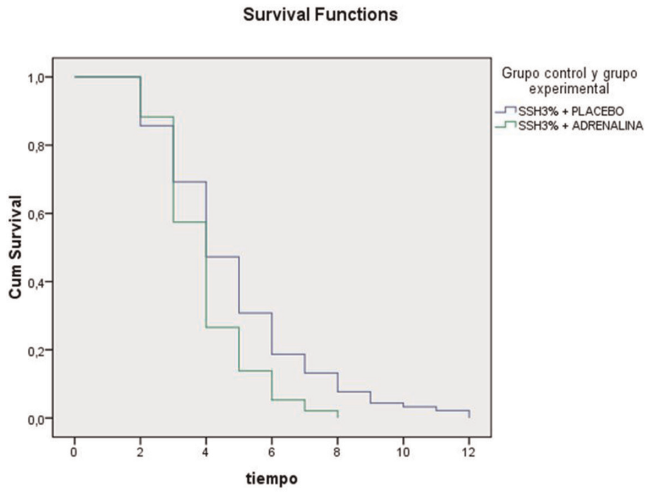

Abstract O-018 Figure 1

36%), parental atopy (29% vs 31%), breastfeeding (56% vs 53%), number of siblings (0.68 vs 0.72), day care attendance (14% vs 10%), clinical scale at admission (5.24 vs 5.36) or percentage of positive RSV (60% vs 61%).

Conclusions The use of nebulised adrenaline in hypertonic saline solution may significantly reduce the length of stay among hospitalised infants with moderately ill acute bronchiolitis.

O-019 VIRAL RESPIRATORY TRACT INFECTIONS RESULT IN SIGNIFICANT RESPIRATORY MORBIDITY IN NICU INFANTS: A MATCHED CASE-CONTROL STUDY

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Introduction There is very little data available on the impact that viral respiratory tract infections (VRTIs) have on neonatal morbidity during their NICU stay.

Hypothesis NICU patients with proven VRTIs have significantly worse respiratory outcomes until the time of discharge from hospital.

Methods We conducted a retrospective case-control study, at two large UK tertiary centres, of all NICU patients with multiplex PCR confirmed VRTIs between 2007 and 2013. Two controls per case were matched for centre and gestation.

Results 255 babies (86 cases and 169 controls) were identified with a median gestation of 29 weeks (IQR 26–34) for both groups. No differences were noted between groups in birth weight, antenatal steroids, maternal smoking or number of siblings. 71% of cases had rhinovirus, 8% RSV and 6% H1N1. Fewer cases had positive blood cultures during their admission (11/86 vs 65/169, p < 0.0001). Almost half (46%) of all VRTI positive babies required escalation of respiratory support especially those <28 weeks gestation who required re-ventilation (38%). Cases required a significantly greater number of days of respiratory support (median 21 vs 7, p < 0.001 see table) and more were discharged on home oxygen (35% vs 18%, OR 2.54 95% CI 1.4–4.7, p < 0.01). Mortality did not differ between groups (3/86 and 11/169).

Abstract O-019 Table 1

	Case (n = 86)	Control (n = 169)	p value
Ventilation days (median, IQR)	7 (2–22)	2 (0–8)	p < 0.0001
CPAP days (median, IQR)	14 (0–35)	5 (0–33)	p = 0.09
Supplemental oxygen (median, IQR)	13 (2–37)	2 (0–32)	p < 0.0001

Discussion This is the largest study of VRTIs in this population to date and demonstrates significant respiratory morbidity with rhinovirus being the dominant pathogen. We need to explore better ways of minimising the impact of VRTIs in this vulnerable population.

O-020 HUMAN CORONAVIRUSES INFECTION IN ACUTE LOWER RESPIRATORY TRACT INFECTION IN CHILDREN

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10.1136/archdischild-2014-307384.89

Objectives To explore the effects of HCoVs (including HCoV-OC43, HCoV-229E, HCoV-NL63 and HCoV-HKU1) in acute lower respiratory tract infection (ALRTI) in children and to investigate the clinical features of paediatric ALRTI caused by HCoVs.

