

infants are managed on single medication for an average duration of 8 months.

Hypoxic-Ischemic Encephalopathy Biomarkers

PS-107 A RATING SCALE (RS) FOR EARLY AND ACCURATE EVALUATION OF THE SEVERITY OF HYPOXIC-ISCHAEMIC ENCEPHALOPATHY (HIE)

¹A Garcia-Alix, ²M Girabent, ³A Alarcon, ³G Arca-Diaz, ⁴C Vega, ⁴J Amaez. ¹Neonatology, Agrupacio Sanitaria Hospital Sant Joan de Déu-Hospital Clinic, Barcelona, Spain; ²Estadística, Universidad Internacional de Cataluña, Barcelona, Spain; ³Neonatology, Agrupacio Sanitaria Hospital Sant Joan de Déu-Hospital Clinic, Barcelona, Spain; ⁴Neonatology, Hospital Universitario Burgos, Burgos, Spain

10.1136/archdischild-2014-307384.402

Background Clinical RS for HIE are intended to determine trial entry and to compare groups within or between trials. Categorical current schemes do not reflect the broad clinical continuum spectrum of HIE and they were not design for this task.

Objective To prospectively validate a new structured multi-item RS for HIE.

Methods A standardised structured ordinal RS for HIE with 7 clinical items (alertness, spontaneous motor activity, motor response elicited by stimuli, posture, myotatic reflexes, breathing and clinical seizures) and two aEEG items (background and electric seizures), scored by an asymmetric scale (0–8, with higher scores indicating more severe dysfunction) was designed.

The RS was scored in 75 term infants; 47 infants with HIE and in 28 control healthy infants by two blinded examiners within the first 8 h of life. Stages of HIE were established on the basis of our previous qualitative scheme.

Results There were no differences between both cohorts regarding gestational age, weight, and age at evaluation. The Intra-Class Correlation Coefficient of the RS was 0.969 in the group of HIE group and 0.930 in the control group. The Internal consistency (Cronbach's alpha) was 0.897.

The ROC curves depicted that RS distinguished between HIE and control subjects (cut-off 3.5; AUC 0.89) and more importantly between the different stages of HIE: mild compared to moderate HIE (cut-off 7; AUC 0.981) and moderate compared to severe HIE (cut-off 30; AUC 0.920).

Conclusions Our RS for HIE appears to be valid, reliable and sensitive to reflect the severity of HIE.

PS-108 URINARY BIOMARKERS MAY HELP PREDICT OUTCOME IN NEONATAL ENCEPHALOPATHY

¹DU Sweetman, ¹C Onwuneme, ²V Donoghue, ³R Segurado, ⁴R Watson, ¹EJ Molloy. ¹Neonatology, National Maternity Hospital, Dublin, Ireland; ²Radiology, National Maternity Hospital, Dublin, Ireland; ³Biostatistics - CSTAR School of Public Health and Population Science, University College Dublin, Dublin, Ireland; ⁴School of Medicine and Medical Sciences, University College Dublin, Dublin, Ireland

10.1136/archdischild-2014-307384.403

Background Following a perinatal hypoxic-ischaemic insult, term infants are at risk of multi-organ injury including AKI. Infants with NE experience up-regulation of urinary cytokines which may reflect severity of brain injury.

Objective To investigate the association between novel urinary biomarkers and outcome in a group of term infants with NE compared to controls.

Methods Levels of urinary biomarkers [Albumin, B2M, Cystatin-C, EGF, NGAL, Osteopontin, Uromodulin] were serially measured over day 1–11 in a group of term newborns with NE and controls. These values were compared to grade of encephalopathy defined by Sarnat score.

Results Ten control and 82 cases had urine samples collected (Grade 0 NE = 7, Grade I NE = 22, Grade II NE = 42, Grade III NE = 11). Thirty-nine infants underwent TH, 4 infants died. Control infants had significantly lower B2M on day 1, NGAL on day 1–2 and significantly higher urinary EGF on day 2–3 and Uromodulin on day 3, compared with cases (p-values)

Conclusion Infants with NE have elevated urinary biomarkers compared to controls. Abnormal grade of encephalopathy is best predicted by day 2 urinary Cystatin-C and day 3 NGAL. Urinary biomarkers may have a role in long term outcome prediction following NE.

PS-109 B-LINES IN LUNG ULTRASOUND IN NEWBORNS: COMPARISON WITH STATIC LUNG COMPLIANCE

¹L Martelius, ²L Süvari, ²T Kirjavainen, ²S Andersson. ¹Children's Hospital, Helsinki Medical Imaging Center/Helsinki University Central Hospital, Helsinki, Finland; ²Children's Hospital, Helsinki University Central Hospital, Helsinki, Finland

10.1136/archdischild-2014-307384.404

Background and aims Vertical artefacts (B-lines) in lung ultrasound have been shown to correlate with lung liquid. In neonates the abundance of B-lines decreases after birth reflecting the decrease in the liquid content of the lungs. Static lung compliance, a sign of the elasticity of the lungs, improves after birth. Our aim was to study the correlation between static lung compliance and lung ultrasound in neonates.

Methods 24 healthy term infants were studied. Static lung compliance was measured by the double occlusion technique at the age of 0–4 h during silent sleep and regular respiration. Lung ultrasound was performed immediately after the compliance measurement. B-lines in ultrasound from six designated areas on the chest were scored on a 5-step scale to yield the US score.

Results Static lung compliance correlated significantly (p = 0.043, Pearson Correlation) with the abundance of B-lines in ultrasound.

Conclusion Our result supports the utility of lung ultrasound in estimating lung liquid.

PS-110 DOES AMPLITUDE-INTEGRATED ELECTROENCEPHALOGRAPHY (AEEG) MONITORING ADD DIAGNOSTIC VALUE IN ASPHYXIATED NEONATES IN A NON-NICU SETTING?

¹J Smal, ²M Diender, ¹C Walhof, ¹J Wesseling. ¹Paediatrics, Rijnstate Hospital, Arnhem, Netherlands; ²Paediatrics, Radboud University Medical Center, Nijmegen, Netherlands

10.1136/archdischild-2014-307384.405

Background and aims Asphyxiated neonates are at risk for developing hypoxic ischaemic encephalopathy and seizures. Although conventional electroencephalography (cEEG) is the standard method to detect subclinical seizures and encephalopathy, aEEG is a validated bedside screening tool used in routine clinical practice in many NICUs.