

International Fetal Medicine & Surgery Society
Annual Meeting
October 9 - 12, 2017
Detailed Scientific Program

Monday, October 9, 2017

7:45 Welcome and Announcements

Session I: Twins Moderators: Dick Oepkes and Julie Moldenhauer

8:00 Extracellular RNA's in Amniotic Fluid from Twin-Twin Patients: A "Precision Medicine" Approach for Fetal Therapy - *Anita Moon-Grady, MD*

8:10 Preoperative Ultrasound Prediction of Essential Landmarks for Successful Fetoscopic Laser Treatment of Twin-to-Twin Transfusion Syndrome - *Jena Miller, MD*

8:20 Perinatal Outcome and Surgical Complications After Early Fetoscopic Laser Surgery for Twin-to-Twin Transfusion Syndrome Before 17 Weeks of Gestation - *Eleonor Tiblad, MD, PhD*

8:30 Subsequent Fertility, Pregnancy and Gynecological Outcomes After Fetoscopic Laser Therapy for Twin-Twin Transfusion Syndrome - *Jan Deprest, MD, PhD*

8:40 Behavioral Assessment of Patients Undergoing Fetoscopic Laser Surgery (FLS) for Twin-Twin Transfusion Syndrome (TTTS) - *Ramesha Papanna, MD, MPH*

8:50 Prediction of Burn Surface Area of Microwave Ablation in Complicated Monochorionic Multi-Fetal Gestations for Selective Reduction or Treatment of Twin-Reverse Arterial Perfusion Sequence - *Courtney D. Stephenson, DO*

9:00 Fetal Transfusion for Severe Anemia of Survivors of Co Twin/Triplet Demise in Monochorionic Multiples: Lessons Learned - *Bettina Paek, MD*

9:10 Outcome of Bichorionic Twin Pregnancies Complicated By Early Second Trimester Rupture of Membranes in One – *Shlomo Lipitz, MD*

9:20 Discussion

Session II: CDH Moderators: Francois Luks and Jan Deprest

9:30 Prenatal versus Postnatally diagnosed Congenital Diaphragmatic Hernia – Side, Stage, and Outcome - *Carmen Mesas Burgos, MD, PhD*

9:40 Inter-observer Variability of Sonographic Lung are Measurement in CDH Across the North American Fetal Therapy Network (NAFTNet) FETO Consortium - *Greg Ryan M.D.*

9:50 Fetal Left Heart Dimensions in Left Diaphragmatic Hernia: Normal Values - *Anita Moon-Grady, MD*

10:00 BREAK

** Young Investigator

- 10:30 Gallbladder Position in Prenatal Diagnosis and Characterization of Congenital Diaphragmatic Hernia - *Ryne Didier, MD*
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- 10:40 Congenital Diaphragmatic Hernia Sacs: Are There Ultrasound and MR Features That Permit Prenatal Diagnosis and Is Such Differentiation Important? - *Edward Oliver, MD*
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- 10:50 How Effective is Fetal Endoscopic Tracheal Occlusion (FETO) for Severe Isolated Congenital Diaphragmatic Hernia? - *Oluyinka Olutoye, MD*
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- **11:00 Unique Topological Pattern of the Metabolic Landscape in Rabbit Fetal Lungs Following Tracheal Occlusion - *Rony Marwan, MD***
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- 11:10 ****Placenta transfer of sildenafil in the ex-vivo human cotyledon perfusion model - *Francesca Russo, MD***
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- 11:20 ****Synergistic Effect of Maternal Sildenafil and Fetal Tracheal Occlusion Improving Pulmonary Development in the Rabbit Model for Congenital Diaphragmatic Hernia - *Francesca Russo, MD***
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- 11:30 ****Outcome Correlation of Pre- and Postnatal Predictive Factors in Children Born with a Congenital Diaphragmatic Hernia - *Michele Bamgartner, BS***
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- 11:40 ****Perinatal Predictors for Self-Reported Respiratory and Gastrointestinal Outcomes in Children Managed at Fetal Treatment Centers with Isolated Congenital Diaphragmatic Hernia - *Luc Joyeux, MD***
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- 11:50 Discussion