Methods Total 3503 cases with ALRTI from March 2007 to March 2010 in Beijing Children's Hospital Affiliated to Capital Medical University were enrolled into this study. One nasopharyngeal aspirate specimen was collected from each patient. PCR (or RT--PCR) were used to detect respiratory viruses including respiratory syncytial virus, human rhinovirus, influenza virus type A, B and C, parainfluenza virus type 1–4, adenovirus, enterovirus, human coronavirus, human metapneumovirus and human bocavirus. Clinical manifestation and laboratory findings of patients with HCoVs were analysed by using SPSS 19.0 for Windows (SPSS Inc., USA).

Results The overall positive rate of HCoVs infection was 3.77%. Most cases with HCoVs infection were under 3 years old. The ratio between male and female were 2.3:1, and the rate of co-infection with other respiratory virus in patient infected HCoVs was 65.2%. The positive rate of HCoV-OC43 and HCoV-229E were higher than that of HCoV-NL63 and HCoV--HKU1. There were no significant differences of clinical manifestation, laboratory findings and severity between ALRTIs caused by HCoVs and RSV.

Conclusions The overall infection rate of HCoVs in ALRTI in children was low. The clinical manifestations, laboratory findings and severity of ALRTI caused by HCoVs were comparable to that of ALRTI with RSV infection in children.

Bronchopulmonary Dysplasia

O-021 PREVENTION OF BRONCHOPULMONARY DYSPLASIA (BPD) IN VLBW INFANTS WITH SEVERE RDS – A RANDOMISED TRIAL OF A NEW THERAPEUTIC REGIMEN

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Abstract O-021 Table 1

	S+B(131)	S(134)	OR(95% CI)	P
B. W.(g)	882 ± 249	935 ± 283		0.81
G. A (wks)	26.5 ± 2.2	26.8 ± 2.2		0.91
Age study (hrs)	2.0 ± 1.5	1.8 ± 1.6		0.85
Death	17/131(13%)	22/134(16%)	0.76(0.38, 1.51)	0.54
BPD	38/131(29%)	67/134(50%)	0.49(0.29, 0.81)	0.008
BPD or death	55/131(42%)	89/134(66%)	0.45(0.27, 0.73)	0.001
BPD*	57/131(44%)	88/134(66%)	0.4(0.25, 0.66)	<0.001
BPD* or death	74/131(56%)	110/134(82%)	0.28(0.06, 0.49)	<0.001
mild*	19/131(15%)	21/134(16%)	0.91(0.47, 1.79)	0.79
mod*	26/131(20%)	41/134(31%)	0.56(0.32, 0.99)	0.048
severe*	12/131(9%)	26/134(19%)	0.42(0.20, 0.87)	0.017

Background/aims Intra-tracheal instillation of surfactant/budesonide significantly improves pulmonary status in animals. The aim is to investigate if this therapy would decrease the incidence of BPD or death.

Methods and materials This randomised controlled trial comprised 265 VLBW infants who had: 1) severe radiographic RDS, 2) requirement of IMV ($FIO_2 \geq 0.5$) shortly after birth: 131 received survanta (S) (100 mg/kg) and budesonide (B) (0.25 mg/kg) (S+B gr.), 134 received S only (100 mg/kg) (S gr). The sample size was determined based on the hypothesis that 60% of infants in the S group and 40% in the S+B group would die or develop BPD defined at 34 weeks postm. age.

Results The **S+B** infant had lower tracheal aspirate interleukins 1, 6 and 8, lower OI, lower MAP in the early course of therapy, higher chance to wean to room air ($p = 0.03$). No significant immediate and long term adverse effects were observed. * NIH criteria

Conclusions In VLBW infants with severe RDS, administration of surfactant/budesonide significantly decreases the incidence of BPD and BPD or death with no apparent adverse side effects.

