ID: 50

TITLE: ACTIVE MANAGEMENT OF INBORN VERSUS OUTBORN LIVEBIRTHS AT 22-24 WEEKS' GESTATION

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CONTENT:

Management of periviable births at 22-24 weeks' gestation requires important clinical decisions that affect survival chances for the infant, including antenatal corticosteroid administration, in-utero transfer to a tertiary centre, mode of delivery, resuscitation at birth and provision of neonatal intensive care. There are wide variations in approaches to 'active management' of periviable births internationally. Our aim was to report rates of active management of births at 22-24 weeks' gestation in Victoria, Australia, comparing rates in tertiary centre (inborn) births with non-tertiary (outborn) births. We also aimed to report temporal changes in rates of active management.

We conducted a population-based cohort study of all 22-24 weeks' gestation births in Victoria, Australia from 1/1/2009 to 31/12/2016 (8 years). Perinatal data and infant mortality data were obtained from the Department of Health and Human Services, Victoria. 'Active management' was defined as delivery room resuscitation, comprising any of positive pressure ventilation, CPAP, intubation, external chest compressions and/or administration of adrenaline and/or volume expanders. Active management rates comparing inborn with outborn infants were analysed by logistic regression, adjusted for gestational age, birth weight and sex. Adjusted odds ratios (aOR), 95% confidence intervals (CI) and p-values for each intervention were calculated. Temporal changes were analysed by logistic regression.

In 2009-2016, there were 1,266 births recorded at 22-24 weeks' gestation: 705 (56%) were liveborn. Livebirth rates were 42%, 54% and 68% at 22, 23, and 24 weeks' gestation respectively. Overall, 70% (n=492) of livebirths occurred in a tertiary centre. Active management rates increased with increasing gestational age: 10/169 (6%) at 22 weeks, 94/224 (42%) at 23 weeks and 277/312 (89%) at 24 weeks. Inborn infants were more likely to be resuscitated compared with outborn infants: 64% versus 31%. A total of 381 (54%) infants were resuscitated and of these, 356 (93%) survived to nursery admission. At one year, 231 (61%) actively managed infants were alive: 67% (209/314) inborn versus 33% (22/66) outborn infants (aOR 1.94, 95% CI 1.10, 3.39, p=0.02). Survival rates were 0% at 22 weeks, 52% at 23 weeks and 66% at 24 weeks. There were no significant changes in active management rates over time.

Active management is rare at 22 weeks' gestation in Victoria, but by 24 weeks' gestation, nearly 90% of livebirths are actively managed. Infants born in tertiary perinatal centres are significantly more likely to be offered active management, especially at 23 weeks' gestation. As a result, survival rates at one year are higher in inborn infants. Further research is required to identify barriers to active management of outborn periviable infants.

COI: None declared
TITLE: DEFERRED CONSENT FOR THE ENROLMENT OF NEONATES IN DELIVERY ROOM STUDIES: THE PROVIDERS’ PERSPECTIVE

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CONTENT:

Several studies reported usage of a deferred consent approach for delivery room (DR) studies. Using a deferred consent approach can speed up patient accrual and reduce selection bias. However, as jurisdiction and guidance for deferred consent varies, actual experience with deferred consent for DR studies is limited and in-depth understanding of providers’ views on deferred consent for DR studies is lacking. We conducted interviews with providers of Neonatal Intensive Care Units (NICUs) that participate in the same studies, but differ in their consent approaches. With this study, we aim to gain insight in providers’ perceptions of deferred consent for DR studies in actual scenarios.

We conducted semi-structured interviews with 46 NICU staff members of the Leiden University Medical Center (the Netherlands) and the Hospital of the University of Pennsylvania (United States of America). At the time interviews were conducted, both NICUs conducted the same DR studies, but differed in their consent approaches. Interviews were audio recorded, transcribed and analysed using the qualitative data analysis software Atlas.ti 7.0.

