University Hospital and during 2010–2013 in other Finnish University Hospitals (Helsinki, Kuopio, Tampere, Turku). DNA samples were genotyped using the Illumina HumanCoreExome BeadChip consisting of approximately 550,000 single-nucleotide polymorphisms (SNPs); after quality control, 60 cases (moderate-severe BPD) and 114 controls (no or mild BPD) remained for a genome-wide association study (GWAS). In the next step, approximately 200 SNPs showing suggestive signals are genotyped in additional infants (n = 116/232) to determine which associations are replicated.

**Results** In GWAS, we detected suggestive association signals (p < 1×10^-8) for several SNPs; many of these SNPs were located within or near genes that can be considered as plausible candidate genes for BPD (e.g. the CRP and PTPN6 genes encoding C-reactive protein and protein-tyrosine phosphatase SHP-1, respectively). Some of the SNPs showing suggestive associations in two previous GWASs of BPD showed weak associations (e.g. those within the PALM2 and CTNNA3 genes).

**Conclusions** In genome-wide association study of BPD, we detected several suggestive associations. These initial results require verification in subsequent studies, including replication in additional populations and functional studies of the arising candidate genes.
Poster abstracts

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, 1A Gradzka-Luczewska, 2) S Korzan, 3) J Stachnik, 4) J Kramer, 5) J Gadzinowski, 6) M Kozier. 1Neonatology, Poznan University of Medical Sciences, Poznan, Poland; 2Neonatal Research Club, Poznan University of Medical Sciences, Poznan, Poland; 3Computer Science and Statistics, Poznan University of Medical Sciences, Poznan, Poland; 4Women and Infant Hospital, Brown University, Providence, USA

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 FiO2, 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: PCO2 > 65 on two consecutive blood gases and RR > 60. Blood gases with corresponding ventilator settings, time, patient’s weight and clinical diagnosis, were prospectively recorded. Measured VThf values were included only when PCO2 was in the ‘normocapnic range’ of 40–55 torr. Univariate analysis for FiO2, 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 PCO2 was 46.5 ± 3.7 mmHg and VThf/kg 2.00 ± 0.59 mL/kg (mean ± SD). Correlation with GA, DOL, FiO2 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, FiO2 and Freq.

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

1) J Mazela, 2M Bone, 3A Pieduache, 4O Pryds, 5H Truffert, 6PH Jarreau. 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, Hvidovre University Hospital, Copenhagen, Denmark; 4) Medicine Neonatal, Hôpital Jeanne de Flandre, Lille, France; 5) Medicine Neonatal, Hôpital Cochin-Port Royal, Paris, France

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

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.