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| Topics: **SIDS/SUID** |
| Type: **Oral** |
| **Is the Neuropathology of the Sudden Infant Death Syndrome (SIDS) restricted to the Brainstem?** |
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| **Introduction** Over the past 5 decades, research into the neuropathology of SIDS has focused on the brainstem because of physiological findings suggesting a role for abnormal cardio and respiratory control mechanisms. In our work on the brainstem, we have identified increased apoptosis, increased receptor expression for the neurotransmitters glutamate and serotonin, and increased growth factors and nicotinic receptors1. We are now examining whether these findings extend to other brain regions including the hippocampus, thalamus, hypothalamus, and cortex. The aim of this study is to evaluate the neuropathology of SIDS outside the brain stem. Markers to be studied include apoptosis, the neuropeptides orexin and pituitary adenylate cyclase activating polypeptide (PACAP), and the nicotinic receptors.  **Material and Methods** Brain tissue was obtained from The Department of Forensic Medicine, Glebe, NSW. Two datasets were studied: 1997-2002 and a recently collected one 2008-2012. Immunohistochemistry was performed to identify the studied markers and quantitative analyses performed using microscopic image analyses.  **Results** The hippocampus was found to have increased apoptosis consistent with previous reports from our group2 but no changes for PACAP were evident. The hypothalamus had decreased orexin3 but no change in apoptotic expression. The lateral geniculate nucleus in the thalamus was found to have increased apoptotic expression. Data from the cortex is still outstanding.  **Conclusions** These data support the hypothesis that neuropathology in SIDS infants is spread throughout the brain. Expanding neuropathological studies to other brain regions, will provide better understanding of contributory mechanism(s) leading to the sudden death of an otherwise healthy infant.  Funding: Miranda Belshaw Foundation and The SIDS Stampede. References: 1. Machaalani R and Waters KA. Paediatr Respir Rev. 2014.15(4):293-300. 2. Waters KA, et al., 1992. Pediatr Res. 45, 166-72. 3. Hunt NJ, et al.,2015. Acta Neuropathol. 130(2):185-98. |
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