Conclusions Children with syndromic craniosynostosis are at risk of elevated ICP due to a complex interaction of risk factors. The relationship between mild and moderate OSA and elevated ICP is weak, however in individual patients OSA may be the decisive factor. Severe OSA significantly increases the risk of elevated ICP.

Intervention/Hypothermia

PS-149 INITIATION OF THERAPEUTIC HYPOTHERMIA BY REFERRING HOSPITALS DURING NEONATAL TRANSPORT – EXPERIENCE IN VICTORIA, AUSTRALIA

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Background Hypothermia is an effective treatment for moderate-severe hypoxic-ischaemic encephalopathy (HIE) in term newborns. Non-tertiary units (NTUs) may initiate controlled whole-body hypothermia to a target rectal temperature of 33–34°C in consultation with the Newborn Emergency Transport Service (NETS) by removing external heat sources prior to arrival of the NETS team. We aimed to evaluate temperature outcomes during neonatal transport when hypothermia was initiated by the referring NTU.
Method We retrospectively audited NETS records of infants with HIE treated with hypothermia from September 2008–August 2012. Infants in whom hypothermia was initiated by the NTU were compared with those in whom the NETS team started cooling.
Results Demographics of the 123 included infants were comparable between groups. Infants cooled by NTUs began cooling earlier (1.10 vs. 3.25 h after birth, $p < 0.01$) and reached the target temperature (33–34°C) sooner (3.35 vs. 4.54 h, $p < 0.01$) than infants cooled by NETS. There was no difference in time of referral, stabilisation, or arrival at receiving hospital. There was a trend towards more infants cooled by NTUs achieving the target temperature (33–34°C), OR 2.19 (0.96, 4.96). Infants cooled by NTUs were more likely to have temperatures <33°C, OR (95% CI) 5.39 (1.64, 22.83), but had fewer temperatures >37°C, OR (95% CI) 0.25 (0.07, 0.85).
Conclusions Controlled whole body-hypothermia initiated by regional NTUs, with guidance from NETS, allows earlier initiation of cooling, and attains the target 33–34 °C sooner to optimise neuroprotection in newborns with HIE. Clinical practice should focus on avoiding temperatures <33°C and preventing hyperthermia.

PS-150 CAN CEREBELLAR AND BRAINSTEM APPARENT DIFFUSION COEFFICIENT (ADC) VALUES PREDICT NEUROMOTOR OUTCOME IN TERM NEONATES WITH HYPOXIC-ISCHAEMIC ENCEPHALOPATHY (HIE) TREATED WITH HYPOTHERMIA?

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Objective To evaluate apparent diffusion coefficient (ADC), measured in specific infratentorial brain structures in the first weeks of life, as prognostic indicator of neuromotor outcome for HIE neonates both treated and not with whole-body hypothermia (TH).
Methods We retrospectively evaluated 71 MRI studies of term neonates, born between 2010 and 2013 at Boston Children's Hospital. Selected cases were classified into three groups: 1) HIE neonates who underwent TH, 2) HIE normothermics (TN), and 3) controls. The neuromotor outcome was categorised as normal, abnormal and death. The ADCmean was calculated for six infratentorial brain regions.
Results 51 infants were included: 29 HIE TH treated, 11 HIE TN, and 11 controls (mean gestational age of 39.07 weeks; 62% male; 11.7% non-survivors). Mean age at first MRI was 3.6 days (range, 1–14 days). Statistically significant correlation was shown between motor outcome and the ADC mean in the vermis ($p = 0.002$), cerebellar left hemisphere ($p = 0.035$), midbrain ($p = 0.028$), and pons ($p = 0.008$). In patients treated with TH, only in the vermis did ADC mean remained significantly lower than controls ($p = 0.03$). There were significant correlation between infant survival and ADC mean in all ROIs except the pons and medulla.
Conclusions ADC mean values during the first week of life in vermis, cerebellar left hemisphere, midbrain and pons are correlated with the motor outcome in infants with HIE. Therefore, this objective tool could be used to detect particularly severe cases of HIE for assessing prognosis at the first week of life.

PS-151 ALTERED MICRORNA EXPRESSION IN UMBILICAL CORD BLOOD OF INFANTS WITH HYPOXIC ISCHAEMIC ENCEPHALOPATHY

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Background To guide the neuroprotective management of infants with hypoxic ischaemic encephalopathy (HIE), early identification is essential. MicroRNAs are small non-coding RNA molecules with potential for use as biological markers for disease. The aim of this study was to investigate the expression profile of miRNA in umbilical cordblood (UCB) from infants with HIE.
Methods Full term infants with perinatal asphyxia (PA) were identified by a cord pH <7.1 and/or five minute Apgar score ≤ 6 and/or requirement for intubation/CPR at birth. Degree of encephalopathy was defined using both continuous multichannel-EEG in the first24 hours, and modified Sarnat score. In total, 70 infants, 52 cases (32 PA without HIE, 20 with HIE) and 18 controls, were included in the study. miRNA was extracted from UCB and the expression profiles of 866 miRNAs were determined using a microarray assay. Significant findings (fold change > ± 1.3) were validated using quantitative RT-PCR (qRT-PCR).
Results On microarray 70 miRNAs were differentially expressed between the HIE and the control group. Of these hsa-miR-374a was the most significantly downregulated in HIE vs controls ($p < 0.001$). Validation of expression using qRT-PCR confirmed a significant reduction in expression among HIE vs. perinatal asphyxia vs. controls (mean RQ (SD) = 0.5215 (0.374) vs 1.1022(1.521) vs 1.755 (1.689), $p < 0.02$).
Conclusion To our knowledge, this is the first study to describe the miRNA profile present in umbilical cord blood following