0-12). One infant received exchange transfusion, blood group immunization was diagnosed in only one infant (AB0). Prenatal steroids caused lower TsB ($p=0.003$) while initial acidosis increased TsB ($p=0.015$). Increased TsB was also associated with development of persistent ductus arteriosus ($p=0.03$), the degree of intraventricular hemorrhage ($p=0.015$), death ($p=0.025$), and possible neurologic sequelae at discharge ($p=0.02$).

Conclusions: Significant hyperbilirubinemia is common in extremely premature infants in spite of treatment. TsB seems to be associated with both prenatal and neonatal conditions as well as final outcome. Blood group immunization seems to be significantly underdiagnosed in these infants.

344

PRONGS OR MASK FOR NASAL CONTINUOUS POSITIVE AIRWAYS PRESSURE IN PRETERM INFANTS (THE POM TRIAL): A RANDOMISED TRIAL

E.A. Kieran¹, E.J. Molloy^{1,2}, A.R. Twomey¹, J.F. Murphy¹, C.P. O'Donnell^{1,2,3}

¹Neonatology, National Maternity Hospital, Holles St, ²The Children's Research Centre, Our Lady's Children's Hospital, Crumlin, ³School of Medicine and Medical Science, University College Dublin, Dublin, Ireland

Background: Preterm infants frequently receive support with nasal continuous positive airways pressure (NCPAP) via nasal prongs or a nasal mask. While both prongs and masks may cause trauma to the nose, it is not clear which is more effective.

Objective: To compare the effectiveness of NCPAP given via prongs and mask to preterm infants. We hypothesise that the use of prongs compared to masks will reduce the rate of intubation and ventilation within 72 hours of starting NCPAP.

Methods: Infants < 30 weeks gestation receiving NCPAP with the Infant Flow Driver or SiPAP system (Viasys, USA) are randomised to either prongs or mask. Infants are block randomised stratified for gestational age (< 28 weeks, 28-30 weeks); and according to whether NCPAP was started as a primary treatment for respiratory distress or post-extubation. Infants are intubated and ventilated if they reach pre-determined criteria for respiratory failure (2 or more of worsening distress; $FiO_2 > 0.4$; $pH < 7.2$; $PaCO_2 > 9$ kPa; recurrent apnoea) < 72 hours after commencing NCPAP. All other aspects

of treatment are the same between the groups. Relevant secondary outcomes are recorded.

Results: Since enrolment began (02/08/2009) 64 infants have been recruited and had the primary outcome determined. We expect that the primary outcome will be determinable for the total sample (120 infants) by early October 2010.

Conclusion: This randomised controlled trial will provide valuable information about the optimal interface to use when giving NCPAP to preterm infants.

345

COMPARISON OF CEREBRAL TISSUE OXYGENATION INDEX AND CARDIAC OUTPUT IN INFANTS WITH BIRTH WEIGHT LESS THAN 1250 GRAMS

J. Sirc^{1,2}, E.M. Dempsey^{3,4}, J. Miletin^{1,2}

¹Department of Paediatric and Newborn Medicine, Coombe Women and Infants University Hospital, Dublin, Ireland, ²Neonatal Intensive Care Unit, Institute for the Care of Mother and Child, Prague, Czech Republic, ³Department of Neonatology, Cork University Maternity Hospital, ⁴Department of Paediatrics and Child Health, University College Cork, Cork, Ireland

Background and Aims:

(1) To correlate cerebral tissue oxygenation index (cTOI) and cardiac output measurements in infants with birth weight less than 1250 g during first 48 hours of life

(2) To correlate these measurements with clinical parameters

Methods: A prospective observational study. Newborns with birth weight < 1250g were eligible for enrolment. Superior vena cava (SVC) flow, right and left ventricular outputs were measured. Patent ductus arteriosus was assessed and cTOI was measured. All measurements were done at 6, 12, 24 and 48 hours of age. Various clinical parameters (including mean blood pressure, mean airway pressure, pH, pO_2 , pCO_2 , O_2 saturations) were also recorded.