Session III: Cardiac Moderators: Jack Rychik and Anita Moon-Grady

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- 12:10 2017 Update from the International Fetal Cardiac Intervention Registry (IFCIR) - *Anita Moon-Grady, MD*
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- 12:20 Maternal Hyperoxygenation During Fetal Doppler Echocardiography Provides Physiological Insight in Complex Congenital Heart Disease - *Jack Rychik, MD*
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- 12:30 LUNCH
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- 1:30 ****Chronic in Utero Hypoxia Alters Cardiovascular Development in a Fetal Sheep Model - *Kendall Lawrence***
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- 1:40 Early AI Based Screening for 22 Types of CHDs - *Shraga Rottem, MD, PhD*
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- 1:50 Automated Analysis of Fetal Cardiac Function Using Color Tissue Doppler Imaging in the Second Half of Pregnancy – *Peter Lindgren, MD, PhD*
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- 2:00 ****Differential Expression of Extracellular Matrix Related Genes in Adult and Fetal Hearts After Myocardial Infarction - *Maggie Hodges, MD, MPH***
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- 2:10 Prenatal Sirolimus Treatment in a Fetus with Multiple Cardiac Rhabdomyomas – *Angie Jelin, MD*
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- 2:20 Protocol for Prenatal ABO/Rh Genotyping to Allow for Fresh Whole Blood for Cardiopulmonary Bypass in the Immediate Newborn Period – *Karin Blakemore, MD*
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- 2:30 Discussion

** Young Investigator

Session IV: GI Moderators: Oluyinka Olutoye and Steve Emery

2:40	**Gastroschisis Outcomes of Delivery Provider Survey - <i>Ruchi Amin, MD</i>
2:50	**Amniocyte Vacuolization of the Placental Membrane in Association with Gastroschisis - <i>Julie Monteagudo, MD</i>
3:00	Closing Gastroschisis: The Good, Bad, and the Not-So Ugly - <i>Erin Perrone, MD</i>
3:10	Cloacal Malformation Spectrum - <i>Kimberly Dannull, MD</i>
3:20	BREAK
3:50	Accuracy and Impact of Prenatal Diagnosis in Infants with Omphalocele - <i>Carmen Mesas Burgos, MD, PhD</i>
4:00	Scoliosis:- Is Muscle Imbalance the Cause? - <i>Kevin Pringle, MD</i>
4:10	Discussion

Special (Con) Session

4:20	Minimally Invasive Surgical Device for Precise Application of Bioadhesives to Prevent iPPROM - <i>Nicole Ochsenein-Kolble MD</i>
4:30	Cerclage after Open Fetal Surgery - <i>Nicholas Behrendt, MD</i>
4:40	**Evaluating the Contribution of a Fetal Treatment Center at a Single Institution – <i>Sophia Adulhai, MD</i>
4:50	**Using MRI to Plan Delivery in the Fetus with a Complex Neck Mass: A Case Series – <i>Pranav Pandya, MD</i>
5:00	Considerations for Alternative Fetal Anesthesia techniques to Prevent Anesthetic induced Neurocognitive Impairment - <i>Olutoyin Olutoye, MD</i>
5:10	Re-engineering Fetal Monitoring – <i>Mark Evans, MD</i>
5:30	Discussion
5:40	Announcements / Adjourn

** Young Investigator

Tuesday, October 10, 2017

6:30 IFMSS Executive Board Meeting – Aspen Room

7:45 Announcements

Session V: MMC Part I Moderators: Diana Farmer and Scott Adzick

8:00 Fetal Myelomeningocele Repair: Technical Lessons and an Update on the MOMS Trial - *Scott Adzick, MD*

8:10 Fetal Myelomeningocele Repair: Post-MOMS Technical Lessons – *Scott Adzick, MD*

8:20 Regenerative Patch for In-Utero Spina Bifida Repair: Cryopreserved Human Umbilical Cord vs. Acellular Dermal Matrix - *Ramesha Papanna, MD, MPH*

8:30 Arachnoid Layer Thickening in Conventional Repair vs. Cryopreserved Human Umbilical Cord (HUC) Patch Based Repair for In-Utero Spina Bifida without Myelotomy in a Sheep Model - *Ramesha Papanna, MD, MPH*

8:40 ****Intra-amniotic Injection with Microparticles Loaded with Fibroblast Growth Factor Causes Partial Spinal Cord Coverage in Rat Myelomeningocele** - *James Farrelly, MD*