Although providers reported to regard the prospective consent approach as the most preferable consent approach, they acknowledged that a deferred consent approach is needed for high quality DR management. However, providers reported concerns about parental autonomy, approaching parents for consent, and ethical review of study protocols that include a deferred consent approach. Providers furthermore differed in perceived appropriateness of a deferred consent approach for the studies that were being conducted at their NICUs. Providers with first-hand experience with deferred consent reported positive experiences that they attributed to appropriate communication and timing of approaching parents for consent.

Insight in providers’ perceptions of deferred consent for DR studies in actual scenarios suggests that a deferred consent approach is considered acceptable, but that actual usage of the approach for DR studies can be improved upon.

COI: None declared.
**ID:** 117  
**TITLE:** IMPACT OF BODY POSITIONING ON LUNG DEPOSITION OF NEBULIZED PORACTANT ALFA DELIVERED BY A CUSTOMIZED eFlow Neos INVESTIGATIONAL VIBRATING-MEMBRANE NEBULIZER SYSTEM  
**AUTHORS:** Anders Nord 1; Rikard Linner 1; Fabrizio Salomone 2; Federico Bianco 2; Francesca Ricci 2; Xabi Murgia 3; Martin Schlun 4; Doris Cunha-Goncalves 1; Valeria Perez-de-Sa 1  
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**CONTENT:**

Nebulization of poractant alfa with a customized eFlow Neos investigational vibrating-membrane nebulizer system achieves relatively high lung deposition under experimental preclinical neonatal conditions. We investigated whether body positioning during poractant alfa nebulization would influence the intrapulmonary deposition and distribution of surfactant in spontaneously-breathing healthy piglets.

Twenty-four full-term one-day-old piglets (1.3-2.2 kg) were sedated, supported with nasal continuous positive airway pressure (nCPAP), and assigned to one of four experimental groups: 1) lateral decubitus with right side up, 2) lateral decubitus with left side up, 3) prone position, and 4) supine position (n=6 per group). While on nCPAP, all animals received technetium-99m-labeled surfactant, poractant alfa 200 mg/kg, via continuous nebulization. Surfactant deposition was measured from scintigraphic images obtained in the gamma-camera.

All groups compared, the mean total lung surfactant deposition was significantly higher in the prone position group (32.4 ± 7.7%, p=0.03). In the prone and supine position groups, surfactant deposition was higher in the right lung. When surfactant nebulization was performed with the animals in the lateral decubitus position, most of the surfactant was found in the dependent lung, regardless of which side the piglet laid on. (Table 1)

The mean lung deposition was relatively high irrespective of the animal position during nebulization. We also observed a significantly greater surfactant deposition in the lungs of piglets lying in the prone position. The observation of a higher deposition in the dependent lung while on lateral decubitus suggests that deposition was also influenced by gravity.

**IMAGES:**

https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=8d54826223c63dba3e088a3fa0cb90a-MjAxOS0wNSM1Y2UvYmQzMjA3

**Table 1 - Lung deposition of nebulized surfactant**

**COI:** The study was funded by a grant from Chiesi Farmaceutici SpA. Fabrizio Salomone, Federico Bianco and Francesca Ricci are employees of Chiesi Farmaceutici. Martin Schlun is employed by Pari Pharma. Xabi Murgia is a consultant for Chiesi. Valeria Perez de Sa, Anders Nord, Doris Cunha Goncalves, Rikard Linner, "None declared"
ID: 157  
TITLE: PHYSIOLOGICAL-BASED CORD CLAMPING IN PRETERM INFANTS - NON-INFERIORITY TRIAL OF EFFECTIVENESS OF STABILISATION.  
AUTHORS: R. Knol 1; E. Brouwer 2; T. van den Akker 3; P. DeKoning 4,5; N. van Geloven 6; E. Lopriore 2; G.R. Polglase 5; I.K.M. Reiss 1; S.B. Hooper 5; A.B. te Pas 2  
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5 The Ritchie Centre, Hudson Institute of Medical Research, Monash University, Clayton, Victoria, Australia.  

