a laser fiber fed through an 18g needle. All treatments showed cessation of blood flow to the acardiac. Acardiac:pump ratio ranged from 30-178%. Average gestational age at delivery was 37w5d (range 33w5d-39w4d). No pump losses were seen post procedure. One case experienced leaking fluid < 7 days post treatment that resolved. No significant complications occurred.

**Conclusions:** In our experience, treatment of late 1<sup>st</sup> trimester/early 2<sup>nd</sup> trimester TRAP Sequence with IFL is technically feasible and associated with good outcomes for the pump fetus. This contributes to prior literature reporting good outcomes with this innovative treatment and highlights the importance of early diagnosis and treatment.

[08-089]

## **Double-Barrel Placental Cord Insertions in Monochorionic-Diamniotic Twins: A Sonographic Finding with Implications for Perinatal Outcomes**

**Timothy Crombleholme**

Connecticut Childrens Medical Center Fetal Care Center

**Introduction:** We previously described double-barreled placenta cord insertion (DBPCI), defined as placental cord insertion sites that are inserted <2 cm apart with a connecting artery to artery anastomosis bypassing the placenta, in the context of MCDA twin gestations complicated by twin-twin transfusion syndrome (TTTS). This study aims to describe the natural history of DBPCI in MCDA gestations to evaluate the risk of adverse fetal outcomes.

**Case Presentations:** We present six cases of MCDA twins DBPCI. We found that 2/6 pregnancies had double demise; 1/6 pregnancies had single demise (41.7% fetal mortality); 1/6 had over-circulation; 1/6 had spontaneous monoamniotic sac; 3/6 had fetal growth restriction, 1/6 had TTTS. Overall DBPCI had complicated outcome in 4/6 pregnancies. Of those who agreed to inpatient management due to DBPCI, 100% survived to delivery.

**Conclusion:** The DBPCI in monochorionic-diamniotic (MCDA) twin gestations have a higher risk for complications, such as twin-twin transfusion syndrome (TTTS), selective fetal growth restriction, overcirculation, and acute intrauterine fetal demise. These six cases highlight the importance of meticulous placental cord insertion assessment. In MCDA gestations, recognition of this cord insertion pattern may improve clinical decision-making, afford an option for increased surveillance and the potential to improve placental outcomes.