8:50 Inclusion Cysts After Fetal Spina Bifida Repair - *Luca Mazzone, MD*

9:00 Maternal Outcomes Using Expanded BMI Criteria for In Utero MMC Closure - *Julie Moldenhauer, MD*

9:10 Fetal Cardiac Dysfunction During Open Fetal Myelomeningocele Repair: The Post-MOMS Experience – *Elaina Lin, MD*

9:20 ****Placental Mesenchymal Stromal Cells Seeded on Clinical Grade Extracellular Matrix Improves Ambulation in Ovine Myelomeningocele** - *Melissa Vanover, MD*

9:30 Fetal Surgery in Zurich: 7 years of Program, 60 Babies Out, Analysis of 4 Subsequent Groups of 15 Cases Each
Martin Meuli MD

9:40 Magnesium Sulfate Infusion During Fetal Meningomyelocele (MMC) Repair to Reduce the Dose of Inhalational Anesthesia - *Roopali Donepudi, MD*

9:50 Discussion

10:00 BREAK

Session V: MMC Part II Moderators: Martin Mueli and Kelly Bennett

10:30 ****Watertightness is Required for Experimental Fetal Spina Bifida Repair to Reverse Hindbrain Herniation and Improve Neuromotor Function in the Lamb Model** – *Luc Joyeux, MD*

10:40 ****Suture Techniques and Patch Materials for Watertight Closure of Spina Bifida Repair** - *Thai Vu, MS*

10:50 CSF Leak as a Cause of Arnold-Chiari Malformation - *Kevin Pringle, MD*

11:00 Reverse Thermal Gel (RTG): A Potential Candidate For A Bioengineering Minimally Invasive Approach to Close Myelomeningocele in Utero - *Rony Marwan, MD*

11:10 ****Novel 3T Cine EPI Sequence for Evaluation of Lower Extremity Neurological Status in Fetuses with Open Neural Tube Defects (ONTD)** - *Kathryn Henault-Heaphy, MD*

** Young Investigator

11:20 **The Evolving Myelomeningocele Repair: A Model for Real-world Longitudinal Neurodevelopmental Follow-up**
Jonathan Castillo, MD, MPH

11:30 **Open Fetal Spina Bifida Repair for Myeloschisis vs. Myelomeningocele: Does it matter?** - *Ueli Moehrlen, MD*

11:40 ****Primary Closure of Fetal Myelomeningocele (MMC) is Associated with Improved Hindbrain Herniation Compared to Patients Requiring Patch Closure** - *Sarah Hilton, MD*

11:50 ****Spinal Angulation: A Limitation of the Fetal Lamb Model of Myelomeningocele** - *Melissa Vanover, MD*

12:00 **Acute Impact of Fetal Surgery for Myelomeningocele on Placental and Cerebrovascular Circulations** – *Zhiyun Tian, MD*

12:10 **Discussion**

12:20 **LUNCH**

Session VI: Genetics Moderators: Schlomo Lipitz and Mark Evans

1:20 **Trophoblast Isolation from Endocervical Aspirate Using Surface Marker Anti-CD147 Antibody for Non-invasive Prenatal Diagnosis** - *Mahesh Choolani, PhD*

1:30 **Fetal Hydrops and Pancytopenia Secondary to Self-Resolving T cell Lymphopenia Associated with Abnormal T-cell Receptor Excision Circle (TREC) Newborn Screen** - *Deborah Berman, MD*

1:40 ****Prenatal Imaging Throughout Gestation in Beckwith-Wiedemann Syndrome** - *Hester F. Shieh, MD*

1:50 **Do Parental Prenatal Carrier Screening Panels Reflect the Most Common Carrier Frequencies in Newborns? Early Observations of Newborn Genomic Sequencing (GS) from the BABYSEQ Project** - *Richard B. Parad MD*

2:00 **NIPT: A Public Health Disaster** - *Mark Evans MD*

2:10 **Discussion**

Session VII: GU Moderators: Mark Johnson and William Clewell

2:20 **Fetal Urine Biochemical Profile in the Diagnosis of MMIHS** - *Jonathan Rosenblatt, MD*

2:30 **Comparison of Biochemical Analysis of Fetal Serum and Fetal Urine in the Prediction of Postnatal Renal Outcome in Lower Urinary Tract Obstruction** – *Francoise Muller, MD*

2:40 **Fetal Urine Biochemistry in Prediction of Long-term (10-30 years of age) Renal Function in LUTO** - *Francoise Muller, MD*

