extraction (FTOE) 24 h after birth in infants have reported to be associated with adverse outcomes. Near-infraredtime-resolved spectroscopy (TRS) device enables the simultaneous assessment of quantitative hemodynamics, and absolute values of (rSO_2) and cerebral bloodvolume (CBV). The purpose of our study was to determine the usefulness of both rSO_2 and CBV measured by TRS in infants with asphyxia after birth.

Methods Twenty-six infants with asphyxia (Apgar score < 7 at 1 min after birth) were divided into 2 groups: those with hypoxic-ischaemic encephalopathy (HIE; HIE group, n = 5) and those without hypoxic-ischaemic encephalopathy (non-HIE group, n = 21). rSO_2 and FTOE were measured by TRS at 12, 24, 48, and 72 h after birth.

Results rSO_2 was significantly higher and FTOE was significantly lower in the HIE group (n = 5) than in the non-HIE group (n = 21) at 12, 24, 48, and 72 h after birth. CBV was significantly higher in the HIE group (n = 5) than in the non-HIE (n = 21) from 3–6 h after birth through all measurement time points.

Conclusions Changes in CBV occurred earlier than those in rSO_2. Thus, CBV may be an early predictive parameterfor adverse outcomes in infants with asphyxia after birth.

PO-0404 3D SURFACE IMAGING OF HEAD SHAPE AND HEAD DEFORMITIES IN HEALTHY NEWBORNS – A CROSS-SECTONAL STUDY

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Background and aims Congenital cranial asymmetry is a precursor for the development of head deformities. However, early changes are often subtle and can be overlooked. Surface imaging improves detection of postnatal head deformities. The purposes of the present study were 1) to determine normative values of head shape at birth with a 3D laser system and 2) to identify potential risk-factors for congenital head shape abnormalities.

Methods In a cross-sectional study design healthy neonates born in a university hospital between 2/2013 and 3/2014 were scanned between 12 and 72 h after birth with a non-invasive laser scanner (STARScanner™). Normative values of established indices (Cranial Index - CI; Cranial Vault Asymmetry Index - CVAI) were computed. Infants with cranial asymmetry were analysed for pre- and perinatal risk factors.

Results Scans of 1095 newborns (m557, f538; 3373 ± 477g) were analysed. 1) Normative values of cranial measures and indices were calculated and are presented. 2) Cranial asymmetry was due to Cephalohematoma or Caput succedaneum in 4.5% of infants. In remaining infants it was not related to multiple birth, gender, gestational age, birth-presentation or delivery mode.

Conclusions The present study provides normative cranial data from 3D surface scans in a cohort of healthy newborns in the first 72 h of life. This allows a precise classification of head shape and an improved identification of abnormalities. In contrast to previous investigations, head asymmetry was not associated with any prenatal and perinatal factors. Long term consequences of congenital head shape abnormalities need to be further investigated in longitudinal studies.

PO-0405 ERYTHROPOIETIN CONCURRENT WITH HYPOTHERMIA FOR NEONATAL HYPOXIC ISCHAEMIC ENCEPHALOPATHY

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Background Hypothermia (HT) within the first six hours of life provides neuroprotection in newborns with hypoxic ischaemic encephalopathy (HIE). Erythropoietin (EPO) has been found to enhance erythropoiesis and exert anti-inflammatory, immunomodulatory, antiapoptotic and neuroprotective effects.

Aim To evaluate the efficacy and safety of EPO therapy in neonates with HIE.

Methods 15 newborns with HIE displaying no congenital malformations of life-threatening pathologies, received treatment with HT(n = 3), EPO (n = 3) or HT+EPO (n = 9). Once informed consent had been obtained, rhEPO was iniciated subcutaneously in the first 24 h of life at a dose rate of 400 UI/k/q48h/2weeks.

Results Baseline clinical data for the three study group are shown in figure1. No intergroup differences were recorded for incidence of clinical and electrical seizures over the first 24 h. Neurological examination at 12 months revealed a reduction in death rates and in severe disability rates (p = 0,021). Brain damage biomarkers level were lower. No complications were recorded following treatment with rhEPO. Data were analysed using the ChiSquare test for qualitative variables and the kruskal-Wallis test for quantitative variables; the level of significance was set at $p < 0.05$.

Conclusions Hypothermia has been demonstrated the only therapeutic option against brain damage in newborns with HIE but rhEPO is an effective, safe, affordable cytokine with potential neuroprotective effects. It could be used in combination with HT for treating HIE. Further research are required to define the optimum treatment in these patients.

Abstract PO-0405 Table 1 Baseline characteristics of enrolled infants

	GROUPS TREATMENT			
	HT(n=3)	EPO (n=3)	HT+EPO (n=9)	*P*
Gender (M/F)	2/1	0/3	6/3	0.117
GA (weeks)	39.33±1.52	36.66±4.93	39.66±1.22	0.192
Birth weight (g)	3722.33±329.5	2333.33±784.60	3243.11±308.50	0.005*
Apgar score (1 min)	2	1	2	0.816
(5 min)	3	2.66	3.66	0.606
(10 min)	5	5.33	5.22	0.937
pH acid	6.88±0.10	6.80±0.00	6.86±0.17	0.466
Base déficit	22.67±3.51	22.63±1.09	17.78±8.99	0.490
Lactate acid (mmol/L)	17.40±3.12	18.30±2.94	16.75±4.22	0.834
Delivery mode (V/C)	0/3	0/3	1/8	0.700
Sentinel event (%)	100	100	100	1
Sarnat grade (II/III)	½	3/0	5/4	0.745
Glucose (mg/dL)	79±	64±	151±	0.220
T° (°C)	35.8±	36.2±	34.1±	0.044*

PO-0406 THE CONTRIBUTION OF PROTHROMBOTIC DISORDERS TO PERINATAL ARTERIAL ISCHAEMIC STROKE (PAIS): A STUDY OF CASE-CONTROL PARENT-CHILD PAIRS

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