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EFFICIENCY OF MASK VENTILATION IN PRETERM INFANTS AT BIRTH

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Aim: To investigate the efficiency of mask ventilation in preterm infants after birth.

Methods: Recordings of airway pressures and gas flow of infants < 32 weeks gestation needing mask ventilation at birth were reviewed. Respiratory support was delivered with a T-piece and mask. Inflations in the first 5 minutes were analyzed for significant leak (> 60%), low expired tidal volume (V_{Te}) < 3.0 ml/kg, high V_{Te} (> 15 ml/kg in initial sustained inflations of 3 seconds, > 10 ml/kg in subsequent inflations). Airway obstruction could only be observed leak was minimal.

Results: Recordings of 26 infants (mean (SD) gestation 28.0 (1.6) weeks, birth weight 1120 (322) grams) were suitable for analysis. In 26 infants 130 sustained inflations (5 (2) per infant) were given and median (IQR) leak was 84 (40-100)% and V_{Te} was 2.1 (0-6.7) ml/kg. In 20/26 infants 1513 subsequent inflations (75 (50) per infant) were given and leak was 56 (8-100)% and V_{Te} 2.9 (0.3-5.8) ml/kg. The proportion of infants and percentage of inflations with significant leak, low V_{Te} , high V_{Te} and obstruction are shown in Table 1.

	Sus-tained inflations Proportion of patients (%) (N = 26)	Sus-tained inflations Percentage of inflations (N=130)	Sub-sequent inflations Proportion of patients (%) (N =20)	Sub-sequent inflations Percentage of inflations N=1513
Significant leak (>60%) (> 60%)	21 (80 %)	80 (60-100) %	20 (100 %)	50 (21-82) %
Low V_{Te} (< 3.5 ml/kg)	20 (77 %)	80 (40-100) %	20 (100 %)	60 (29-75) %
High V_{Te} (> 15 ml/kg for sustained and > 10 ml/kg for continued inflations)	3 (12 %)	40 (20-40) %	13 (65 %)	5 (2-16) %
Obstruction during *inflations with minimal leak (<30%)	4 (15 %)	80 (30-100) % *N=30	10 (50 %)	22 (10-53 %) *N=426

[table 1]

Conclusion: During mask ventilation of preterm infants at birth tidal ventilation is frequently low and hampered by mask leak and obstruction. High V_{Te} occurred occasionally.

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SURFACE ACTIVITY OF SMALL VOLUME AIRWAY ASPIRATES SUCTIONED DURING NEONATAL RESUSCITATION

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Background: Only small amounts of surfactant are be needed for measuring biophysical activity in the captive bubble surfactometer (CBS). Using large sample volumes, amniotic fluid or gastric aspirates have been used before for prediction of lung maturity in neonates. With the CBS the analysis of surfactant samples from neonatal aspirates with small volumes and low amounts of phospholipids can be performed.

Aims: To prepare surfactant samples from small volumes of oro-nasal aspirates suctioned during