CONTENT:  
Preterm infants often fail to aerate their immature lungs at birth and need respiratory support for cardio-pulmonary stabilisation. Delaying cord clamping until the lung is aerated and the infant is breathing may be beneficial, therefore optimizing hemodynamic transition and placental transfusion. The feasibility of this approach of Physiological-Based Cord Clamping (PBCC) has been shown before. The aim of the present trial was to test whether stabilising preterm infants performing PBCC was at least as effective as the standard approach of time-based Delayed Cord Clamping (DCC).  

A randomised controlled non-inferiority trial was performed in two centres, including preterm infants born at less than 32 weeks of gestation. Infants were allocated to either PBCC or standard DCC. In the PBCC group, infants were stabilised on a purpose-built resuscitation table (the Concord) with an intact umbilical cord. The cord was clamped when the infant was considered respiratory stable, defined as establishment of regular spontaneous breathing, heart rate ≥ 100 bpm and SpO2 > 90% while using FiO2 < 0.40. In the DCC group, infants were clamped after 60 seconds before being transferred to the standard resuscitation table for stabilisation. The primary outcome was the time to reach respiratory stability as previously defined, with pre-defined non-inferiority limit at -1:15 minutes.  

Thirty-seven infants (mean GA 29+0 weeks) were randomised. Mean (SD) cord clamping time was 1:02 (0:30) min for the DCC group and 5:49 (2:37) min for the PBCC group. Intention-to-treat analysis for the primary outcome showed a shorter time to reach respiratory stability in the PBCC group (PBCC mean 5:54 (2:27) min; DCC mean 7:07 (2:54) min; mean difference 1:13 min, 95% CI [-0:37 – 3:03]), amply reaching the pre-defined non-inferiority limit. No significant differences between the groups were found for maternal blood loss, postpartum haemorrhage, infant temperature at NICU admission, maximum bilirubin levels or short-term neonatal outcomes.  

Stabilisation of preterm infants performing Physiological-Based Cord Clamping using a purpose-built resuscitation table is at least as effective as standard DCC. A large randomised clinical trial is started to show possible short- and long-term benefits.  

IMAGES:  
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=5ea229f0cd48f34e5d81909b9542aa17-MjAxOS0wNS0yNDIyMDUyMjAyMTUwNjIwYzEwMDY2MjUwMjA5NzE0NjU4
Illustration (by Sophie Cramer) of the Physiological Based Cord Clamping approach using the Concord. Stabilisation of the infant is performed while the cord is intact and the cord is clamped after the infant is respiratory stable.  

COI: None declared.
ID: 180

TITLE: A RANDOMIZED CONTROLLED TRIAL OF POSITIVE END-EXPIRATORY PRESSURE IN BAG-MASK VENTILATION DURING RESUSCITATION OF TERM NEWBORNS

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CONTENT:

In 2010 the ILCOR committee recommended to use positive end-expiratory pressure (PEEP) during newborn resuscitation. However, in 2015 the recommendation was modified for term infants due to lack of evidence. Available equipment have major limitations: T-piece resuscitators depend on compressed air, and PEEP-valves for self-inflating bags (SiBs) have so far not been able to deliver reliable PEEP. A SiB that can deliver PEEP is wanted, and studies of PEEP-effect on term newborns are needed.

The aim of this randomized controlled trial was to compare ventilation by SiB with or without a new, integrated PEEP-valve during resuscitation of term and near-term newborns.

