

Methods for Quantitative Assessment of Thymus Integrity

Researchers at the University of South Florida have invented a process for assessing post-mortem thymus integrity that could aid in quantitatively assessing thymic integrity and/or an infant's or child's death caused by head trauma based on thymic architecture.

About 200,000 people in America die annually due to head trauma. Three thousand babies are diagnosed with shaken baby syndrome each year, out of which 25% die. About sixty percent of diagnosed children experience permanent disabilities while the life expectancy of survivors are considerably shortened. Previous methods for assessing head injury did not include its impact on the thymus.

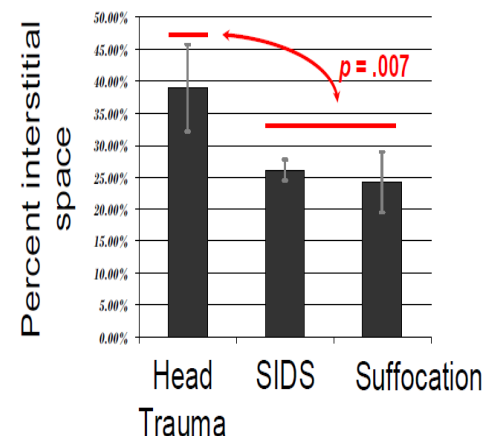
Using a novel quantitative microscopic analysis technique USF researchers examined the thymuses of human infants deceased from brain trauma and observed that these thymuses had disrupted architecture and a significant dissolution of the medullary-cortical border, as compared to infants deceased from suffocation or SIDS. The researchers also discovered that head trauma correlated with an increase in Ki67 staining of thymocytes, which is an indicator that the thymocytes are undergoing DNA replication. The investigators observed that both the serotonin receptor and transporter proteins are expressed almost exclusively in the human thymic medullar.

Compared to previous methods, this invention provides a quantitative and more objective approach to assessing head trauma especially in children. It is also more standardized and definitive.

ADVANTAGES:

- Objective assessment of thymic integrity
- Standardized and definitive technique

Definitive assessment of Thymic Integrity and Head Trauma



Quantification of the interstitial space between thymocytes in human head trauma versus suffocation and SIDS thymuses