TRANSITIONAL HEMODYNAMICS: IS THE FUTURE HERE YET?**I. Seri^{1,2}**¹*Center for Fetal and Neonatal Medicine, Keck School of Medicine, University of Southern California,*²*Institute of Maternal-Fetal Health, Childrens Hospital Los Angeles, Los Angeles, CA, USA*

Assurance of tissue oxygen delivery that matches oxygen demand is the most important yet difficult-to-accomplish goal during the complex process of transition from in-utero to ex-utero life, especially in the very preterm neonate. Our inability to continuously monitor the essential parameters of cardiovascular function such as blood pressure, systemic and organ blood flow and cerebral blood flow autoregulation and flow-metabolism coupling in absolute numbers has led to uncertainty in distinguishing normal from abnormal hemodynamic adaptation. This in turn has resulted in treatment of patients that do not require intervention and observation of those that might benefit from appropriate interventions. In addition, we do not know which patient would benefit from which treatment i.e. from administration of volume or vasopressors, inotropes or lusitropes. Importantly, as we have not been able to characterize the physiology of hemodynamic transition, our interventional trials have been based on unclear and sometimes misguided hypotheses. No wonder there is very little evidence that treatment of neonatal cardiovascular compromise in the transitional period results in improved survival and long-term neurodevelopmental outcomes.

This presentation will discuss the recent advances in our understanding of transitional cardiovascular physiology in the preterm neonate obtained by applying novel technologies and a comprehensive hemodynamic monitoring and data acquisition approach. Only by monitoring blood pressure, cardiac output, organ blood flow and its distribution, vital organ blood flow autoregulation and flow-metabolism coupling can we gain a better insight into the hemodynamics of neonatal transition so that interventional trials can finally be based on hypotheses supported by facts rather than wild guesses.