All live-born infants (n=6225) who received positive pressure ventilation at birth (n=473) at Haydom Lutheran Hospital in Tanzania between September 2016 and June 2018 were eligible for inclusion after maternal consent. Helping Babies Breathe-trained midwives performed resuscitation using SiBs with or without PEEP-valve (Laerdal Upright Resuscitator, 320ml, Cat.no 846060/846050). Randomization to use PEEP or not was done for periods of seven days. Heart rate (HR) data was collected by dry-electrode ECG and ventilation data by sensors for pressure, flow and side-stream expired carbon dioxide (ECO2) sampled between the bag and the mask. Research assistants observed all resuscitations. Primary outcome was change in HR per ventilation sequence defined as >5 seconds continuous ventilation.

Among 473 ventilated newborns, 99 were excluded due to missing data or lack of consent. Of 374 included newborns, 191 were ventilated without and 183 with PEEP. For the primary outcome, change in HR per ventilation sequence, we found no significant difference between the two groups (mean increase 9 bpm/minute with vs. 15 without PEEP, P=0.31). The SiB with PEEP-valve delivered a median (IQR) PEEP of 4.6 (2.0, 5.6) mbar. Normal clinical outcome (survived and not admitted to neonatal ward at 24 hours) were similar with or without PEEP (64 and 66%, P=0.84). The PEEP-group received lower tidal volumes (P=0.003) and had borderline significant higher mask leak (P=0.07) and lower ECO2 (P=0.07). Adjusting for mean tidal volumes per ventilation sequence in the main analysis changed the results only marginally, but we found improved HR increase with higher volumes (P=0.02) in both groups.

We did not find significant differences in HR response or clinical outcome at 24 hours between newborns ventilated with or without PEEP-valve, despite ensuring adequate PEEP. Lower tidal volumes in the PEEP-group may have counteracted eventual positive effects of PEEP.
Table) Baseline characteristics and outcome for newborns who received bag-mask ventilation without or with PEEP-valve during newborn resuscitation

COI: Joar Eilevstjønn and Øystein Gomo are employees of Laerdal Medical. Jørgen Linde is married to an employee of Laerdal Global Health. Jørgen Linde and Monica Thallinger have received unrestricted grants from the Laerdal Foundation.
ID: 247

TITLE: THE EFFECT OF A FACE MASK FOR RESPIRATORY SUPPORT ON BREATHING IN PRETERM INFANTS AT BIRTH

AUTHORS: Kristel L.A.M. Kuypers1, MD; Tereza Lamberska2, MD; Tessa Martherus1, BSc; Janneke Dekker1, MSc; Stefan Böhringer3, PhD; Stuart B. Hooper4,5, PhD; Richard Plavka2, PhD, MD; Arjan B. te Pas1, PhD, MD.

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CONTENT:

Applying a face mask for respiratory support could induce a trigeminocardiac reflex leading to apnoea and bradycardia. We explored the effect of applying a face mask on breathing and heart rate in preterm infants at birth.

Resuscitation videos of infants ≤ 32 weeks gestation recorded from 2010 until 2018 at the Leiden University Medical Centre and the General University Hospital in Prague were reviewed. Infants received respiratory support via face mask. Breathing and heart rate before and after application of the face mask and in the first 5 minutes were noted.

Recordings of 429 infants were included (median (IQR) gestational age of 28+6 (27+1-30+4) weeks). In 368/429 (86%) infants breathing was observed initially of which 197/368 (54%) infants stopped breathing after application of the face mask. Apnoea occurred after 5 (3-17) seconds after application of the face mask with a duration of 28 (22-34) seconds in the first minute. In a logistic regression model, the occurrence of apnoea after face mask application was inversely associated with gestational age (OR=1.424 (1.281-1.583), p<0.001). In infants who stopped breathing, a significantly lower heart rate (84 (66-125) vs 134 (100-152) bpm, p<0.001) and oxygen saturation (49% (33-59) vs 66% (50-82), p<0.001) was observed in the first minute after face mask application when compared to infants who maintained breathing.

Applying a face mask for respiratory support affects breathing in a large proportion of preterm infants and this effect is gestational age dependent.