2:50 **Renal Agensis Fetal Therapy (RAFT) Trial** - *Eric Jelin, MD*

3:00 **Thoracoamniotic Shunt for Fetal Pleural Effusion: A Contemporary Review of Lymphatic Intervention in Neonatal Chylothorax Management** - *Natalie Rintoul, MD*

3:10 **Discussion**

3:20 **Announcements / Adjourn**

** Young Investigator

Wednesday, October 11, 2017

6:45 Editorial Board Meeting for Fetal Diagnosis and Therapy – Aspen Room

7:45 Announcements

Session VIII: Stem Cell and Gene Therapy Moderators: Aimen Shaaban and Alan Flake

8:00 ****Isolation of Myogenic Progenitor Cells from Human Placenta** - *Laura Galganski, MD*

8:10 **Fetal Tissue Engineering with Biomaterials and Placenta-derived Stem Cells to Treat Birth Defects** -
Aijun Wang, PhD

8:20 **Engineering of Early Gestation Placenta-derived Stem Cells for Fetal Treatment of Hemophilia** - *Aijun Wang, PhD*

8:30 ****Fetal Bone Marrow Homing of Donor Mesenchymal Stem Cells after Transamniotic Stem Cell Therapy (TRASCET)** - *Hester F. Shieh, MD*

8:40 ****Donor Mesenchymal Stem Cell Kinetics after Transamniotic Stem Cell Therapy (TRASCET) for Experimental Spina Bifida** - *Hester F. Shieh, MD*

8:50 **Effect of Transplantation Routes on the Efficiency of Human Umbilical Cord Mesenchymal Stem Cells in the Treatment of Streptozotocin-induced Gestational Diabetes Mellitus in Rats** – *Lizhou Sun, MD*

9:00 ****In Utero Depletion of Hematopoietic Stem Cells with Combination C-kit Receptor and CD47 Blockade** - *Russell Witt, MD*

9:10 ****Regulatory T cells Prevent Donor Cell Rejection in a Mouse Model of Delayed Gestational Age In Utero Hematopoietic Cell Transplantation** - *John Riley, BA*

9:20 ****c-Kit Directed Conditioning is an Effective Means of Improving Allogeneic Engraftment After Fetal Hematopoietic Stem Cell Transplantation** – *Patrick McGovern, MD*

9:30 **Human Fetal Neural Stem Cells-An In vitro model for Fetal Neural Development and a Potential Source for Cell Therapy** - *Yiping Fan, PhD*

9:40 Discussion

10:00 BREAK

Session VIII: Stem Cell and Gene Therapy Moderators: Karin Blakemore and Jerry Chan

10:30 **Intrauterine AAV Directed Gene Therapy. Does it work and is it safe?** - *Jerry Chan, MD, PhD*

10:40 ****Tolerance Induction Achieved by In Utero Transplantation of Lineage- c-Kit- Sca-1- Cells** - *John D. Stratigis, MD*

10:50 ****In Utero Injection of Nanoparticle Encapsulated Peptides Prevent Autoimmune Disease** - *John D. Stratigis, MD*

11:00 **In Utero Correction of Hereditary Tyrosinemia Type 1 in Mice Through Liver-Directed Lentiviral Gene Therapy**
Clara Nicolas, MD

11:10 ****Treatment of Mice with Sly Syndrome with in Utero Enzyme Replacement Therapy Improves Survival** -
Russell Witt, MD

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11:20 Post-natal Stem Cell Repair of Spina Bifida in English Bulldogs: A Pilot Study - *Shin Hirose MD*

11:30 Discussion

Session IX: Fetal Diagnosis & Therapy Moderators: Mark Evans and Ken Moise

11:40 Reproductive Outcomes Following Ex-Utero Intrapartum Treatment (EXIT) Procedure - *Julie Moldenhauer, MD*

11:50 Clinical and Developmental Outcomes Following Intra-uterine Transfusion for Hemoglobin Bart's Hydrops Fetalis
Greg Ryan MD

12:00 Development of a New Surgical Energy Technique for Prenatal Hysterotomy - *Erin Perrone, MD*

12:10 Histological Findings in Myometrium and Fetal Membranes After Open Fetal Surgery- Does Healing Take Place?
Nicole Ochsenbein

12:20 ****Monochorionic Diamniotic Twin Gestation Concordant for Myelomeningocele, A Case Report –**
Katie Krepkovich, MS