Results: 10 neonates were enrolled following parental consent. The mean birth weight was 767 g ($SD \pm 184$), mean gestational age was 25.3 weeks ($SD \pm 1.4$). Mean SVC flow at 6 hours of age was

59.6 ml/kg/min and increased to 76.2 ml/kg/min at 48 hours of age. Mean cTOI was 64.9% at 6 hours of age, 63.3% at 12 hours of age, 67.5% at 24 hours of age and 67.7% at 48 hours of age. Mean cerebral fractional tissue oxygen extraction (cFTOE) did not change significantly and was 0.28, 0.31, 0.28 and 0.27 at 6, 12, 24 and 48 hours respectively. There was no significant correlation between SVC flow and cTOI.

Conclusion: Superior vena cava flow increased during first 48 hours of life. There was a slight increase in cTOI and no change in cFTOE. This may reflect increased cerebral metabolism during the first 48 hrs.

346

NEONATAL TREATMENT TOXICITY ON DAY 7 AND THROUGHOUT THE FIRST MONTH OF LIFE

R. Vieux^{1,2,3}, J. Fresson⁴, F. Guillemin^{2,3}, J.-M. Hascoet¹

¹Department of Neonatology, Maternité Regionale Universitaire, Nancy Cedex, ²CIC-EC CIE6, INSERM Nancy, ³EA 4360 APEMAC, Nancy University, ⁴Biostatistics Department, Maternité Regionale Universitaire, Nancy, France

Background and aims: Preterm infants are at high risk of drug-induced acute kidney injury. We aimed to determine the impact on GFR during the first month of life, of the drugs prescribed shortly after birth in the Neonatal Intensive Care Units

Methods: multicenter study nested in a cohort of 27-31 weeks GA infants. Infants parted into two groups: "Low GFR": GFR day7 < median GFR for GA; "High GFR": GFR day7 ≥ median GFR for GA. GFR was measured weekly for one month and analyzed with a logistic regression model and an ANOVA with repeated measures (drug and time effects throughout the first month).

Results: 269 infants included. Nephrotoxic drugs prescribed before day7 were mainly aminoglycosides, glycopeptides, and Cox-inhibitors. Cox-inhibitors were far the most nephrotoxic drugs, and GFR remained low for the first month of life after Cox-inhibitor administration. Even high plasmatic levels of aminoglycosides or of glycopeptides did not reach the nephrotoxic effect of Cox-inhibitors:

	"Low GFR" (n=183)	"High GFR" (n=86)	p
Cox inhibitors	55 (30.0%)	15 (17.4%)	0.03
Aminoglycosides >2 days	48 (26.2%)	26 (30.2%)	0.49
High serum level of aminoglycosides	28 (15.3%)	9 (10.5%)	0.28
Glycopeptides >2 days	18 (9.8%)	10 (11.6%)	0.65
Cox inhibitors + aminoglycosides	11 (6.0%)	4 (4.7%)	0.65
Cox inhibitors + glycopeptides	11 (6.0%)	3 (3.5%)	0.38

[Nephrotoxicity and GFR group]

Conclusion: If GFR day7 < median reference value, and infants have received ibuprofen, blood levels of other potentially nephrotoxic drugs should be closely monitored.

347

BRAIN TISSUE OXYGENATION IN VERY LOW BIRTH WEIGHT INFANTS (VLBW) IMMEDIATELY AFTER DELIVERY DURING RESUSCITATION USING SUSTAINED INFLATIONS

H. Fuchs, W. Lindner, A. Leiprecht, T. Trischberger, H. Hummler

Children's Hospital, University of Ulm, Ulm, Germany

Background: Near-Infrared Spectroscopy (NIRS) has been used to study cerebral oxygenation during various conditions in the NICU. However, essentially no information is available on brain tissue oxygenation in VLBWI immediately after delivery.

Objective: To study the timely relationship of brain tissue oxygenation (StO₂) as measured by NIRS in VLBWI immediately after delivery.

Methods: A Foresight laser diode NIRS device was attached to the head of 14 VLBWI (GA 28.2 ± 3.1 wks, BW 907 ± 301 g) immediately after delivery. Preductal arterial oxygenation (SpO₂) was measured using pulse oxymetry and infants were exposed to CPAP 5 cmH₂O, an initial FiO₂ = 0.40 and a sustained inflation (15 s) with a pressure of 20 cmH₂O. Depending on the response of the heart rate and SpO₂ a second inflation with 25 cmH₂O and a third inflation with 30 cmH₂O was allowed. FiO₂ was adjusted according to pulse oximetry