RDS was treated with mechanical ventilation. The MDA was higher at the neonates with the above circumstances. On the first day of life the MDA value was higher than on third day at the control. Also the MDA was significantly higher on the study group than at the control.

Conclusion The RDS at preterm is a significant risk factor for oxidative stress. The association of other diseases to RDS will increase the oxidative stress.

PO-0748 NORMALISED TIDAL VOLUMES DURING HIGH FREQUENCY OSCILLATORY VENTILATION WITH THE VN-500 VENTILATOR

[1]J Mazela, [1]A Gradzka-Luczewska, [2]S Korzan, [2]J Stachnik, [3]L Kramer, [1]J Gadzinowski, [4]M Keszler. *[1]Neonatology, Poznan University of Medical Sciences, Poznan, Poland; [2]Neonatal Research Club, Poznan University of Medical Sciences, Poznan, Poland; [3]Computer Science and Statistics, Poznan University of Medical Sciences, Poznan, Poland; [4]Women and Infant Hospital, Brown University, Providence, USA*

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Introduction The Babylog VN500 ventilator (Draeger, Lubeck, Germany) in High frequency oscillation mode (HFOV) has the ability to control tidal volume (VThf) using a Volume Guarantee function. However, appropriate VThf values during this mode of ventilation has not been established.

Aim The aim of this study was to establish normative data for VThf/kg during HFOV and explore its correlation with FiO_2, day of life (DOL), gestational age (GA) and frequency (Freq).

Methods Newborns admitted to the level III NICU from January 2012 till September 2013 treated with VN-500 in HFOV mode according to strict clinical protocol were included. Indications for HFOV were: PCO_2 > 65 on two consecutive blood gases and RR > 60. Blood gases with corresponding vent settings, time, patient's weight and clinical diagnosis, were prospectively recorded. Measured VThf values were included only when PCO_2 was in the 'normocapneic range' of 40–55 torr. Univariate analysis for FiO_2, DOL, GA and Freq as well as Spearman's rank correlation coefficient was done.

Results 37 patients were treated with rescue HFOV; BW = 875.9 g ± 163.7 and GA = 26.4 ± 1.4 (mean ± SD). 201 of 425 sets of blood gases met normocapnic criteria. The PCO_2 was 46.5 ± 3.7 mmHg and VThf/kg 2.00 ± 0.59 mL/kg (mean ± SD). Correlation with GA, DOL, FiO_2 and Freq are shown in the Table (*p < 0.05 in univariate correlation).

Conclusions The mean VThf during normocapnia on HFOV is 2 mL/kg but its value is affected by GA, DOL, FiO_2 and Freq.

Abstract PO-0748 Table 1

Multivariate corr.	VThf/kg	VThf/kg	Spearman R	p
GA (wks): <26 and >26	2.02	1.97	0,162081	0.022
DOL: <10 and >10	1.94	2.15*	0,225533	0.001
FiO_2: <0.50 and >0.50	1.94	2.74*	0,306555	0.000
Freq (Hz): 13 and 15	2.37	1.91*	-0,216868	0.002

PO-0749 CPAP FAILURE IN VERY PRETERM INFANTS IN EUROPEAN REGIONS WITH DIFFERENT RESPIRATORY MANAGEMENT STRATEGIES: RESULTS FROM THE EPICE COHORT

[1]J Mazela, [2]M Bonet, [2]A Piedvache, [3]O Pryds, [4]P Truffert, [5]PH Jarreau. [2]J. Zeitlin and the EPICE Research Group.*[1]Neonatology, Poznan University of Medical Sciences, Poznan, Poland; [2]Epidemiological Research Unit on Perinatal and Women's and Children's Health U953, Inserm, Paris, France; [3]Neonatology, Hvidorve University Hospital, Copenhagen, Denmark; [4]Medicine Neonatale, Hôpital Jeanne de Flandre, Lille, France; [5]Medicine Neonatale, Hôpital Cochin-Port Royal, Paris, France*

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Background Many very preterm infants managed on early nasal continuous positive airway pressure (nCPAP) subsequently require intubation and ventilation and may suffer the consequences of delayed surfactant administration. We investigated risk factors for early nCPAP failure in European regions with diverse approaches to respiratory support.

