

Background and aims If infants fail to initiate spontaneous breathing after birth, international guidelines recommend positive pressure ventilation (PPV). However, mask PPV remains challenging with leakage occurring commonly. Despite a variety of available facemasks, none has been systemically studied in newborn infants. We aimed to determine if using a Fisher and Paykel (FP) round facemask would reduce mask leak compared to using a Laerdal round facemask during mask PPV in preterm infants.

Methods From April to September 2013, at the Royal Alexandra Hospital, newborn infants.

Results Fifty-eight preterm infants (n = 29 in each group) were enrolled; mean±SD gestation 28 ± 3 weeks; birth weight 1210 ± 448 g, 30(52%) male, 39(67%) born by caesarean section. Apgar scores at 1 and 5 min were 5 ± 3 and 7 ± 2, respectively. Infants randomised to the FP facemask and Laerdal facemask had similar mask leak (37 ± 17% vs. 33 ± 12%, respectively, p = 0.30) and tidal volume (7.3 ± 3.0 mL/kg vs. 6.9 ± 2.7 mL/kg, p = 0.73) during PPV. There were no significant differences in ventilation rate, inflation time or airway pressures between groups.

Conclusions The use of either facemask during PPV in the delivery room yields similar mask leak.

0-069a VIDEOLARYNGOSCOPY AS AN INTUBATION TRAINING TOOL FOR NEONATAL TRAINEES – A RANDOMISED CONTROLLED TRIAL

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Background and aims Endotracheal intubation is a mandatory skill for neonatal trainees. However, inexperienced trainees have success rates <50%. We compared intubations supervised by an instructor watching a videolaryngoscope screen with the traditional method where the instructor does not have this view.

Methods RCT (ANZCTR# 12613000159752) at The Royal Women's Hospital, Melbourne. Eligible intubations were those performed orally, in infants without facial or airway anomalies, in the delivery room or in NICU, by trainees with <6 months experience. Intubations were randomised to videolaryngoscope screen visible to the instructor (intervention) or covered (control). Primary outcome was first attempt intubation success rate confirmed by colorimetric detection of expired CO₂. A sample size of 206 provided 80% power to detect a 20% difference in success rates (50% vs. 70%).

Abstract 0-069a Table 1

	Control (n = 102)	Intervention (n = 104)	P
Corrected gestation (w)*	29 (27–32)	29 (27–32)	0.82
Weight (g)*	1125 (816–1569)	1172.5 (819–1884)	0.35
Success rate – n (%)	42/102 (41.2%)	69/104 (66.3%)	<0.001
Success rate with premedication – n (%)	35/79 (44.3%)	56/78 (71.8%)	<0.001
Success rate without premedication – n (%)	7/23 (30.4%)	13/26 (50%)	0.164
Lowest SpO ₂ (%)*	69 (46–82)	70 (47.5–83)	0.88
Lowest heart rate (bpm)*	151 (139–162)	150 (134.5–163.5)	0.99
Duration of attempt (s)*	53 (41–70)	51 (39–63)	0.15

* median (interquartile range)

Results

Conclusions Intubation success rates of inexperienced doctors were significantly improved, OR 2.81 (95% CI 1.54–5.17), when the instructor was able to share their view on a videolaryngoscope screen.

Nephrology I

0-070 HAEMODYNAMIC IMPACT OF THE CONNECTION OF CONTINUOUS RENAL REPLACEMENT THERAPY IN CRITICALLY ILL CHILDREN

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Background Continuous Renal Replacement Therapies (CRRT) are the treatment of choice for critically ill children with Acute Renal Injury. Hypotension after starting CRRT is frequent but there are no studies that have analysed their incidence and importance.

Patients and methods A prospective, observational study was performed including critically ill children treated with CRRT between October 2009 and December 2013. Hemodynamic data and connection characteristics were collected before, during and 60 min after CRRT circuit connection. Hypotension with the connection was defined as a decrease in mean arterial pressure >20% from baseline and/or intravenous fluid expansion and/or if increase in vasopressors was required.

Results 161 connections in 36 children (median age 18.8 months) were analysed. 28 patients (77.8%) were in the postoperative period of cardiac surgery, 94% on mechanical ventilation and 86.1% with vasopressors. The circuit prime was discarded in 8.7% of connections, the heparinised prime was infused in 18% and the circuit was previously primed with colloidal (albumin in 77.5%) or crystalloid without heparin in 73.3%. Hypotension occurred in 49.7% of connections with a median of 5 min after the beginning. In 38.5% of the connections fluid expansion was required and in 12.4% vasopressors were increased. There was no hypotension relation to age or weight. Previous priming of the circuit reduced the frequency of hypotension to 44.6% vs. 71.4% (p = 0.004).

Conclusions Hypotension after CRRT connection is very frequent in critically ill children. Priming the circuit improves hemodynamic tolerance of the connection.

0-071 SALT-SPARING DIURETIC ACTION OF A UREA ANALOGUE INHIBITOR OF UREA TRANSPORTERS UT-A AND UT-B IN RATS

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Background and aims Urea is end metabolite of protein metabolism and is crucial for generation of hypertonic renal medulla. Urea transport to medullary interstitium is facilitated by urea transporters (UT-A and UT-B). UT inhibitors have potential use as a novel class of salt-sparing diuretics.

Methods UT inhibitor effect of urea analogue dimethylthiourea (DMTU) was investigated and characterised in cell-based assays.