Case presentation: We report a case of a preterm infant (26 weeks GA) presenting with recurrent pulmonary hemorrhage in whom we performed a therapeutic lavage with diluted surfactant after an acute episode of massive bleeding with severe intractable hypoxemia. Repeated small aliquots of diluted surfactant (10 x 2 ml) allowed for marked improvement in oxygenation allowing to reduce mean airway pressures during high frequency oscillatory ventilation rapidly. The infant showed further progressive improvement allowing switching from HFOV back to conventional ventilation and finally extubation within 25 days.

Conclusion: Bronchoalveolar lavage with diluted surfactant might be beneficial in massive pulmonary hemorrhage in infants. Further investigations are needed to clarify the potential benefit of such a therapeutic intervention on outcome of infants suffering from life-threatening PH.

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DIFFERENT GAS FLOW RATES AND EFFECTS ON TIDAL VOLUME AND MASK LEAK DURING POSITIVE PRESSURE VENTILATION

K. Schilleman^{1,2}, G.M. Schmölzer^{1,3,4,5},
C.O.F. Kamlin¹, A.B. te Pas², C.J. Morley^{1,3},
P.G. Davis^{1,3,6}

¹Department of Newborn Research, Royal Women's Hospital, Melbourne, VIC, Australia,
²Department of Pediatrics, Division of Neonatology, Leiden University Medical Center, Leiden, The Netherlands, ³Murdoch Children Research Institute, ⁴Department of Physiology, Monash Institute of Medical Research, Melbourne, VIC, Australia, ⁵Division of Neonatology, Department of Paediatrics, Medical University Graz, Graz, Austria, ⁶Department of Obstetrics & Gynaecology, University of Melbourne, Melbourne, VIC, Australia

Aim: Observing the effects of changing gas flow rates during positive pressure ventilation (PPV) on Peak Inflating Pressure (PIP), Positive End Expiratory Pressure (PEEP), expiratory tidal volume (V_{Te}) and mask leak.

Methods: Twenty neonatal staff members of The Royal Women's Hospital were asked to deliver PPV to a modified manikin. *Experiment 1:* PPV was delivered for four minutes continuously with a set PIP 30 cm H₂O and PEEP 5 cm H₂O. Each minute the gas flow rate was increased from 5 to 8, 10, and 15 L/min. Neither PIP nor PEEP was adjusted

during PPV. The same initial settings were used in *experiment 2*. However, PIP and PEEP were readjusted after each gas flow rate change.

Results: Results are given in median (IQR).

Experiment 1: with gas flow rate increments of 5, 8, 10 and 15 L/min the V_{Te} decreased significantly from 10.0 (8.5-11.4), 6.3 (3.9-7.4), 3.4 (0.7-5.4) to 0.8 (0-1.7) mL/kg, ($p=0,000$). Mask leak increased from 14 (5-47)%, 46 (20-79)%, 79 (39-98)% to 98 (91-100)%, ($p=0,000$).

PIP showed a slight increase with the increasing gas flow rates to 35.6 (33.7-37.0) cm H₂O at 15 L/min. PEEP increased significantly to 26.4 (24.5-27.4) cm H₂O at 15 L/min.

Experiment 2: There was no significant difference in delivered V_{Te} ($p=0.42$) or mask leak ($p=0.51$) with changing gas flow rates.

Conclusion: Changing gas flow rates during PPV effected V_{Te} delivery, mask leak and airway pressures. It is therefore advisable not to alter the gas flow rate during resuscitation.

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RETINOPATHY OF PREMATURE SCREENING AND STRESS IN PRETERM INFANTS

N. Kandamany¹, E. Hayden², M. O'Keefe³,
J.F. Murphy¹

¹Neonatology, ²Clinical Engineering,
³Ophthalmology, National Maternity Hospital,
Dublin, Ireland

Aims: Retinopathy of Prematurity screening of the preterm infant is potentially a stressful procedure. In this study, we attempted to quantify the degree of stress caused by this examination using the Med-Storm Pain Monitor (Advantech). This monitor measures the changes in skin conductance secondary to sweat released by sympathetic neuron firing using electrodes placed on the skin. Each firing of the neurons is followed by a conductance peak. The monitor records the rate of firing of the neurons per second.

Methods: Preterm infants undergoing ROP screening had skin conductance rates measured using the Med-Storm Pain Monitor. Each infant's skin conductance rate was measured using electrodes applied to the sole of the foot. The conductance rates were measured at baseline