Methods The EPICE cohort included all births between 22+0 and 31+6 weeks of gestation in 19 European regions in 2011–2012. nCPAP failure was defined as mechanical ventilation in the first 72 h. Independent variables were gestational age, sex, multiple pregnancy, prenatal corticosteroids, pregnancy complications, small for gestational age (SGA), caesarean delivery, 5 min Apgar and region of birth. We classified regions into low (<35%), medium (35–55%) and high (≥55%) early nCPAP use. Time to CPAP failure was modelled using Cox models.

Results Of 7566 infants admitted to neonatal care, 3360 (44%) received early CPAP with a range from 21% to 81% across regions; 22% of infants failed CPAP, with a regional range of 11% to 61%. Failure rates were 47% at <26 weeks, 29% at 26–29 weeks and 16% at 30–31 weeks. In adjusted models, low gestational age, male sex, SGA, Apgar <7, no prenatal steroids, and maternal hypertension were associated with failure. Regions with low and intermediary nCPAP use had higher failure rates (adjusted hazard ratio (aHR): 1.3 95% CI: 1.0–1.6 and aHR: 1.4 95% CI: 1.2–1.7, respectively) than high-use regions.

Conclusions Perinatal factors identify infants likely to experience nCPAP failure. However, experience and training may also play an important role in effective nCPAP.

PO-0750 PULMONARY HAEMORRHAGE IN PRETERM BABIES WITH RAPIDLY IMPROVING PULMONARY FUNCTION

H Yates, L McKechnie. *Department of Neonatology, Leeds Teaching Hospital NHS Trust, Leeds West Yorkshire, UK*

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Introduction Pulmonary haemorrhage affects 1–5% of babies <32 weeks and is associated with respiratory distress syndrome (RDS), surfactant therapy and patent ductus arteriosus (PDA). Change to our surfactant protocol was associated temporally with increased cases of pulmonary haemorrhage. We reviewed the cases for causative factors.

Methods Affected in-born babies January 1st 2012 - March 31st 2013 were included. Demographic details and clinical data pre/post haemorrhage recorded.

Results 10/386 babies <32 weeks affected (2.5%). Details in Table.

All had RDS and received surfactant, 8 had repeated doses. Pulmonary haemorrhage occurred at median age of 36 h (IQR

Abstract PO-0750 Table 1

Gestation, wks Mean (sd)	27.4 (2.23)
Birth weight,kg Mean (sd)	0.96 (0.22)
Maternal Steroid n	8
Surfactant n (dose mg/kg, mean, sd)	10(284,86)

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33.75, 51.25 h). Prior to the haemorrhage all had significantly improved pulmonary function (ventilation pressures and oxygenation); three extubated. 6 had evidence of PDA, 3 had widened pulse pressure, 3 had systolic murmurs or echocardiographic evidence of PDA. After the haemorrhage all babies deteriorated with X-ray changes. One baby died. All 9 survivors developed clinically significant PDA requiring treatment. (1 duct ligation, 8 managed medically).

Conclusions All affected babies had a combination of risk factors for pulmonary haemorrhage. In addition they all exhibited a rapid improvement in ventilatory requirements lending weight to the the theory that falling pulmonary vascular resistance with increased pulmonary blood flow is a causative factor.

PO-0751 USE OF POSTNATAL STEROIDS IN VENTILATOR DEPENDANT PRETERM INFANTS

[1]N Merchant, [2]A Zovidavi, [1]H Cullen, [2]A Huertas-Ceballos, [2]S Watkin. *[1]Centre for the Developing Brain Perinatal Imaging and Health, King's College London, London, UK; [2]Neonatology, University College London Hospital, London, UK*

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Background and aim Bronchopulmonary Dysplasia (BPD), results in prolonged hospitalisation, poor growth and adverse-neurodevelopment outcome. Postnatal steroids may decrease prolonged ventilation, one of the risk factors for BPD. However, there are concerns about adverse effects of steroids.

The aim of the study was to assess the safety and efficacy of hydrocortisonein ventilator dependant preterm infants, thus ensuring safe practice and improve the quality of care given.

Methods The study was a retrospective analysis over 17 months (Jan 2012–May 2013) in preterm infants less than 32 weeks gestation. Demographic data along with data on adverse effects related to hydrocortisone was collected.

Results Fifteen percent (42/281) of preterm infants received hydrocortisone starting at dose of 5 mg/kg/d to aid extubation. The mean gestation was 25.17 weeks with a mean birth weight of 696 g. Forty-six percent had more than one failed extubation, 54% required >90% oxygen pre-treatment and 70% had either medical or surgical intervention for PDA. Only 24% had a documented discussion with parents regarding steroid treatment. The dose was reduced by 0.5–1 mg/kg, the time frequency of reduction varied between 1–7 days.

