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 ($p < 10^{-4}$) 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.

PO-0745 CONGENITAL DIAPHRAGMATIC HERNIA IN NEONATES – FIRST TIME ASSESSMENT OF OUTCOME AMONG PALESTINIAN BABIES

¹H Khamash, ²A Atawna, ³R Al-Sharif, ⁴S Abdelrazeq, ⁵N Al Deesi. ¹Pediatric, Al-Quds University, Jerusalem, Palestine (Via Israel); ²Neonatology, Makassed Hospital, Jerusalem, Palestine (Via Israel); ³School of Medicine, Al-Quds University, Jerusalem, Palestine (Via Israel); ⁴Pediatrics, Makassed Hospital, Jerusalem, Palestine (Via Israel); ⁵Pediatric Surgery, Makassed Hospital, Jerusalem, Palestine (Via Israel)

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Objectives To review our NICU and surgical experience of all cases of CDH that was admitted to our hospital in last 10 years. To identify the risk factors for morbidity and mortality.

Setup Makassed Charitable Hospital, main tertiary hospital for Palestinian Territories (West Bank, Gaza and East Jerusalem).

Material and methods Retrospective Review of all cases of CDH admitted to our NICU between January 2003 and December 2013. Data about: Antenatal diagnosis, gestational age, birth weight, Apgar score, Blood gas at delivery, time of surgery, finding at surgery, ventilation days, mortality outcome and several other items were recorded and analysed. Primary outcome was: mortality, total days of ventilation and total days of Oxygen requirement.

Results Thirty three ($n = 33$) cases of CDH were reviewed. Twenty two cases were inborn (67%). Mortality was 10 cases (30%). Twenty three cases were discharged home alive and off oxygen therapy (70%). Better survival rate after 2009 (77% Vs 63%) this could be due to gentle ventilation strategies, better use of antenatal ultrasound for diagnosis. Lower mortality and less ventilation days were significantly associated with lower initial PaCO₂ ($p < 0.001$) and higher PH ($p < 0.001$) and higher Gestational age ($P 0.05$). Presence of liver and/or spleen as part of hernia contents correlates negatively with the primary outcome ($p < 0.05$).

Conclusion This is the first study that outlines the mortality and morbidity and their risk factors in Palestinian Territories with no ECMO is used demonstrating fairly good outcome with gentle ventilation strategies and antenatal diagnosis.

PO-0746 RESPIRATORY SUPPORT IN TERM NEWBORNS AFTER C-SECTION

D Konstantelos, J Dinger, S Ilflaender, M Rüdiger. Department of Neonatology and Pediatric Intensive Care, Medizinische Fakultät Carl Gustav Carus an Der TU Dresden, Dresden, Germany

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Background and aims After c-section term newborns are at risk of respiratory problems. Whereas some newborns require respiratory support only for a short time in the delivery room (DR), others are admitted to the NICU for prolonged therapy. Our aim was to compare differences between newborns with respiratory support in DR only and those admitted to the NICU.

Methods Retrospective analysis of video recorded DR-management of term newborns born between January 2012 and November 2013 via c-section.

Results 368 newborns were analysed with 82 (22%) receiving respiratory support. From them, 26 (32%) were transported to NICU for further treatment, the remaining 56 (68%) were stabilised after a short period of CPAP treatment. There were no demographic differences between both groups. CPAP-administration started after a median of 3.4 (0.2–27) in NICU and 3.7 (0.03–17) minutes in DR infants. At the start of CPAP administration infants had a median heart rate of 161 (75–195) in NICU and 153 (56–200) in DR newborns and SpO₂ of 69 (41–100) and 80 (55–100) respectively ($p = 0.01$). 8 (31%) NICU and 15 (27%) DR newborns received a sustained inflation; mechanical ventilation via face-mask received 4 and 6 newborns respectively. In infants remaining in the DR respiratory support was stopped after a median of 7.6 (0.2–21) minutes, infants were transferred to the NICU after a respiratory support of 17.7 (4–29.6) minutes respectively.

Discussion Except for lower SpO₂ values there are no parameters to predict the need for the length of treatment in respiratory depressed term newborns.

PO-0747 THE STUDY OF OXIDATIVE STRESS AT PRETERM NEWBORNS WITH RESPIRATORY DISTRESS SYNDROME

M Matyas, L Blaga, M Masmanu, G Zaharie. Neonatology Department, University of Medicine and Pharmacy, CLUJ-NAPOCA, Romania

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Aim The diseases of newborns which involve oxidative stress are: respiratory distress (RDS), bronchopulmonary dysplasia, retinopathy and necrotizing enterocolitis. The aim of the study was to evaluate the oxidative stress through the lipid peroxidation at preterm newborns with RDS.

Material and methods We conducted a prospective, non-randomised study. The study group was represented by sixty preterm newborns with RDS. The control was represented by 20 healthy late preterm newborns. For all patients family's consent was obtained. The study of the oxidative stress was performed by the measurement of malondialdehyde (MDA) by Satoh's method. For each newborn we determined the MDA on the first and third day of life. For the control was carried out one determination on the first day of life. The statistical analysis was done using the SPSS program.

Results The RDS was present in mild form at 35% newborns, medium form at 42% and severe form at 23%. Seven newborns presented neonatal septicemia. Cerebral haemorrhage was present at 12 newborns of the study group. At 13 preterm the

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

¹J Mazela, ¹A Gradzka-Luczevska, ²S Korzan, ²J Stachnik, ³L Kramer, ¹J Gadzinowski, ⁴M Keszler. 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

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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_{Thf}) using a Volume Guarantee function. However, appropriate V_{Thf} values during this mode of ventilation has not been established.

Aim The aim of this study was to establish normative data for V_{Thf}/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 vent settings, time, patient's weight and clinical diagnosis, were prospectively recorded. Measured V_{Thf} 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 V_{Thf}/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 V_{Thf} during normocapnia on HFOV is 2 mL/kg but its value is affected by GA, DOL, FiO₂ and Freq.

Abstract PO-0748 Table 1

Multivariate corr.	V _{Thf} /kg	V _{Thf} /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

¹J Mazela, ²M Bonet, ²A Piedvache, ³O Pryds, ⁴P Truffert, ⁵PH Jarreau. ²J. Zeitlin and the EPICE Research Group. ¹Neonatology, Poznan University of Medical Sciences, Poznan,

Poland; ²Epidemiological Research Unit on Perinatal and Women's and Children's Health U953, Inserm, Paris, France; ³Neonatology, Hvidovre University Hospital, Copenhagen, Denmark; ⁴Medicine Neonatale, Hôpital Jeanne de Flandre, Lille, France; ⁵Medicine 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)