

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

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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 (V<sub>Thf</sub>) using a Volume Guarantee function. However, appropriate V<sub>Thf</sub> values during this mode of ventilation has not been established.

**Aim** The aim of this study was to establish normative data for V<sub>Thf</sub>/kg during HFOV and explore its correlation with FiO<sub>2</sub>, 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<sub>2</sub> > 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 V<sub>Thf</sub> values were included only when PCO<sub>2</sub> was in the 'normocapnic range' of 40–55 torr. Univariate analysis for FiO<sub>2</sub>, 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<sub>2</sub> was 46.5 ± 3.7 mmHg and V<sub>Thf</sub>/kg 2.00 ± 0.59 mL/kg (mean ± SD). Correlation with GA, DOL, FiO<sub>2</sub> and Freq are shown in the Table (\*p < 0.05 in univariate correlation).

**Conclusions** The mean V<sub>Thf</sub> during normocapnia on HFOV is 2 mL/kg but its value is affected by GA, DOL, FiO<sub>2</sub> and Freq.

Abstract PO-0748 Table 1

Multivariate corr.	V <sub>Thf</sub> /kg	V <sub>Thf</sub> /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 <sub>2</sub> : <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

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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

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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)