Adverse events related to hydrocortisone treatment included hypertension, oesophageal perforation, hyponatremic, hyperglycaemic requiring insulin, left ventricular hypertrophy, fractures and poor weight gain.

Conclusions The incidence of steroid use reflected that of other centres. Awareness of adverse events related to use of steroids along with improved parental communication is required.

PO-0752 INCIDENCE AND CLINICAL IMPACT OF RESPIRATORY DISEASE IN PREMATURE INFANTS WITH LOW BIRTH WEIGHT

M Muñoz-Garcia, C Santiago-Gutiérrez, MC Martínez-Padilla, M Cubero-Sánchez, J de la Cruz-Moreno. *Department of Pediatrics, Complejo Hospitalario de Jaén, Jaén, Spain*

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Advances in perinatal care have made it possible to improve survival of infants with low birth weight. The aim of study was to analyse the clinical impact of respiratory disease in premature infants with low birth weight. Methods: Between January-2011 and November-2012 were included 81 preterm infants with low birth weight and ≤32 weeks gestation. Data are expressed in according to birth weight defined as: extremely low <1000 g (ELBW), very low 1001–1500 g (VLBW) and low weight 1501–2000 g (LBW). Results: 84.8% of preterm infants received respiratory support by CPAP and in 46 cases (56.8%) was explained by mechanical ventilation. Endotracheal surfactant was administered in 34 infants (42%). Only 3 preterm did not require oxygen. 86.4% of infants with less than 28 weeks required mechanical ventilation compared to 45.8% of infants >28 weeks gestation. The incidence of morbidities such as bronchopulmonary dysplasia, pulmonary haemorrhage and pneumothorax was very low: 6.2%, 4.9% and 1.25%, respectively. The mean number of days requiring mechanical ventilation and treatment with caffeine for apnea was higher for ELBW compared to VLBW and LBW (6.7 ± 5.5 vs. 4.1 ± 4.7 vs. 3.38 ± 2.7, p = 0.023 and 38.1 ± 7.3 vs. 26.8 ± 15 vs. 12 ± 7.8, p = 0.01, respectively). The onset of bronchopulmonary dysplasia occurred in 5 preterm with ELBW. In all preterm infants who died required mechanical ventilation vs. who those survived 14 (100%) vs. 32 (47.8%), p = 0.001 and greater need of surfactant 10 (71.4%) vs. 24 (35.8%), p = 0.047. Conclusions: Although the most preterm with low birth weight require respiratory support, the incidence of complications in our series is low.

PO-0753 VIDEOLARYNGOSCOPY AS AN INTUBATION TRAINING TOOL FOR NEONATAL TRAINEES – A RANDOMISED CONTROLLED TRIAL

JE O'Shea, M Thio, COF Kamlin, L McGrory, J John, C Robets, C Kuschel, PG Davis. *Department of Newborn Research, Royal Women's Hospital, Melbourne, Australia*

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Background and aims Endotracheal intubation is a mandatory skill for neonatal trainees. However, it is difficult to learn and junior trainees have success rates <50%. Videolaryngoscopy allows the instructor to share the same view of the pharynx as the trainee. We compared intubations guided by an instructor watching a videolaryngoscope screen with the traditional method where the instructor does not have this view.

Methods An unblinded randomised, controlled trial (ANZCTR number 12613000159752) at a tertiary neonatal centre commenced March 2013. Eligible intubations were those performed on infants in the delivery room or in the neonatal intensive care unit, by trainees with less than six months of tertiary neonatal experience. Nasal intubations, intubations in infants with facial, oral or airway abnormalities and intubations carried out by more experienced doctors were excluded. Intubations were randomised to the videolaryngoscope screen being visible or covered (control). A sample size of 206 had an 80% power to demonstrate an absolute difference of 20% in the success rate between intervention and control groups. Primary outcome was first attempt intubation success rate confirmed by colorimetric detection of expired carbon dioxide.

Results 190 intubations have been randomised since March 2013 (80% of all eligible intubations since trial commencement). Median weight at intubation of recruited infants was 1195 g (range 504–4804 g), median corrected gestation 29 weeks post menstrual age (range 24–41). Recruitment will be complete by May 2014 and data analysis by July 2014.

Conclusions To follow upon completion of the trial.

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