Conclusion: Selective intubation, especial of the left bronchus, is technically challenging but seems to be practicable and helpful. If the affected lung lobe shows complete atelectasis for more than 48 h the overdistension of airways probably will resolve.

516

FIRST INTENTION N-SIPPV VS. N-CPAP IN PRETERM INFANTS COMPLICATED BY RESPIRATORY DISTRESS SYNDROME

A. Ricotti, S. Crivelli, F. Temporini, L. Moresco, S. Bellodi, D. Gazzolo

C. Arrigo Children's Hospital, Alessandria, Italy

Background and aims: Nasal intermittent positive pressure ventilation (N-SIPPV) can constitute a new ventilatory mode for RDS treatment. In this regard, N-SIPPV has been shown to be safe and more effective than N-CPAP when used in the weaning from MV. However, data comparing the effectiveness of N-CPAP versus N-SIPPV as best first intention therapeutic strategy for RDS treatment of ELBW/VLBW infants are to date lacking. The present study investigates whether first intention N-CPAP or N-SIPPV can constitute a valid option of ventilation in the respiratory management of RDS.

Methods: From January 2005 to January 2009 we performed a prospective case-control study in 92 infants (< 32 wks) complicated by RDS of whom 23 cases were supported by N-SIPPV and matched for gestational age and weight at birth with 69 VLBW newborns supported by N-CPAP (1 N-SIPPV vs 3 N-CPAP). The effectiveness of the two ventilatory strategies was evaluated by primary (failure of respiratory support, death in the first week) and secondary (length of respiratory support and of staying in hospital; incidence of air leak, sepsis, PDA, NEC, IVH, PVL, ROP, PPHN, CLD; need of post-natal glucocorticoids) end-points.

Results: No significant differences in primary and secondary end-points ($P > 0.05$, for all) have been shown in the two different ventilatory strategies. However, the length of nasal ventilation support was higher in N-SIPPV group, although not statistically significant ($P > 0.05$).

Conclusions: The present data provide evidence that first intention non-invasive ventilatory strategy could be successful in ELBW/VLBW infants independently from N-SIPPV and/or N-CPAP devices.

517

CHARACTERISATION OF LUNG MECHANICS AFTER FETAL TRACHEAL OCCLUSION IN NEWBORN RABBITS WITH LUNG HYPOPLASIA INDUCED BY DIAPHRAGMATIC HERNIA (CDH)

S. Herber-Jonat¹, A. Vuckovic², I. Rühl³, J. Jani⁴, A.W. Flemmer¹

¹Neonatology, Perinatal Centre Großhadern, LMU Munich, Munich, Germany, ²Laboratory of Physiology and Physiopathology, Campus Erasme, Brussels, Belgium, ³Obstetrics and Gynecology, Perinatal Centre Großhadern, LMU Munich, Munich, Germany, ⁴Department of Obstetrics and Gynaecology, University Hospital Brugmann, Brussels, Brussels, Belgium

Aim: To assess the effects of tracheal occlusion (TO) on lung mechanics in a sham controlled newborn rabbit model of CDH.

Methods: On day 23/31, CDH was induced by ex-utero surgery. Controls received a sham thoracotomy (SHAM-CDH). On day 28 fetuses were randomly assigned to TO or SHAM-TO. Non-operated littermates served as controls (NOP). Fetuses were delivered on day 31 for mechanical ventilation and measurement of lung mechanics (dynamic and static compliance (C, Cst), resistance (R), total lung capacity (TLC), and impedance (forced oscillation technique)), and lung to body weight ratio (LBWR). Airway resistance (R_{aw}), elastance (H(L)), tissue damping (G(L)) and hysteresivity (G(L)/H(L)) were calculated from impedance data.

Results: There was no difference in birth weight but LBWR was significantly increased by TO in CDH and SHAM-CDH animals as compared to fetuses without TO or NOP. The parameters of lung mechanics after 30min of ventilation are shown below (mean, * $p < 0.05$ as compared to NOP).

	CDH+ TO (n=6)	CDH+ SHAM- TO (n=6)	SHAM- CDH+TO (n=5)	SHAM- CDH+ SHAM- TO (n=8)	NOP (n=16)
TLC/BW (μ l/g)	48.2	31.1	48.2	44.8	41.9
Cst/BW [ml/ cmH ₂ O*kg]	1.50	1.23	1.82	1.80	1.91
Rn [cmH ₂ O*s/ ml]	0.25	0.17	0.18	0.16	0.16
G [cmH ₂ O/ ml]	5.52*	4.55	4.51	4.06	2.76
H [cmH ₂ O/ ml]	29.23*	19.10	23.97	14.13	9.87

[respiratory mechanics]

Summary: In this rabbit model of lung hypoplasia, TO had a substantial effect on lung volume and TLC.

