**Background** Diagnosis of perinatal hypoxic-ischemic encephalopathy (HIE) and early prediction neurological outcome is important and difficult. The aim of this study is to determine the value of neuron specific enolase (NSE) and lactate dehydrogenase (LDH) analysis in blood serum (BS) and cerebrospinal fluid (CSF) for evaluating severity HIE and predicting long term outcome in neonates with perinatal asphyxia.

**Method** 90 neonates (>32 weeks gestation) with perinatal HIE were enrolled prospectively. Perinatal HIE was categorised into three stages according Sarnat and Sarnat clinical scoring system and changes seen on amplitude integrated electroencephalography. NSE and LDH analysis in BS and CSF were taken during first 48h of age. Neurodevelopment outcome was assessed at 12 months of corrected gestational age using Denver Developmental Screening Test.

**Results** Concentrations of NSE and LDH in CSF were significantly higher in neonates with advanced stage of HIE and corresponded well with subsequent neurodevelopment outcome (p<0.01). Concentrations of LDH in BS were significantly higher in neonates with advanced stage of HIE and corresponded well with MODS (p<0.01) and subsequent neurodevelopment outcome (p<0.01) while concentrations of NSE in BS were no significantly higher in neonates with advanced stage of HIE (p>0.5).

**Conclusions** NSE and LDH analysis in CSF are accurate diagnostic tool for assessing extension of hypoxic-ischemic brain damage and early identification neonates with perinatal HIE who are at high risk of developmental delay. LDH analysis in BS also might offer an inexpensive, safe and simple prognostic tests for evaluating neonates with perinatal HIE.

**Introduction** Ambroxol hydrochloride (drug Lazolvan) inherent anti-inflammatory and antioxidant effects that may have an impact onreducing the frequency and severity of intraventricular hemorrhage (IVH).

**Purpose** Installing the clinical efficacy of intravenous slow (15 min)administration of the drug Lazolvan (single dose 7.5 mg twice a day from the first days of life for 7 days).

**Methods** In retrospective case-control study included 50 infants with gestational age less than 35 weeks. The main group (n=78) received Lazolvan, control group not received. Before the beginning of the study formed the group did not differ among themselves on basic clinical and demographic indicators. Statistically significant group differ among themselves RDS third degree by the core group of children – 27.8% vs 6.26%; p=0.08. Clinical efficacy of the drug Lazolvan determined in terms of relative risk (RR) of IVH an indicator of patient who need to treat (NNT).

**Results** The relative risk of IVH in the main group 2.7 times less compared with the control group. At 2.17 times more often in terms of relative risk of IVH second degree occurred in the control group children. The treatment of 6.25 premature infants prevents a case of IVH. Newborn core group of perhaps less treated in the intensive care unit, respectively (days) 12.88±3.07 vs 9.07±3.73; p=0.0003

**Conclusions** The positive results from the use of Lazolvan in the complex treatmet of premature infants with risk of IVH prove its clinical effectiveness and extend its use.
Background and Aims Shaken Baby Syndrome (SBS) is a severe form of child abuse caused by violent shaking leading to severe head injuries, causing mild-severe long-term disabilities and death. The study aims to explore medium/long-term consequences of SBS comparing children undergoing neurosurgery with hematoma evacuation/cranioplasty with those with hematoma evacuation or no surgery.

Methods A cohort of 21 children with SBS, admitted to Pediatric Department/Padova Hospital (2003–2011), was followed-up. Each clinical record was reviewed collecting information on onset, acute course, ophthalmologic examinations, neuroimaging, treatment and procedures, family history and social background. Cases were followed-up at 3, 6 and 12 months after trauma, every year. The assessment included fundus evaluation and visual function, neuro-radiological exams (MRI).

Results 21 cases were reviewed (M:F=2:1.1), 12 foreigners, 9 italians. Mean age at onset: 5.7 months (range 1.2–18). Mean age at last follow-up evaluation: 30.4 months (range 5–82). Mean follow-up duration: 24.6 months (range 1–73.5). In acute phase 8/19 underwent neurosurgical intervention and 1/21 underwent eye surgery. 20/21 showed retinal hemorrhages, 21/21 cerebral hemorrhages, 11/21 cerebellar hemorrhages, 5/10 spinal subdural hematoma, 4/21 skull fractures, 6/21 other body region fractures. At last follow-up evaluation resulted: 2/21 hemiplegia, 1/21 paraplegia, 1/21 tetraplegia, 2/21 cortical visual impairment, 3/21 visual field deficits, 4/21 strabismus. 10/21 underwent cognitive and behavioural assessment demonstrating in 6 cases global delay and in 4 cases delay in specific functions (locomotor, eye and hand coordination, performance scale). Surgical procedure’s video will be shown.

Conclusions SBS may influence child development and therapeutic surgical approach seems crucial.

Impact of warmed inhaled gas from the mechanical ventilator on esophageal temperature during whole body hypothermia for hypoxic-ischemic encephalopathy

During whole body cooling (WBC), the core temperature is monitored with either an esophageal or a rectal probe. Most infants are usually on mechanical ventilation while receiving hypothermia. As the temperature in the esophagus responds rapidly to changes in the ambient temperature, inhalation of warmed gas from ventilator during hypothermia may lead to overestimation of ventilated patients’ actual temperature, causing automated cooling devices to overcool patients well below set temperature targets.

Objective We determined if the esophageal temperature recordings during therapeutic WBC differ between ventilated and non-ventilated infants.

Methods Twenty-two consecutively cooled infants had simultaneous esophageal and rectal temperatures recorded every 4 hours during 72 hours of WBC. The later was deemed to be actual core temperature. Other clinical monitoring and treatment during hypothermia were as per established protocol.

Results Fourteen infants received mechanical ventilation throughout cooling. The remaining 8 infants were on ventilator initially but got extubated and were not on ventilator during 32 to 72 hours section of WBC. Esophageal temperatures were significantly higher than simultaneous rectal temperatures (p≤0.01 at each time point) for all 22 infants. However, the esophageal temperatures across every 4 hour time points during 32 to 72 hours section of WBC did not differ between the ventilated (n=14), and non-ventilated (n=8) infants. The magnitude (median, IQR) of the difference between esophageal and rectal temperatures were also similar between the 2 groups.