Infants with a history of congenital long-gap esophageal atresia undergo complex surgical repair, as well as prolonged post-operative sedation with opioids and benzodiazepines. Such sedation treatment is associated with a high incidence of analgesic tolerance and drug dependence [1]. Immediate effects of such peri- and postoperative care on brain development are unknown.

**METHODS**

Drug Quantification (Fig. 3 and Fig. 4). Infant’s diet was upgraded to acquire high-resolution anatomical T1- (right column) and T2-weighted images (left column) and T2-weighted images (right column) are shown for pre- (A) and post-treatment (B) MRI scans. Post-treatment scan demonstrates bilateral subdural hematoma (white arrows) with visible neomembrane (black arrows).

**RESULTS**

Table 1. Summary of Estimated Volumes for Pre- and Post-treatment Scans Absolute volumes. Over the period of 5 weeks, all absolute volumes increased. Total intracranial space and total cerebral volume increased by 12.7% and 8.4%, respectively, while extra-axial space increased 42.3%. Normalized volumes (% of intracranial space) show decrease in whole brain volume relative to volume of extra-axial space over time (see also graphical representation in Fig. 6).

**CONCLUSIONS**

The incidental finding of subdural hematoma in the absence of neurological symptoms raises immediate concerns regarding current diagnostic surveillance of infants undergoing complex surgical and post-surgical care. Change in head circumference coincided with the period of weaning from sedating medications. Although unclear, etiology implicates factors such as birth, prematurity, exposure to anesthetics, as well as pain and sedation management.

Brain growth continued during the treatment period. Significance of the sudden increase in CSF volume on neurodevelopmental outcomes should be investigated.

Moreover, altered resting-state networks suggest attenuated or deviant functional connectivity development of select networks, with potential implications for long-term neurobehavioral outcomes.

**REFERENCES**


**ACKNOWLEDGMENTS:** Supported by NDA K08DA035072 (DE).