However, TO seemed to have a negative effect on tissue damping and elastance indicating increased tissue forces.

518

ROLE OF ORAL SUCROSE IN REDUCING PAIN TO OROGASTRIC TUBE INSERTION IN PRETERM NEONATES

V. Datta¹, M. Pandey¹, H.S. Rehan²

¹Department of Pediatrics, ²Department of Pharmacology, Lady Hardinge Medical College, New Delhi, India

Background and aims: The practice of orogastric tube insertion has become quite popular in NICU's over the years. The present study was undertaken with an aim of assessing the pain associated with orogastric tube insertion across gestational age subgroups and the effect of oral sucrose on decreasing this pain.

Methods: A double blind randomised controlled trial was carried out with predefined inclusion and exclusion criteria. A total of 120 babies (60 in each limb) were randomised 2 minutes prior to the procedure and administered orally either a sterile solution of 24% sucrose or double distilled water according to the randomisation codes. The procedure involved putting an 6 Fr Orogastric tube (OGT). The whole procedure was video recorded and a non invasive vital signs monitor was also connected. The pain response to OGT insertion was measured by calculating the Premature Infant Pain Profile (PIPP) Scores. Results were analysed using SPSS version 17. Mean and SD were calculated. Chi square test and unpaired and paired student's t test were used.

Results: There was no significant difference between the baseline characteristics of the 2 study groups. In neonates > 32 weeks of gestation a significant measurable painful response to OGT insertion was seen whereas this was absent in the group < 32 weeks of gestation. The mean post 30 second PIPP score in the sucrose group was significantly lower as compared to the placebo group. No other difference was observed.

Conclusions: In neonates >32 weeks of gestation, orogastric tube insertion is associated with measurable pain perception. Prior 24% oral sucrose transiently alleviates this pain.

519

PREDICTIVE VALUE OF CLINICAL SIGNS IN LATE-ONSET SEPSIS (LOS) IN PRETERM NEONATES

J. Bekhof¹, I. Van Straaten², J. Kok³

¹Princess Amalia Department of Pediatrics, ²Princess Amalia Department of Neonatology, Isala Clinic, Zwolle, ³Department of Neonatology, Academic Medical Center, Amsterdam, The Netherlands

Background: Accurate diagnosis of LOS in preterm neonates is a major challenge because clinical signs are aspecific leading to unnecessary antibiotic treatment.

Aims: To determine the predictive value of clinical signs for identifying LOS in preterm infants.

Methods: In all patients < 34 weeks GA with suspected LOS in a NICU, 14 clinical signs (pallor/gray skin, capillary refill >2 seconds, dys/tachypnea, increasing oxygen-need, tachycardia, thermal instability, hyper/hypothermia, feeding difficulties, increasing apnoeic spells, lethargy and irritability) and 4 risk factors (gestational age (GA), weight, sex, central venous catheter (CVC), mechanical ventilation, postnatal age) were prospectively assessed. LOS was defined as bloodculture-proven sepsis occurring after 3 days of age.

Results: LOS was diagnosed in 28% of 180 episodes of suspected infection, occurring in 142 neonates (mean GA 30⁺³ ± 2⁺² weeks). Only 3 signs were significantly associated with LOS: deterioration of respiratory condition (OR 3,2; 95%CI 1,6-6,3), capillary refill >2 seconds (OR 2,9; 95%CI 1,5-5,7) and lethargy (OR 4,4; 95%CI 2,2-8,7). Multiple regression resulted in a model with these 3 signs and the presence of a CVC (AUC 0,828; 95%CI 0,764-0,892, p< 0,001). In the absence of these 4 factors, LOS was found in 2,3% (1/43). In case of one or more of the 4 factors sensitivity was 98%, specificity 32%, positive LR 1,45 and negative LR 0,06.

Conclusion: Deterioration of respiratory condition, capillary refill, lethargy and the presence of a CVC are the most important clinical signs in predicting LOS in preterm infants. In the absence of all these signs probably antibiotics can be safely withheld.