COI: None declared
ID: 268

TITLE: SUSTAINED INFLATION VS INTERMITTENT POSITIVE PRESSURE VENTILATION OR CONTINUOUS POSITIVE AIRWAY PRESSURE DURING NEONATAL RESUSCITATION OF PRETERM INFANTS: AN UPDATED META-ANALYSIS

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CONTENT:

Lung aeration is critical for newborn transition after birth. Respiratory interventions to support lung aeration in preterm infants include intermittent positive pressure ventilation (IPPV) and sustained inflation (SI).

Previous clinical trials of SI demonstrated improved short-term respiratory outcomes in preterm infants, but these results are not consistent. The recently completed Sustained Aeration of Infant Lungs (SAIL) trial compared SI with IPPV to prevent bronchopulmonary dysplasia or death among extremely preterm infants. We undertook this study to update the existing meta-analyses of SI to include the SAIL trial results.

A standard search was conducted for RCTs of preterm infants comparing SI (>5 seconds) versus standard resuscitation with IPPV or continuous positive airway pressure (CPAP). Studies with other co-interventions were excluded.

The primary outcome was death during hospitalization. Gestational age (GA) subgroup analyses were performed for the primary outcome. Secondary outcomes included death in the delivery room (DR), death in the first 2 days, DR CPR, DR intubation, mechanical ventilation in the first 72 hours, surfactant administration in the first 72 hours, air leaks, severe brain injury, BPD, treatment for PDA, and severe ROP.

Data were analyzed with fixed effects meta-analysis, and risk difference was calculated using Bohning approach.

We identified and screened 115 original references, assessed 37 texts for eligibility, and included 9 trials of 1,406 preterm infants. The pooled analysis favored the control group for the primary outcome of death during hospitalization, but this association was not statistically significant, risk difference (RD) 0.04 (95% Confidence Interval [CI] -0.01, 0.08) (Figure). There was no significant difference in the risk for the primary outcome of death prior to hospital discharge in subgroup analysis based on the following gestational age subgroups: 23-24 weeks; 25-26 weeks; 27-31 weeks; 32-36 weeks.

In pooled analysis, SI was associated with increased risk of the secondary outcome of death in the first 2 days, RD 0.03 (95% CI 0.01, 0.05). There were no significant differences between treatment groups for any of the other secondary outcomes.

Pooled analysis of 1,406 preterm infants in 9 RCTs favors the control group over SI for the outcome of death during hospitalization, but the result does not reach statistical significance. SI is associated with increased risk of death in the first 2 days after birth, and there is no evidence of efficacy for SI to prevent other secondary outcomes. These results do not support the routine use of SI after birth among preterm infants.
Images: https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=6119b4cd35957a234ca635801b85582-MjAxOS0wNSM1Y2UyNjyYzE1NzFm

Forest Plot for Primary Outcome: Death During Hospitalization

COI: Financial Disclosures: M. Keszler: Draeger Medical, Inc (Grant/Research Support, Honorarium) and Mallinckrodt, Inc. (Grant/Research Support); C. Dani: Chiesi Farmaceutici Spa (Consultancy) and Orphan Europe (Consultancy)

No other conflicts of interest declared.
ID: 328

**TITLE:** THE IMPACT OF HIGHER VS. LOWER CPAP ON CARDIORESPIRATORY TRANSITION IN A LAMB MODEL AFTER PRETERM BIRTH

**AUTHORS:** Anja Demel 1,2; Karyn Rodgers 1; Kelly J. Crossley 1; Valerie Zahra 1; Erin V. McGillick 1; Alison Moxham 1; Tessa Martherus 3; Arjan B. te Pas 3; Andre Oberthuer 4; Angela Kribs 4; Graham R. Polglase 1,2; Calum T. Roberts 5; Stuart B. Hooper 1,2

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**CONTENT:**

Most preterm infants require respiratory support after birth to aerate their lungs and initiate pulmonary gas exchange. Non-invasive respiratory support is the most physiological and protective way of providing this support, while minimizing lung injury and improving cardio-pulmonary outcomes. In particular, the combination of spontaneous breathing with Continuous Positive Airway Pressure (CPAP) is the preferred approach, but the optimal way of applying CPAP remains unknown. We hypothesized that a higher CPAP in a spontaneously breathing lamb model, would enhance lung aeration and improve cardio-respiratory stability.

