Background and aims Hypoxic-ischaemic (H-I) brain injury in the human perinatal period often leads to significant long-term neurobehavioral dysfunction in the cognitive and sensory-motor domains. The aim of the present study investigated that effect neuroprotective of different dosages of pentoxifylline in neonatal rat model of HIE.

Methods H/I was performed according to the Levine-Rice model on postnatal seven-day-old. Wistar rat pups were randomly divided into four groups as: sham-operated group (n = 17), H/I (n = 16), H/I and intraperitoneal Pentoxifylline 60 mg/kg-treated group (n = 17) and H/I and intraperitoneal Pentoxifylline 100 mg/kg-treated group (n = 17). Twenty-three rat pups, twenty-four hours after hypoxia, the animals were killed for histopathological evaluation to detect apoptosis by caspase-3 immunohistochemistry method. The other rat pups were grown to 11 weeks. The synaptic plasticity and cognitive function of rats were evaluated using long term potentiation (LTP) and Morris water maze (MWM) test on D77–D82, respectively.

Results Pentoxifylline 60 mg/kg two doses treatment decreased the number of caspase-3 positive cells that showed the typical morphological features of apoptosis in only hippocampus (p=0.05) but, total numbers of degenerative cell significantly diminished.

Conclusions Low dose pentoxifylline treatment is protective against both brain injury and memory impairment and synaptic plasticity.

PO-0401 IL-6 POLYMORPHISM AT POSITION-174 IN NEWBORN INFANTS WITH PERINATAL ARTERIAL ISCHAEMIC STROKE: ASSOCIATION WITH ADVERSE OUTCOME

1KC Harteman, 2HDM Willemen, 3CI Heynen, 4A Huixman, 4U Bont, 5FG Van Bel, 6MINL Benders, 7LS van Vries, 8G Groenendaal. Neonatology, Wilhelmina Children’s Hospital, Utrecht, Netherlands; 9Laboratory of Neuroimmunology and Developmental Origins of Disease, University Medical Center Utrecht, Utrecht, Netherlands; 10Clinical Chemistry and Haematology, University Medical Center Utrecht, Utrecht, Netherlands; 11Paediatric Infectious Disease, Wilhelmina Children’s Hospital, Utrecht, Netherlands

Background Inflammation has been proposed as a hallmark in the pathophysiology of stroke. A functional polymorphism in the interleukin (IL)-6 gene at position-174, encoding for the pro-inflammatory cytokine IL-6, is associated with an increased risk of neonatal brain injury or development of cerebral palsy. The aim was to study whether the IL-6-174 C/G polymorphism increased the risk of perinatal arterial ischaemic stroke (PAIS) or subsequent adverse sequelae.

Methods Infants born at or above 37 weeks gestation with PAIS diagnosed by neonatal MRI (n = 63) were included. Genotyping of the IL-6-174 G/C polymorphism was performed and compared to 1008 random population controls. Perinatal variables of case infants were reviewed.

Results There were no differences in IL-6-174 genotype between infants with PAIS and population controls. In a multi-variable analysis, independent risk factors for adverse outcome after PAIS in a middle cerebral artery territory included CG genotype (OR 5.9; 95% CI 1.02–33.9) and male sex (OR 4.2; 95% CI 1.04–17.2).

Conclusion The distribution of the IL-6-174 C >G promoter polymorphism did not differ between infants with PAIS and population controls and therefore do not seem to play a role in stroke risk. However, the IL-6-174 GC genotype was more common among infants who had an adverse outcome following PAIS in the middle cerebral artery territory, suggesting that the level of inflammation does play a role in outcome after PAIS. This may be relevant for neuroprotective strategies.
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 analyzed for pre- and perinatal risk factors.

Results Scans of 1095 newborns (m 557, f 538; 3373 ± 477g) were analyzed. 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 perinatal and perinatal factors. Long term consequences of congenital head shape abnormalities need to be further investigated in longitudinal studies.