12:30 LUNCH

1:30 PRESTO as an Alternative to EXIT for the Management of the Prenatally Diagnosed Difficult Airway: A Case Series - *Elaina Lin, MD*

1:40 In utero Fetal Intubation for a Large Neck Mass: A Minimally Invasive Exit Option - *Ramen Chmait, MD*

1:50 Automated Gas Analyzer and Flow Cytometry Performances on Fetal-Maternal Hemorrhage Detection -
Ricardo Barini, MD, PhD

2:00 Fetal MRI Features Which May Suggest Impeding Fetal Demise - *Kimberly Dannull, MD*

2:10 Impact of Intrauterine Transfusion on Fetal Coagulation Physiology – *Stephan Emery, MD*

2:20 Design of Ventriculoamniotic Shunt for Treatment of Fetal Aqueductal Stenosis - *Stephan Emery, MD*

2:30 ****How Physicians Weigh the Social and Ethical Considerations of Maternal-Fetal Surgery - *Ryan Antiel, MD, MS***

2:40 Translating Fetal Interventions from a Research Protocol to the Standard of Care – Ethical Reflections on an Observed Trend - *David Mann, MD*

2:50 Bipolar Illness in Pregnancy; Obstetric Outcomes and Rates of Comorbid Diseases Highlight the Need for Collaborative Care - *Richard Dopp, MD*

3:00 What Can Fetal Therapy Nurses Tell Us? – *Susan Spinner*

3:10 Discussion

3:20 BREAK

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Session X: Prematurity and Placenta Moderators: Mike Harrison and Greg Ryan

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- 3:50 **The Artificial Placenta: Continued Lung Development During Extracorporeal Support in a Preterm Lamb Model**
George B. Mychaliska, MD
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- 4:00 **Effects of an Artificial Placenta on Brain Development and Injury in Premature Lambs -**
George B. Mychaliska, MD
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- 4:10 ****'Brain Sparing' Phenomenon Demonstrated in an Artificial Womb-based Model of Fetal Hypoxia –**
Patrick McGovern, MD
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- 4:20 ****Ventilation Performance after Ex-utero Extracorporeal Support Therapy for Extreme Prematurity -**
Patrick McGovern, MD
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- 4:30 ****Epigenetic analysis of extreme premature lambs supported by the EXTra-uterine Environment for Neonatal Development (EXTEND) - Jennifer Cohen**
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- 4:40 ****Flow Cytometric Analysis of Mitochondrial Membrane Potential in Chronically Hypoxic Fetal Lambs –**
Avery Rossidis, MD
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- 4:50 **Discussion**
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- 5:10 **Announcements/Adjourn**

Thursday, October 12, 2017

** Young Investigator

7:45 Announcements

8:00 IFMSS BUSINESS AND PLANNING MEETING - Aspen Room

9:20 Break

Session XI: Chest Masses Moderators: Mike Harrison and Greg Ryan

10:00 Outcome of fetuses with Congenital Lung Malformation and Associated Intrafetal Fluid Effusions for Fetal Intervention – *Gang Yu, MD*

10:10 Prenatal Findings of Cutis Marmorata Telangiectatica Congenital: An Unusual Etiology of Pleural Effusion
Deborah Berman, MD

10:20 ****Outcome Prediction using CCAM-Volume Ratio (CVR) for Fetuses with Lung Malformations -**
Candace Style, MD

10:30 Surgical Outcomes for Congenital Lung Malformations: Comparison of EXIT-to-Resection vs. Urgent or Elective Postnatal Operations – *Darrell Cass, MD*

10:40 **** Prenatal Growth Characteristics and Pre/postnatal Management of Bronchopulmonary Sequestrations -**
John Riley, BA

10:50 Discussion

Session XII: Tumors Moderators: Ken Lichty and Shin Hirose

11:00 ****Preemptive Delivery for Infants with High-Risk Sacrococcygeal Teratomas -** *Heron Baumgarten, MD, MPH*

11:10 Coagulation of the Vascular Pedicle of the Sacrococcygeal Teratoma - *Nataliya Kosovcova MD*

11:20 Discussion

11:30 Presidents Closing Comments: Karin Blakemore, MD and Alan Flake, MD

11:40 2017 International Fetal Medicine and Surgery Society Meeting Adjourns

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