neuroprotective agent. The aim of this study was to explore the neuroprotective properties of CBD after hypoxia ischemia in newborn piglets.

**Materials and method**

54 anaesthetised piglets (age 12–36 h) were randomised to either undergo global hypoxia (n = 48) until the base excess reached -20 mmol/L or the mean arterial blood pressure dropped below 20 mm Hg or to the SHAM group (n = 6). After hypoxia piglets were randomised to the different study groups: Hypoxia+CBD (1 mg/kg) (n = 12), Hypoxia+CBD(1 mg/kg)+hypothermia (n = 12), hypoxia (n = 12) or hypoxia+hypothermia (n = 12). 9.5 h after end of hypoxia the piglets were euthanized and samples from hippocampus were snap frozen in liquid nitrogen. Levels of lactate (lac), n-acetylasparte (NAA) and glutamate (glu) were measured by proton-magnetic-resonance-spectroscopy (H-MRS)- and ratios predictive of neurodevelopmental outcome after hypoxic-ischaemic encephalopathy in newborns were calculated (lac/NAA and glu/NAA). Outliers > 2.5 SD away from mean were removed before analysis.

**Results**

Hypoxia significantly increased both Lac/NAA and Glu/NAA ratios. Hypothermia groups were comparable to SHAM while there were no significant effects of CBD on these MRS biomarkers. The difference in the way of inducing and the severity of hypoxia-ischaemia in our model might explain this lack of effect compared to previously published studies.

**Discussion**

Hypoxia significantly increased both Lac/NAA and Glu/NAA ratios. Hypothermia groups were comparable to SHAM while there were no significant effects of CBD on these MRS biomarkers. The difference in the way of inducing and the severity of hypoxia-ischemia in our model might explain this lack of effect compared to previously published studies.
Pre-BT ACA peak systolic (0.37 m/s) and mean velocity (0.19 m/s) decreased significantly post-BT (0.32 and 0.16 respectively; p < 0.01). There was no significant change in RI (p = 0.57) and PI (p = 0.53) in the ACA and SVC flow (p = 0.16) post-BT.

The cerebral HbO2 decreased significantly (mean difference 12.53 µM; p < 0.001) post-BT. The pre-BT mean cerebral tissue oxygenation index (TOI) (66.5%) increased significantly post-BT (73.6%; p < 0.001).

**Conclusion** The cerebral blood flow velocity decreased but there was no change in SVC flow volume; cerebral tissue oxygenation improved following BT during the 2nd to 4th week of life in preterm infants.

**REFERENCE**
1 Banerjee J et al. PAS conference May 2014

**PO-0486 CEREBRAL HAEMODYNAMIC RESPONSE TO BLOOD TRANSFUSION VARIES WITH CHRONOLOGICAL AGE IN PRETERM INFANTS**

**Background and aims** We have shown that cerebral blood flow decreases following blood transfusion (BT) in extreme preterm infants during the first week of life.1

**Aim** To investigate the cerebral blood flow changes following BT in relation to the chronological age of preterm infants.

**Methods** Preterm infants who received BT during the first 10 weeks of life were included. Pre and post-BT Anterior Cerebral Artery (ACA) mean velocity, resistance index (RI) and pulsatility index (PI), and Superior Vena Cava (SVC) flow were measured using Doppler USS. Pre and post BT measurements were compared by paired t-test using SPSS 22.0.

**Results** 59 BT events were studied, 20 received BT during 1st week (Group 1), 21 during the 2nd to 4th week (Group 2) and 18 during >4th week (Group 3) of age. The median age (range) at BT was 5 (1–7), 14 (8–27) and 45 (29–68) days for group 1, 2 and 3 respectively. In all 3 groups the pre-BT ACA mean velocity decreased significantly post-BT (p < 0.03) and there was no significant change in RI and PI in the ACA. The pre-BT mean SVC flow decreased significantly post-BT in Group 1 and Group 3 (p = 0.03 and <0.001 respectively), but this was not significant in the Group 2 infants (p = 0.16).

**Conclusion** The effect of BT on cerebral haemodynamics was more prominent during the first week and after 4th week of age in preterm infants.

**REFERENCE**
1 Banerjee J et al. PAS Conference May 2014

**PO-0487 CONSTRAINING THE NEED FOR LIGATING A SIGNIFICANT PATENT DUCTUS ARTERIOSUS AFTER IBUPROFEN THERAPY IN PRETERMS. A RETROSPECTIVE ANALYSIS FROM 10/2009–12/2013**

**Background and aim** The need for ligation of a patent ductus arteriosus with a haemodynamically significant left to right shunt (hPDA) on echocardiography remains controversial. Aim was to determine echocardiographic and clinical differences of preterms with hPDA after ibuprofen therapy who underwent ligation and those who had no further intervention.

**Methods** Echocardiographic and clinical parameters of preterms with hPDA (< 30 weeks of gestation) were retrieved for the “ligation group” before surgical ligation and for the “non-ligation group” after the last ibuprofen cycle. Recruitment criteria for hPDA were an enddiastolic maximal velocity of the left pulmonary artery (LPAdia) ≥ 0.2 m/s and/or a ratio of the left atrium/aorta (LA/Ao-ratio) ≥ 1.4. Preterms who died before ligation/ductal closure were excluded.

**Results** In 53 of 461 preterms a hPDA was still present after ibuprofen. Thirty-nine preterms were included to the “ligation-group”, 14 to the “non-ligation group”. Significant differences were detected for diastolic and systolic blood pressure, LPAdia, LA/Ao-ratio, stroke volume, backward flow in the aorta abdominals and the period until total enteral nutrition. Further differences were detected in airway support, hPDA flow patterns, gestational age, intraventricular haemorrhage and necrotising enterocolitis before and after ductal closure.

**Conclusions** The hPDA of the “ligation-group” was haemodynamically more relevant and preterms were more morbid than in the “non-ligation group”. The observed differences reflect our policy of constraining the need for ligating a hPDA on echocardiography to selective ligation subject to both the severity of echocardiographic findings and the hPDA’s clinical impact.

**REFERENCE**
1 Banerjee J et al. PAS conference May 2014

**PO-0488 NON-INVASIVE HAEMODYNAMIC MONITORING USING ELECTRICAL CARDIOMETRY IN NEONATES DURING RESPIRATORY PROCEDURES**

**Background** Electrical cardiometry (EC: Osypka Medical, Berlin, Germany and La Jolla, California, USA) is a new non-invasive technique for haemodynamic monitoring of neonates. No data are available for preterm babies during respiratory procedures, such as elective extubation or chest physiotherapy. We designed this study to clarify if these procedures have any haemodynamic consequences.

**REFERENCE**
1 Banerjee J et al. PAS conference May 2014

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**Conclusions** The hPDA of the “ligation-group” was haemodynamically more relevant and preterms were more morbid than in the “non-ligation group”. The observed differences reflect our policy of constraining the need for ligating a hPDA on echocardiography to selective ligation subject to both the severity of echocardiographic findings and the hPDA’s clinical impact.

**REFERENCE**
1 Banerjee J et al. PAS conference May 2014