Neonatal General

PS-192

NEONATAL TRANSFUSIONS IN NEW SOUTH WALES, AUSTRALIA: A POPULATION BASED STUDY

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Background Previous reports of transfusion practices in neonates have focused predominantly on premature neonates admitted to neonatal intensive care units (NICU). Population data on neonatal transfusions is limited.

Methods This study used linked population-based data from New South Wales (NSW) birth and hospital discharge data to determine rates of blood and blood product transfusion in the first 28 days of life. The study included all livebirths of at least 23 weeks gestation in NSW between 2001 and 2011, providing data on one-third of all Australian births.

Results Of 989491 livebirths, 6436 received a blood product transfusion (6.5 per 1000 births). 56% were born ≤ 32 weeks gestation ($n = 3594$, 272/1000 births) and 44% were >32 weeks gestation ($n = 2842$, 2.9/1000 births). 8% received transfusions in a hospital without a neonatal or paediatric ICU.

The rate of transfusions of blood and blood products in neonates increased between 2001 and 2011 (5.7/1000 to 7.0/1000, $p < 0.001$).

High transfusion rates were seen in neonates with a prior in-utero transfusion (667/1000), congenital anomaly requiring surgery (437/1000) or haemolytic disorder (132/1000). 48% received red cells alone, 29% received red cells plus other blood products and 24% received other blood products without red cells.

Conclusions High rates of transfusions are seen in preterm neonates and in those undergoing surgery or with haemolytic disorders. Rates of neonatal transfusion increased in NSW between 2001 and 2011, primarily due to reported increased use of plasma and gamma globulin.

PS-193

QUANTITATIVE CRANIAL ULTRASOUND (CRUS) ANALYSIS IN RELATION TO OUTCOME AT 2 YEARS OF AGE IN PRETERM INFANTS

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Introduction CrUS is an important prognostic variable in prematurity, although with some limitations. Quantitative CrUS techniques might have the potential to overcome some of those limitations.

Objectives To investigate whether a semi-quantitative method of CrUS analysis correlated with developmental outcome at 2 years in a cohort of preterm infants, and to compare this method with clinical variables and CrUS qualitative evaluation.

Methods Cohort of 88 <33 weeks gestational aged (GA) infants underwent several CrUS scans from birth to term. This last scan was analysed using a quantitative texture method (LBR),

Abstract PS-193 Table 1

	AUC	Significance	Sensitivity	Specificity
Cognitive	0.81	0.005	0.62	0.85
Motor	0.68	0.064	0.40	0.80
Language	0.68	0.021	0.50	0.83
NDI	0.65	0.044	0.35	0.76

Abstract PS-193 Figure 1

eventually obtaining 3 Quantitative Scores (QS). Outcome variables included abnormal Bayley Scales of Infant Development (3rd edition): Motor, Cognitive, and Language composite scores ($<1SD$); and Any Developmental Impairment (any abnormal previous result or a vision or hearing impairment).

Results Mean GA was 29,0 (SD 2,2). Hearing and vision deficits were present in 3 patients. Abnormal scores occurred 9.1% in cognitive, 11.4% motor, 18.2% language and 23.9% NDI. QS significantly correlated to all outcome variables (p values: cognitive = 0.003, motor = 0.011, language = 0.015, NDI = 0.036). ROC analysis is shown in table. When clinical information and CrUS abnormalities were added in logistic regression analysis, QS added significant information (R2 Nagelkerke) in all but motor outcome (Figure).

Conclusions Quantitative analysis of CrUS may add significant information to standard qualitative evaluation with regards to outcome at 2 years in preterm infants.

PS-194

THE EFFICACY OF NON-NUTRITIVE SUCKING AND SUCROSE FOR THE RELIEF OF PAIN DURING EYE EXAMINATIONS FOR RETINOPATHY OF PREMATURITY: A RANDOMISED CONTROLLED TRIAL

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Background and aims Screening of eyes is necessary in infants at risk of retinopathy of prematurity (ROP). Although local anaesthetic drops are administered before eye examination, most infants are highly scored on validated pain scores such as the Premature Infant Pain Profile (PIPP) during examination. We aimed to determine the efficacy of oral sucrose combined with non-nutritive sucking (NNS) for reducing pain during eye examination.

Methods This was a randomised, controlled study of infants for ROP screening. All infants enrolled in the study met the criteria

for ROP screening on the basis of birth weight and/ or gestational age. Only the first screening examination for each baby was considered. Premature babies, were randomised to one of three interventions before their screening examination: group 1 (n = 27) received 24% sucrose oral, group 2 (n = 27) received 24% sucrose with pacifier, group 3 (n = 27) received sterile water with pacifier. Pain responses were scored by using the PIPP.

Results A total of 81 infants (42 males and 39 females) were enrolled in the study. The mean birth weight was 1280 ± 316 g, gestational age was 28.7 ± 2.1 weeks and corrected gestational age at examination was 34.2 ± 2.9 weeks. The mean PIPP scores in group 1, 2, and 3 were 16.7, 11.4 and 15.1, respectively. Sucrose with pacifier (group 2) had a significantly lower mean PIPP score than group 1 and 3 (p 0.014; 0.021, respectively).

