Conclusions This pilot study suggests VG added to HFOV would attenuate fluctuation of SpO₂ and pCO₂, which leads to prevent hypoxia and hypocapnia, possibly resulting in preferable neonatal prognosis.

PO-0735 NASAL HFOV WITH BINASAL PRONGS IS EFFECTIVE AND FEASIBLE IN ELBW NEWBORNS

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Introduction Noninvasive ventilation with nasal CPAP (n-CPAP), or nasalintermittant positive pressure ventilation (n-IPPV) is becoming standard of care in preterm. Limited experience has been reported with nasal high frequency oscillatory ventilation (n-HFOV). We present 2 newborns treated by n-HFOV applied with binasal prongs (Ram cannula Neotech) and Draeger Babylog 8000+ ventilator.

Cases 1. A 900 gr. 28 weeks gestation infant was intubated, given surfactant and ventilated by volume guarantee pressure-support ventilation for RDS. On 2nd day HFOV was started due to worsening respiratory status. On 11th day patient was extubated to n-HFOV and continued for 4 days followed by n-IPPV/n-CPAP.

2. A 830 gr. 28 weeks gestation infant was resuscitated in the delivery room. RDS and pulmonary interstitial emphysema was detected on radiography and surfactant was given. At 12 h pneumothorax occurred necessitating thoracic tube insertion and HFOV. Conventional ventilation was tried several times without success. HFOV continued for 46 days then baby was extubated to n-HFOV. Patient required reintubation after 4 days due to sepsis.

Abstract PO-0735 Table 1 Respiratory support and blood gas data of 2 patients are presented.

	Case 1			Case 2		
	HFO	nHFO 4 h	nHFO 24 h	HFO	nHFO 4 h	nHFO 24 h
PH	7.27	7.31	7.25	7.32	7.24	7.26
PCO ₂	53	47.5	45.7	30.8	35.5	36.6
PO ₂	63.5	61.7	100	58.8	67	59.1
FiO ₂	27	50	30	30	30	30
Amplitude	70	100	100	85	85	85
MAP	10	13	13	10	10	10

Conclusion n-HFOV with binasal prongs could be an alternative for preterms after prolonged HFOV.

PO-0736 PRELIMINARY EXPERIENCE WITH THE USE OF NEURALLY ADJUSTED VENTILATORY ASSIST IN THE NEONATE

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Background and aims Invasive and non-invasive ventilation of the neonate may be associated with local and systemic complications due to mechanical trauma to lung tissues and their

inflammatory response. A key objective of mechanical ventilation is to reduce its duration and side effects. Neurally Adjusted Ventilatory Assist (NAVA), a method that uses the electrical activity of the diaphragm (EAdi) as a signal to trigger the mechanical ventilatory breaths, may improve synchronisation between patient and ventilator and optimise the gas volume delivered to the lungs, according to the patient needs, eventually reducing volume- and biotrauma. We aimed to test the effectiveness of NAVA in the neonate.

Methods We present three preterm babies with severe respiratory distress syndrome that failed several attempts of weaning and extubation, and two full-term new-borns with amniotic fluid aspiration that could be successfully managed after changing from conventional ventilation to NAVA.

Results Our most frequent observations were a reduction in the Peak Inspiratory Pressure and in the need of FiO₂, after changing from S-IMV, A/C or Pressure Regulated Volume Control to NAVA. We also observed a reduction in respiratory rate and an increase in the patients' comfort. After extubation, during NIV-NAVA, the patients remained stable and comfortable, even with the presence of air-leaks up to 90%. No patient required reintubation.

Conclusions NAVA is effective in weaning and extubation of neonates and seems to provide more comfort to the patients. Further studies are needed to assess whether short-term benefits are reflected in better outcomes in the long run.

PO-0737 PROPHYLACTIC SURFACTANT IN THE VERY PRETERM INFANT: CLINICAL PRACTICE SUPPORTS ADHERENCE TO EUROPEAN GUIDELINES ON RDS

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Background and aims Surfactant replacement therapy is key in the management of neonatal respiratory distress syndrome (RDS). Despite guideline updates on prophylactic surfactant (PS) use are increasingly more restrictive, outcomes remain improving. We aim to study clinical implementation of the 2010 update on management of RDS in very preterm infants in a tertiary NICU.

Methods Retrospective analysis of very preterm infants admitted to our NICU between 2010–2012. European 2010 RDS guidelines were progressively implemented during this period. We were able to compare patient characteristics and clinical outcomes of three groups: A) Fulfilled 2010 guidelines for PS; B) Did not fulfil 2010 guidelines and B1) Were given or B2) Were not given PS.

Results 277 preterms were admitted and divided into 3 groups: A) 75 fulfilled 2010 PS criteria; B1) 84 had PS despite absent criteria; B2) 118 did not have PS. Subgroup B1 had lower GA (29.1/30.3, p < 0.001) and lower BW than subgroup B2 (1175/1297 g, p < 0.01), but no significant differences were found in Apgar scores, CRIB or SNAPPE2. Subgroup B1 had higher rates of invasive ventilation than subgroup B2 (48/29%, p < 0.01), but lower need of rescue surfactant (11/31%, p < 0.002). No significant differences in mortality, chronic lung disease, length of stay or intraventricular haemorrhage were found.

