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| |  | | --- | | Topics: **SIDS/SUID** | | Type: **Thematic Panel** | | **Physiological aspects of SIDS** | | **Ramirez, Nino**1; **Rubens, Daniel**1; **Fleming, Peter**2; **Cohen, Marta**3, **Marcelo Rivolta4, Daniela Cacciabue-Rivolta4** *1 - CIBR Seattle Children's Hospital. 2 - Bristol University . 3 - Sheffield Children's Hospital, 4-University of Sheffield.* | | **Objectives of the session** To present epidemiological, histopathological and arousal research updates in the field of SIDS  **Content of the session** **1.**       **Epidemiological aspects** Peter Fleming, MD University of Bristol  **2.**       **Implications for disturbances in brainstem functions** Marta Cohen,MD Sheffield Children’s Hospital. Daniela Cacciabue-Rivolta. Marcelo N. Rivolta. Department of Biomedical Sciences, University of Sheffield. Sheffield. UK.  **3.**       **Inner ear disturbances and SIDS** Daniel Rubens, MD University of Washington, Seattle Children’s Hospital  **4.**       **Mechanisms of disturbed arousal in SIDS, and why infants may also die in the supine position.** 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** Sudden Infant Death Syndrome (SIDS) remains the leading cause of infant mortality in Western societies. Combined epidemiological, pathological and neurobiological research has identified important risk factors and potential mechanisms that could explain various aspects of the events leading to SIDS. It is generally agreed that failure to arouse from a hypoxic/hypercarbic challenge is one of the key mechanisms that underlies SIDS. Various factors have been identified that could predispose an infant to a failed arousal. This symposium will describe our current understanding of the epidemiology and neurobiology of SIDS, and the lessons learned could lead to novel strategies that could help to prevent SIDS.  **Dr. Peter Fleming** will provide an overview of current epidemiological studies. His team is conducting a national case-control study of unexpected infant and child deaths in England to investigate the current epidemiological features of such unexpected deaths, to assess the potential value of using the waveform from the newborn OAE hearing test to identify infants at increased risk of such deaths, and to investigate the relationship between any identified difference in the recorded waveforms and in-utero exposure to maternal smoking. If this physiological marker is not strongly associated with maternal smoking it could be used, in conjunction with our identified epidemiological markers at birth, to improve targeting of infants at high risk of SIDS.   **Dr. Marta Cohen** will describe the progress of an undergoing study that is exploring the inner ear of infants with sudden death. The study is combining MRI and CT scans of the temporal bone with anatomical exploration and histopathological analysis of the ear structures using conventional H&E staining and immunofluorescence of inner ear markers of the VIII nerve, such as b-tubulin III. This study aims to detect any gross abnormality that could be concomitant with SIDS, in an effort to elucidate its physio-pathogenesis.   **Dr. Daniel Rubens** will describe how the inner ear research has developed in relation to the goal of developing an accurate method for the early detection of infants at risk for SIDS. Our other major goal is to delineate as precisely as possible, the physiological conditions of the sleeping infant in the lead up to a later critical event. The inner ear appears to be an important piece to the mystery surrounding the mechanism of SIDS but not the only piece. Our research points to the inner ear playing an important role in the integration of infant survival responses during sleep that stem from other regions of the brain and brainstem.Our goal is to research this comprehensively.   **Dr. Nino Ramirez** will provide an overview of the neuronal mechanisms that underlie the response of the central nervous system to hypoxia and hypercapnia. He will describe the neuronal mechanisms that can lead to the failure to adequately respond to a hypoxic and hypercarbic challenge, and could also explain why infants not only die in the prone, but also the supine sleeping position, and how the vestibular system could contribute to SIDS. | |  |  |  |  | | --- | --- | | **CONTACT** | | | Name: | **Daniel** | | Lastname: | **Rubens** | | E-mail: | **daniel.rubens@seattlechildrens.org** | | Country: | **USA - United States of America** | | Institution | **CIBR Seattle Children's Hospital** | | Cellphone: | **+1 206 375 3936** | | City: | **Seattle** | |