Fetal lambs were randomized in a cross-over experiment to either a high or low CPAP (15 or 5 cmH2O) group. Fetal instrumentation was performed at 130 days gestational age (GA) for cardio-respiratory measurements. Lambs were delivered at 133 days GA via cesarean section and spontaneous breathing was initiated. After immediate cord clamping, all lambs remained for the first 30 minutes after birth at either CPAP level, while spontaneously breathing, before CPAP levels were switched. Non-invasive respiratory support was administered via the Benveniste Valve, a variable jet flow device, through binasal prongs. Circulatory and respiratory aspects were continuously assessed and analyzed every 3 minutes after birth.

Twelve preterm lambs (CPAP 15 vs 5: n=7, mean birth weight 3560±196 (SEM) grams; n=5, mean birth weight 3761±133 (SEM) grams) were assessed. No significant differences were detected in gender, body core temperature and hematocrit levels. Lambs in both CPAP groups reached the targeted minimum of regional cerebral oxygen saturation (65%) (high vs. low CPAP: mean 93.9±5.0% (SEM); 73.6±0.0% (SEM)) at 9 minutes after birth. Lambs receiving higher CPAP required significantly less supplemental oxygen (85.0±3.3% vs. 42.5±1.3%; p< 0.01) up to 27 minutes of life. Partial pressures of carbon dioxide were higher and breathing rates (Fig.1) were lower in lambs receiving lower CPAP. Notably, fewer lambs, allocated to the lower CPAP group, were able to be sustained on CPAP without additional cardiorespiratory support compared to the higher CPAP group (62.5% vs. 100%; p=0.08) at 5 minutes after birth.

A CPAP of 15 cmH2O during non-invasive respiratory support markedly improved gas exchange. The required amount of supplemental oxygen to maintain cerebral oxygenation was lower and the survival rate reached 100% in the higher CPAP group compared to 62.5% in the lower CPAP group. Further research on optimal CPAP administration is required.
Figure 1. Respiratory rate changes over time in lower CPAP (black triangles, n=4#) and higher CPAP (red dots, n=7) groups. Data are presented as mean±SEM and significance accepted p=0.05. Asterisk (*) indicates significant differences between groups (*p<0.05, **p<0.01) at individual timepoints below line. #Not assessed due to technical difficulties in n=1.

COI: Anja Demel: Supported by the German Research Foundation (DFG-grant: DE 1909/ 2-1)
**ID:** 393  
**TITLE:** PHYSIOLOGICALLY BASED CORD CLAMPING AVOIDS TRANSIENT HYPOXIA AND INCREASES PULMONARY BLOOD FLOW IN LAMBS WITH A DIAPHRAGMATIC HERNIA

**AUTHORS:** Aidan J. Kashyap 1, 2; Ryan J. Hodges 1, 2, 3; Marta Thio 4, 5, 6; Karyn A. Rodgers 1, 2; Benjamin J. Amberg 1, 2; Erin V. McGillick 1, 2; Stuart B. Hooper 1, 2; Kelly J. Crossley 1, 2; Philip L. J. DeKoninck 1, 2, 7

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**CONTENT:**

Most fetuses with a congenital diaphragmatic hernia survive until term, as their hypoplastic lungs are not required for gas exchange in utero. However, when the umbilical cord is clamped at birth, the infant becomes solely dependent on the lungs for gas exchange and left ventricular preload. Recently, we have shown that aerating the lung before clamping the umbilical cord (physiologically based cord clamping; PBCC) prevents the transient hypoxia and loss in cardiac output associated with immediate cord clamping (ICC) in preterm lambs that require ventilatory support. We aimed to compare the effects of PBCC and ICC on cardiopulmonary physiology during the neonatal transition in lambs with a diaphragmatic hernia.

