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

S. Ilfanieker, W. Burhardt, D. Konstantelos, M. Rüdiger. Department of Neonatology and Pediatric Intensive Care, Medizinische Fakultät Carl Gustav Carus an der TU Dresden, Dresden, Germany

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 (557, 538; 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 HYPOXY ISCHAEMIC ENCEPHALOPATHY

T. Valera, M. Carrete Vargués, M. Ruiz Gonzalez, G. Guzman Caballeros, J. Jaraba Concepción, M. Huerta Muñoz, M. Rodriguez Benitez, M. Ordoñez, M. de la Camara, M. Porraga Quiles, R. Carrete Estrada. Pediatrics: Hospital Reina Sofía/IMIBIC, Hospital Reina Sofia/IMIBIC, Córdoba, Spain; IMIBIC, Group PAIDI CTS-329, IMIBIC, Córdoba, Spain

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 initiated subcutaneously in the first 24 h of life at a dose rate of 400 UI/kg/q48h/q2weeks.

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.