

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.

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

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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.

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

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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 (µl/g)	48.2	31.1	48.2	44.8	41.9
Cst/BW [ml/cmH2O*kg]	1.50	1.23	1.82	1.80	1.91
Rn [cmH2O*s/ml]	0.25	0.17	0.18	0.16	0.16
G [cmH2O/ml]	5.52*	4.55	4.51	4.06	2.76
H [cmH2O/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.