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| Topics: **Stillbirth** |
| Type: **Thematic Panel** |
| **Prematurity** |
| **Ramirez, Nino**1; **Gauda, Estelle**2; **Wilson, Christopher**3 *1 - CIBR Seattle Children's Hospital. 2 - John Hopkins, Dept of Pediatrics. 3 - Center for Perinatal Biology, Loma Linda University.* |
| Apnea of prematurity and an animal model of the first minutes after birth of stillborn, term and preterm pups.  **Objectives of the session** To present key updates on the topic of apnea of prematurity and an animal model of the first minutes after birth of stillborn, term and preterm pups.  **Content of the session** **1.**       **Apnea of prematurity – the perfect storm** Estelle B. Gauda, MD, Johns Hopkins, Department of Pediatrics, Children’s Center.  **2.**       **From airways to the central nervous system: how inflammation contributes to apnea of prematurity** Christopher G. Wilson PhD, Center for Perinatal Biology, Loma Linda University  **3.**       **The first minutes after birth in stillborn, term and preterm pups: Mechanistic insights gained from an animal model** Jan-Marino Ramirez, PhD, Department of Pediatrics, University of Washington, Seattle Children’s Hospital  **Method and extent of audience participation** Thematic presentation; ten minutes per presenter and time for questions  **Proposed content area and why it is important to participants** **Prematurity and the first breaths of life.**   Birth is associated with the very abrupt and drastic change in the oxygen environment. Every baby is dependent on various mechanisms that reconfigure its cardio-respiratory system in order to adapt to this transition immediately after birth. Dramatic alterations occur in the carotid body, the circulatory system as well as the control of respiratory movements and ventilation. Orchestrating the reconfiguration of cardiorespiratory control is a major challenge even for a term baby, but it becomes problematic in prematurely born infants. This is a major health problem that affects approximately 15 Million infants every year.   In this symposium, **Dr. Ramirez** will discuss the challenges associated with the first deep breaths that need to clear the lungs, avoid atelectasis and that have to transition into normal breathing, and this talk will also discuss the problems associated with cardiorespiratory control in prematurity. Using insights from animal models this talk will highlight how inflammation affects the central nervous system that controls breathing and cardiorespiratory integration in prematurity, and it will also provide insights into stillbirth. **Dr. Gauda** will discuss how the condition of the immature lung, its response to inflammatory mediators combined with immature systems that control breathing lead to chronic intermittent hypoxia that occurs in premature infants. **Dr. Wilson** will describe how inflammation in the lungs lead to a cytokine storm that directly affects the central nervous system control of breathing by altering the neuronal networks controlling respiratory rhythm, the motor outputs that control the upper airways and the areas that integrate sensory information. The talks will combine novel insights gained in animal models and human infants to provide a better understanding of the mechanisms that govern the perinatal control of breathing and their disturbances in prematurity. |
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