Background Hypoxic Ischaemic Encephalopathy (HIE) remains a significant cause of neonatal death and long term disability. Heart rate variability (HRV) may help identify the presence and severity of encephalopathy. Our aim was to analyse HRV features in full-term neonates with HIE and assess its ability to grade severity of HIE and predict neurodevelopmental outcome at 2-years of age.
Methods This was a retrospective study of healthy full-term neonates and full-term neonates with HIE. All neonates had multichannel EEG and ECG monitoring from as soon as possible after birth. EEGs were graded at 12, 24, and 48 h (mild, moderate, severe) and 1 h epochs of EEG and ECG data were extracted. Features of HRV were calculated from ECG recordings in each epoch. A comparison of HRV features between HIE and healthy groups and within HIE groups (mild/moderate/severe) was performed. The ability of HRV features to predict neurodevelopmental outcome at 2-years of age was also assessed.
Results 44 neonates with HIE and 17 healthy controls were included. Measures of HRV were significantly negatively correlated with EEG grade of HIE severity. HRV was significantly reduced between mild and moderate HIE groups. EEG grade of HIE measured at 12, 24, and 24 h after birth has a strong positive predictive value and reduced HRV at 24 and 48 h has a strong negative predictive value for 2 year neurodevelopmental outcome.
Conclusion HRV features significantly correlate with the grade of HIE severity and may be useful for the prediction of long term outcome.

PO-0462 CEREBELLAR HAEMORRHAGE IN THE PRETERM INFANTS IN A UNIVERSITY REGIONAL TERTIARY NEONATAL UNIT: ULTRASONOGRAPHIC AND CLINICAL RISK FACTORS

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Background Cerebellar haemorrhages (CBH) are increasingly recognised in extremely preterm infants with advances in early ultrasound neuroimaging. Information on incidences, risk factors, mortality and neurodevelopmental sequelae remains limited.
Aim To investigate the incidence of cerebellar haemorrhage in preterm infants diagnosed by ultrasound and identify risk factors and outcomes in a Tertiary Neonatal Intensive Care Unit.
Methods Preterm infants with cerebellar haemorrhage over 5 years (January 2009 to December 2013) were identified from a systematic electronic radiological database. Cases of cerebellar haemorrhage were diagnosed by cranial-ultrasound using the mastoid window and detailed medical record reviews were done.
Results A total of 13 cases were identified to have cerebellar haemorrhages (2641 infants <35 weeks were born during the study period). The gestation ranged from 23 to 28 weeks and birth weight ranged from 500 to 1940 grams. Isolated Cerebellar haemorrhages were seen in 4 cases (30%) with a preponderance of right sided haemorrhages (55%) and associated supra-tentorial lesions in 9 cases (70%). Analysis identified early postnatal haemodynamic risk factors. Neonatal mortality was significantly high amongst cases with combined cerebellar and supra-tentorial haemorrhage.
Conclusion In our study cerebellar haemorrhages is predominantly seen in the extreme preterm infants. It is associated with high mortality and predictors of risk factors appear to be multifactorial and include early postnatal haemodynamic factors. Early diagnosis and developmental follow-up help to identify infants with highest risk of developing long-term neurodevelopmental sequelae.

Abstract PO-0462 Table 1 Early postnatal risk factors and mortality rates associated with cerebellar haemorrhages

Age at diagnosis	Day 1 to 14
Chorioamnionitis	4/13 (30%)
RDS	13/13 (100%)
Hypotension/PDA	9/13 (69%)
Anaemia	8/13 (61%)
Thrombocytopenia	5/13 (38%)
IVH and CBH	9/13 (69%)
Early Mortality	7/13 (53%)

PO-0463 LOW INCIDENCE OF NEUROSENSORIAL DEAFNESS IN INFANTS TREATED WITH HYPOTHERMIA FOR NEONATAL HYPOXIC-ISCHAEMIC ENCEPHALOPATHY CAN BE RELATED TO AVOIDANCE OF OTOTOXIC ANTIBIOTICS

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Background and aims Hypoxic-ischaemic encephalopathy is a risk factor for neurosensorial deafness. Incidences up to 10% were described by some groups. Hypothermia can alter drug metabolism leading to increased risk of toxic levels. We aim to evaluate the incidence and identify risk factors for deafness in our patients.
Methods We studied all infants treated with hypothermia at our NICU in a 4-year period (2010–2013). Demographic and clinical data, including drug use and hearing screening result, were collected from our prospectively collected database. Hearing follow-up of children now over 24 months was also collected.
Results 50/59 newborns treated survived (66% male, mean GA 39 weeks, mean BW 3121 g, median Apgar scores 2/4/5, 84% ventilated >4 days, 54% inotropes, 6% >2 anticonvulsants, 64% furosemide). Initial antibiotherapy was ampicilin+cefotaxime in 96%, vancomycin was used in 12% for late sepsis (toxic levels in 1/6 patients). Auditory evoked-potentials performed in 92%, acoustic otoemissions performed in 4%, no hearing screening test on 4%. Only 2 failed on hearing screening, one died and the other is being evaluated. On follow-up of 17 patients at 2 years, 16 have normal hearing and 1 is being treated for hearing loss due to glue ear.
Conclusions Despite potential risk factors on our patients, the occurrence of deafness was rare. Our protocol that avoids the use of gentamicin as first line antibiotic therapy can explain the important difference in incidence when compared to other studies. When their use is unavoidable, close monitoring of ototoxic drug levels should be performed.

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