A diaphragmatic hernia was surgically created at ≈80 days gestational age (GA; term≈147d) in all fetal sheep (n=17). At ≈138d GA, all fetuses were instrumented and then delivered via caesarean section. The umbilical cord was clamped either immediately prior to ventilation onset (ICC; n=6) or after achieving a target tidal volume of 4 mL/kg, with a maximum delay of 10 min (PBCC; n=11). Lambs were ventilated for a total of 120 min with real-time monitoring of physiological (pulmonary and carotid artery blood flows and pressures; cerebral oxygenation) and ventilatory (tidal volume and airway pressure) parameters. Data is presented as mean ± SEM. PBCC and ICC were compared across time using two-way repeated measures analysis of variance. Statistical significance was accepted when p<0.05.

Cerebral tissue oxygen saturation (SctO2) sharply decreased in ICC lambs at birth (Figure 1A). In contrast, in PBCC lambs SctO2 remained stable as pulmonary blood flow (PBF), and hence pulmonary gas exchange, was gradually established before the placental circulation was removed by cord clamping (Figure 1B). SctO2 was significantly greater in PBCC lambs at 5 min (55±2 vs. 24±4 %, p<0.001) and 10 min (60±4 vs. 41±7 %, p=0.01) after ventilation onset. PBF was 2-fold greater in PBCC compared to ICC lambs at 15 min following ventilation onset (45 ± 9 vs. 22 ± 3 mL/min/kg; p=0.005), and by the end of the 120 min ventilation period PBF was 3-fold greater (23 ± 4 vs 8 ± 2 mL/min/kg; p=0.048). At 120 min after ventilation onset, pulmonary vascular resistance was 3-fold lower in PBCC lambs (0.6±0.1 vs. 2.2±0.6 mm Hg/(mL/min), p<0.001) compared to ICC lambs.

In lambs with a diaphragmatic hernia, establishing lung aeration prior to umbilical cord clamping avoids transient, severe hypoxia at birth and enables increased PBF for at least the first 120 min after birth, compared to ICC. Our findings suggest that a physiological approach to umbilical cord clamping provides a more stable cardiopulmonary transition and may support better neonatal outcomes for infants with a congenital diaphragmatic hernia.
(A) Cerebral tissue oxygen saturation (ScvO2) and (B) pulmonary blood flow (PBF) during the 120 min following ventilation onset in immediate cord clamping (ICC; blue circles, n=6) and physiologically based cord clamping (PBCC; red squares, n=11) groups. Two-way repeated measures ANOVA (group, time) with Holm-Sidak’s multiple comparisons test. * p<0.05 for effect of treatment (ICC vs. PBCC) at each timepoint below line.

COI: None declared
ID: 503

TITLE: CARDIO-RESPIRATORY EVENTS IN PRETERM INFANTS DURING THE TRANSITIONAL PERIOD: CLINICAL FEATURES AND IMPACT OF NEONATAL CHARACTERISTICS.

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CONTENT:

Cardio-respiratory events (CRE), defined as intermittent episodes of hypoxemia and/or bradycardia, are particularly common among preterm infants. It has been previously shown that CRE may result in transient brain hypoxia and hypoperfusion and, if persistent over the first weeks, may represent a possible risk factor for neurodevelopmental impairment and retinopathy of prematurity. The high cardio-respiratory instability that characterises the first 72 hours of life may influence CRE occurrence, with possible clinical implications. This study aimed to characterize CRE features in this transitional period and to evaluate the impact of neonatal and clinical characteristics on different CRE types.