Conclusions All the preterms who fulfilled 2010 criteria were given PS. Considering infants not fulfilling the 2010 criteria, outcomes were not different between those who got PS and

those who did not get PS, which seems to support the stricter enforcement of the guidelines.

PO-0738 PROLONGED RESPIRATORY SUPPORT FOR EXTREME PRETERM BABIES: HHFNC OR nCPAP?

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Background and aims While the HHFNC therapy is increasingly being utilised for non-invasive respiratory support in preterm babies its utility has not been explored in babies requiring prolonged support.

We carried out this study to compare the effectiveness of HHFNC therapy with nCPAP in babies requiring prolonged respiratory support.

Design/methods This was a retrospective study of babies less than 32 weeks gestation or 1500 gram requiring prolonged respiratory care. In order to be eligible for inclusion, the baby should have come off nCPAP successfully to low flow oxygen and needed non-invasive breathing support using nCPAP or HHFNC.

Results Complete data was available for 44 babies. Babies in HHFNC group spent significantly longer time on respiratory support. There was no difference in BPD and other complications of prematurity between two study groups (Table 2)

Conclusion HHFNC therapy is comparable to nCPAP but probably at the expense of prolonged duration of respiratory support.

Abstract PO-0738 Table 1 Respiratory parameters – Median (IQR)

	nCPAP (n = 22)	HHFNC (n = 20)	p-value
Initial MV (hours)	132 (84–222)	84 (60–135)	0.06
Initial CPAP (hours)	108 (60–156)	60 (36–114)	0.11
Post weaning CPAP+HHFNC (hours)	312 (150–510)	636 (372–768)	0.003
Low flow/Oxygen therapy (hours)	684 (396–1014)	552 (366–888)	0.6

Abstract PO-0738 Table 2

	nCPAP (n = 22)	HHFNC (n = 20)	p value
Broncho-pulmonary-Dysplasia	14 (64%)	16 (80%)	0.24
NEC ≥2a	4 (18%)	3 (15%)	0.78
IVH ¾	0 (0%)	1 (5%)	0.28
ROP stage 2 or more	9 (41%)	4 (20%)	0.14
Change in weight z score – mean (SD)	-1.11 (0.83)	-0.82(0.89)	0.23

PO-0739 AN UNUSUAL CASE OF NEONATAL RESPIRATORY DISTRESS : CASE REPORT

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Background Neurenteric cysts are the association of an endodermal cyst with a vertebral dysplasia. This congenital malformation can be asymptomatic or manifest itself through respiratory signs due to airway compression.

Case report A male newborn, from normal vaginal delivery at 40 weeks of gestation, weighing 4000 g with Apgar score of 8 and 9 at 1 and 5 min was referred to the neonate intensive care unit. The clinical findings showed tachypnea, mild intercostals retraction and there was diminished air-entry on the right side. The chest X-ray showed vertebral anomalies in the midthoracic region, there was an hydric opacity occupying the 2:3 of the right side with deviation of the mediastinum to the left side. The CT scan of the chest revealed butterfly and hemi-vertebrae of the upper thorax. There was a large posterior mediastinal cystic mass partitioned by multiple septa on the inferior right side. On fifth day, the patient underwent a right thoracotomy. A large cystic mass attached to the oesophagus wall was exised, Histopathology favours the diagnosis of neurenteric cyst. Postoperatively outcomes were poor, the operation was complicated by bilateral chylothorax diagnosed on 10 th post-operative day and increasing oxygen needs. The newborn died on the 16 th postoperative day in a severe sepsis.

Conclusion Antenatal diagnosis of this malformation is not easy but possible. In post-natal, the radiological approach based on chest x-ray and CT scan, is helpful for establishing the diagnosis and lead to a prompt curative surgery.

PO-0740 WITHDRAWN

PO-0741 CROSSOVER TRIAL COMPARING HIGH-FREQUENCY OSCILLATORY VENTILATION VERSUS VOLUME GUARANTEE PLUS HIGH-FREQUENCY OSCILLATORY VENTILATION: A PRELIMINARY REPORT

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Background High frequency oscillatory ventilation (HFOV) theoretically limits baro/volutrauma using subdeadspace volumes but lack of direct control over tidal volume resulting in fluctuating PCO2 level. Volume guarantee plus high-frequency oscillatory ventilation (HFOV+VG) is a new ventilation mode allows the clinician to set a mean tidal volume to be delivered.

Method The randomised, crossover study was conducted at the Neonatal Intensive Care Unit (NICU) at Dokuz Eylul University Hospital in Izmir, Turkey after approval of the local Ethics Committee. Inborn infants at less than 32 weeks of gestation with respiratory distress syndrome (RDS) were enrolled in the study if they required mechanical ventilation. All enrolled infants were received surfactant treatment (200 mg/kg, Curosurf®, Chiesi, Italy) in the delivery room or in the NICU, depending on where endotracheal intubation was performed and ventilated using the Assist Control (A/C) with VG mode (VN500, Draeger, Lubeck, Germany). Patients were randomised to receive either HFOV +VG or HFOV as the initial ventilator mode and were treated for 2 h with the first mode of ventilation. At the end of the initial 2 h patients were then crossed over to the other mode of ventilation for 2 h. There was 15 min “washout” period between the changes in the ventilator modes. HFOV was performed with “optimum volume strategy”. Ventilation started at a frequency of