O-022 TREATMENT OF VENTILATED PRETERM (PT) INFANTS WITH LATE SURFACTANT DOES NOT INCREASE SURVIVAL WITHOUT BRONCHOPULMONARY DYPLASIA (BPD) AT 36 WK PMA

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Background/aims The pathogenesis of BPD is multifactorial. In preterm infants ≤28 wk GA requiring ventilation at 7–14 days, >60% have surfactant dysfunction. Survival without BPD in these infants is <25%. Inhaled nitric oxide (iNO) may improve outcome in some infants (Schreiber, NEJM 2003, Ballard NEJM, 2006).

Methods Preterm infants ≤28 wk GA requiring mechanical ventilation at 7–14 days were enrolled in a RCT at 25 US centres. All infants received iNO and were randomised to receive surfactant (Infasurf) or sham instillation behind a screen every 1–2 days; maximum of 5 doses. Infants were evaluated by physiologic oxygen/flow reduction at 36 and 40 wk. Pulmonary outcome to 18 months is being collected.

Results Between January 2010 and September 2013, 511 of the planned 524 infants were enrolled. There was no difference between groups in mean BW (701 ± 164 grams), GA (25.2 ± 1.2 wk), percentage under 26 wk (70.6%), race, gender, severity of disease at enrollment or co-morbidities of prematurity. Survival without BPD was not different between treated vs. controls at 36 wk (31.3% vs.31.7%; relative benefit 0.98 (0.75, 1.28 p = 0.89) or 40 wk (58.7% vs. 54.1%; relative benefit 1.08 (0.92, 1.27 p = 0.33). Overall survival without BPD at 36wk in African Americans was better than whites (37.2% vs. 25.4%p = 0.008).

Conclusions Late treatment with surfactant in ventilated preterm infants did not improve survival without BPD at 36 or 40 weeks PMA. Overall better outcome in African-American infants may be due to a racial response to iNO. Pulmonary and neurodevelopmental assessment are on-going.

Cardiac Failure in Congenital Diaphragmatic Hernia: Cause or Consequence?

O-023 CANDIDATE BIOMARKERS OF PULMONARY HYPERTENSION AND CARDIAC DYSFUNCTION IN CONGENITAL DIAPHRAGMATIC HERNIA

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10.1136/archdischild-2014-307384.92

Background and aims In infants with congenital diaphragmatic hernia (CDH) plasma peptides which mediate, or are produced in response to pulmonary hypertension (PH) and cardiac dysfunction may be useful clinical biomarkers of disease severity. This study investigated correlation between candidate biomarkers and existing measures of oxygenation, PH, and cardiac function in CDH.

Methods Prospective observational study. Plasma samples were obtained for measurement of BNP, NTpro-BNP, VEGF-A, PLGF, and Tropinin1. Concomitant echocardiographic measures of pulmonary artery pressure (derived from TR jet velocity [PAP_{est}]; and PDA flow ratio [$PDA_{R:L}$]) and cardiac function (Tissue Doppler Imaging of systolic [S'] and diastolic [E'] velocities and tricuspid valve diastolic flow ratio [$TV_{E:A}$]) were obtained. Oxygenation index was calculated OI.

Abstract O-023 Table 1 Correlations (r value) between candidate biomarkers and measures of oxygenation, PH and cardiovascular function

		PH measures			Septal TDI velocities	
Candidate biomarker	OI	PAP_{est}	$PDA_{R:L}$	$TV_{E:A}$	IVS S' (systolic)	IVS E' (early diastolic)
BNP	**0.65**	0.15	**0.43**	0.22	0.09	-0.02
NTproBNP	**0.62**	**0.43**	**0.39**	0.04	0.08	-0.12
Troponin 1	<0.01	<0.01	**0.26**	**-0.30**	**0.26**	0.04
VEGF-A	**0.64**	0.18	0.10	**-0.30**	-0.11	-0.18
PLGF	**-0.34**	**-0.47**	**-0.48**	**0.27**	-0.01	**0.25**

Numbers represent r values, significant correlations in **bold** ($p < 0.05$)