**PS-155** COMPARISON OF CLINICAL AND ELECTROPHYSIOLOGICAL SIGNS OF ENCEPHALOPATHY IN NEONATES WITH PERINATAL ASPHYXIA QUALIFYING FOR HYPOThERMIA

**Background and aims** Early prediction of neurodevelopmental outcome following hypoxic-ischaemic encephalopathy remains a challenge. The aim of this retrospective study was to evaluate the aEEG background patterns and Thompson score on admission in asphyxiated neonates receiving hypothermia regarding outcome and neonatal variables.

**Methods** After excluding congenital malformations and muscle paralysis, 89 neonates (January 2008 to June 2012) were included (GA: 39.7 ± 1.8 wks; BW: 3304 ± 640 g). On admission the Thompson score and aEEG were recorded. aEEG was scored as Continuous Normal Voltage (CNV), Discontinuous Normal Voltage (DNV), Burst-Suppression (BS), Continuous Low Voltage (CLV) or Flat Trace (FT). The combination of one or more of the following events (a): death, cerebral palsy, and Griffiths DQ less than 85 at 18 months were considered an adverse outcome. ANOVA, correlation, and binary logistic regression analyses were performed.

**Results** Thompson scores (in mean ± sd) were associated with aEEG pattern (CNV: 8.3 ± 1.7; DNV: 8.9 ± 1.9; BS: 11.6 ± 3.6; CLV: 12.0 ± 2.1; FT: 13.1 ± 3.2; p < 0.001). Also, both Thompson score and aEEG were recorded. aEEG was scored as Continuous Normal Voltage (CNV), Discontinuous Normal Voltage (DNV), Burst-Suppression (BS), Continuous Low Voltage (CLV) or Flat Trace (FT). The combination of one or more of the following event (a): death, cerebral palsy, and Griffiths DQ less than 85 at 18 months were considered an adverse outcome. ANOVA, correlation, and binary logistic regression analyses were performed.

**Conclusions** Both Thompson scores and aEEG are associated with outcome in neonates receiving hypothermia for perinatal asphyxia and with 1 min Apgar scores. Further studies are needed to identify which method is preferable for selection of neonates for hypothermia.

**PS-156** ASSESSMENT OF MYOCARDIAL FUNCTION IN INFANTS RECEIVING THERAPEUTIC HYPOThERMIA USING TISSUE DOPPLER IMAGING

**Introduction** Hypoxic ischaemic encephalopathy (HIE) may lead to cardiovascular dysfunction in newborn infants and conventional echocardiographic measures such as fractional shortening (FS) and left ventricular output (LVO) may not accurately detect cardiac dysfunction in these patients.

**Objective** To evaluate cardiac dysfunction in HIE using tissue Doppler imaging (TDI).

**Methods** 20 infants born at ≥36 w gestation with HIE requiring therapeutic hypothermia (TH) were examined with serial conventional echocardiography and TDI on days 1, 2, 3 and after re-warming. Structural integrity of the heart was confirmed before obtaining measures of myocardial function (peak systolic (S'), early (E') and late diastolic (A') velocities, myocardial performance index (MPI) [using TDI], and FS and LVO). Measurements were also obtained from 10 healthy term infants as controls. Ethical approval and written parental consent were obtained.

**Results** Median gestation and birth weights of infants with HIE vs. controls was 39.6 w vs. 40 w and 3110 g vs. 3170 g. On days 1, 2, 3 all myocardial velocities (MV), except left ventricular A' on day 3, were significantly lower (<0.05) and MPI was significantly higher (p < 0.05) in the HIE group. After re-warming all MVs and MPIs were similar between the two groups. FS and LVO were similar between both groups on all days, except LVO on day 1 which was significantly lower in HIE infants (p < 0.05).

**Conclusions** TDI, compared to FS and LVO, may be better at detecting myocardial dysfunction in this group of babies and hence improve management of cardiac dysfunction.

**REFERENCES**