Conclusions Sucrose combined with NNS and NNS itself reduce pain scores during screening examinations for ROP.

PS-195 SUCROSE VERSUS BREASTFEEDING FOR VENIPUNCTURE IN TERM INFANTS. A RANDOMISED, PROSPECTIVE, CONTROLLED STUDY WITH ANALYSIS OF THE SPECIFIC CORTICAL RESPONSE

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Background and aims Sucrose and breast milk during painful procedures are reported to decrease pain behavioural expression in neonates. Recent data showed a persistent cortical pain response while using the sucrose during a painful procedure.

To compare the efficacy of sucrose versus breast milk for specific-pain brain activity relief during a painful procedure in neonates.

Methods Randomised, prospective, controlled study. Each term newborn was randomly assigned to sucrose or breastfeeding group at day 3 during a systematic venipuncture. Change in the total haemoglobin concentration in the contralateral somatosensory cortex (Near Infra-red Spectroscopy, NIRS) was assessed 10 seconds before and after the venipuncture. Neonatal Facial Coding System (NFCS) was assessed 2 min before and at the time of the venipuncture. Groups were compared using Wilcoxon test for the variations in NIRS and Chi-square test for the NFCS scores.

Results 113 newborns were included (sucrose: 56, breastfeeding: 57) with a mean (sd) of 39.3 weeks (0.9) for gestational age and 3370 g (478) for birth weight. 103 were analysed for the NIRS (sucrose: 55, breastfeeding: 48). Median (quartiles) of total haemoglobin concentration change was -8.5 $\mu\text{mol/L}$ (-34.5; 12.5) for sucrose group and 12.3 $\mu\text{mol/L}$ (-23.4; 39.3) for breastfeeding group with no statistical difference (p = 0.06). NFCS scores were significantly different with 46.8% with a painful score in the breastfeeding versus 26.8% in the sucrose (p = 0.03).

Conclusions No difference were found between sucrose and breastfeeding on specific-pain brain activity during a venipuncture in term newborns. A discordance was revealed between NFCS scores and NIRS analysis.

PS-196 WITHDRAWN

PS-197 A RANDOMISED TRIAL OF ESTIMATING UMBILICAL CATHETER INSERTION DEPTH IN NEWBORNS USING BIRTH WEIGHT OR SURFACE MEASUREMENTS (ISRCTN17864069)

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Background Incorrect umbilical venous and arterial catheter (UAC and UVCs) tip position is associated with increased rate of complications.

Objective To determine whether using birth-weight (BW), rather than body surface measurement (M), to estimate ID of UVC and UACs results in more correctly placed catheters.

Methods Newborns undergoing UVC and/or UAC insertion were randomised to have ID estimated using BW [UVC: $\text{cm} = (\text{BW} \times 1.5) + 5$; UAC: $\text{cm} = (\text{BW} \times 3) + 9$] or using shoulder to umbilicus measurement (M). The primary outcome was correct catheter tip position on X-ray (UVC T9–T10; UAC T6–T10).

Results We enrolled 101 newborns. UVC insertion was successful in 97 (96%). There was no difference in correctly placed UVCs between groups (Table). UAC insertion was attempted in 87 infants and was successful in 62 (71%). More infants in the W group had a catheter tip in the correct position (Table). We found no differences in secondary outcomes.

Abstract PS-197 Table 1

UVC	Weight (N = 53)	Weight (N = 53)
T9-T10 [#] n (%)	16/51 (31)	13/46 (28)
Too high (<T9) [#]	11/51 (22)	5/46 (11)
Too low (>T10) [#]	10/51 (20)	20/46 (43)
UAC	Weight (N = 46)	Measure (N = 41)
T6-T10 [#]	29/32 (91)	15/30 (50)
Too high (<T6) [#]	3/32 (9)	0/30 (0)
Too low (<T10) [#]	0/32 (0)	15/30 (50)

Conclusions UVCs often cannot be advanced to the estimated ID or are in the portal venous system on X-ray. Estimating UVC ID using BW did not result in more correctly placed UVCs. When successful, estimating UAC ID using BW results in more correctly placed catheters.

PS-198 TOPICAL GLYCERYL TRINITRATE OINTMENT TO AID UMBILICAL ARTERY CANNULATION IN NEONATES

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Background and aims Umbilical artery cannulation is a common neonatal procedure that is often challenging because umbilical arteries constrict after birth. We aimed to determine whether the topical application of a vasodilating ointment prior to cannulation increases success and decreases the time taken to cannulate.

Methods Discarded umbilical cords were collected immediately after delivery and two 3 cm sections proximal to the baby were used for the study. 0.1mL topical Glyceryl Trinitrate (GTN) ointment (0.2% w/w) was applied to the surface of one section for 5 min prior to cannulation, whereas the second section acted as the control. After ointment removal, medical staff blinded to intervention attempted to cannulate one artery in each section.