

Panel Discussion

Panel Discussion01 (I-PD01)

Chair: Tetsuko Ishii (Chiba Childrens Hospital, Japan)

Chair: Ki-Sung Kim (Kanagawa Children's Medical Center, Japan)

Fri. Jul 9, 2021 10:40 AM - 12:10 PM Track2 (Web開催会場)

[I-PD01-1] 【Keynote】 The fetal circulation

○Mike Seed (The Hospital for Sick Children, Canada)

New magnetic resonance imaging has provided a new perspective on human fetal circulatory physiology in health and disease. Using a combination of blood flow and oximetry measurements, we have confirmed the presence of streaming in the human fetal circulation, whereby well oxygenated blood returning from the placenta is preferentially directed to the coronary and cerebral circulations via the ductus venosus and foramen ovale. Disruption of this pathway resulting from the obstructions of blood flow and abnormal cardiac connections that characterize congenital cardiac malformations result in alterations in oxygen transport across the fetal circulation. Subtle placental dysfunction and reduced umbilical perfusion also impact substrate delivery to the developing fetus. These changes are associated with the intra uterine growth restriction and impaired fetal brain growth and development that are typical of newborns with more serious forms of congenital heart disease. Thus, we have observed evidence to suggest that fetal circulatory physiology may affect surgical outcomes and long term neurodevelopment.