Non-invasively ventilated newborn infants (gestational age [GA] <32 weeks or birth weight <1500 g) were enrolled. During the first 72 hours, heart rate (HR) and peripheral oxygen saturation (SpO2) were continuously recorded, and an echocardiogram was performed 12- to 24-hourly to assess the status of the ductus arteriosus. CRE lasting ≥10 sec were clustered into isolated desaturation (ID, SpO2<85%), isolated bradycardia (IB, HR<100 bpm or <70% baseline), combined desaturation and bradycardia (DB, occurrence of the two events within a 60-sec window). Generalized estimating equations were used to examine the impact of relevant variables (GA, antenatal Doppler status, ductal status, respiratory support, surfactant administration) on CRE types. Significance level was set at p<0.05.

A total of 815 events from 22 neonates (mean GA 30±2 weeks) were recorded and analysed. Of these, ID were 496 (60.9%), IB 123 (15.1%) and DB 196 (24%). Event duration differed significantly among the 3 types (p<0.01), being shortest for IB (median [interquartile range, IQR] 23.6 [16.3-33.5] sec) and longest for DB (52 [28.9-93] sec). Event type distribution was also significantly different among day 1, 2 and 3 (p=0.01). Compared with other CRE types, ID were more likely in the presence of a hemodynamically significant PDA (B 1.06 [95% confidence interval 0.18-1.93], p=0.01), whereas IB were less common (B -0.81 [-1.36; -0.26], p<0.01). DB were significantly higher in infants <30 weeks’ gestation (B 1.32 [0.62-2.02], p<0.01) and in nasal CPAP (B 1.94 [0.19-3.7], p=0.03). No effect of antenatal Doppler status or surfactant administration on CRE type was observed.

CRE occurring during the first 72 hours of life in preterm infants who do not require invasive ventilation are of different types, with ID being the most frequent. CRE types vary over time and are significantly associated with specific neonatal or clinical characteristics. This finding suggests different physiological mechanisms underlying CRE occurrence during the transitional period and may add useful information for their clinical management.

COI: None declared
ID: 632
TITLE: RESPIRATORY MONITORING DURING NEWBORN RESUSCITATION USING A LARYNGEAL MASK AIRWAY VS. FACIAL MASK: A QUASI-RANDOMIZED TRIAL
AUTHORS: Nicolas J Pejovic 1 Francesco Cavallin 2 Allan Mpamize 3 Clare Lubulwa 4 Susanna Myrner Hoök 5 Josaphat Byamugisha 6 Jolly Nankunda 7 Thorkild Tylleskär 8 Daniele Trevisanuto 9
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CONTENT:

Mortality rates from birth asphyxia in low-income countries remain high. Safe and effective positive pressure ventilation (PPV) can improve outcome, but the optimal mode of PPV delivery remains unclear. Face mask ventilation (FMV) performed by midwives is the usual method of resuscitating neonates in such settings but may not always be effective. The i-gel is a cuffless laryngeal mask airway (LMA) that could enhance neonatal resuscitation performance. We aimed to evaluate the respiratory function of laryngeal mask airway (LMA) and face mask (FM) in asphyxiated infants resuscitated by midwives in a low-resource setting.

This prospective randomized clinical trial was conducted at the labor ward of Mulago National Referral Hospital, Uganda. After a brief training on LMA and FM use, infants with a birth weight >2000 g and requiring positive pressure ventilation at birth were ventilated by LMA or standard face mask by daily non-blinded block randomization. Resuscitations were video recorded. A NewLifebox monitor collected ventilation data through a flow sensor between bag and mask. Heart rate was obtained with a Laerdal NeoBeat dry-electrode electrocardiography (ECG) monitor. The primary outcome was mask leak (%) during the first 30 given breath.

Forty-six infants were included in the study, 23 in each group. Baseline characteristics were comparable between the two arms. Mean expiratory tidal volume was 8.2 ml/kg (SD 3.4) in LMA and 8.8 ml/kg (SD 5.8) in FM arms (p=0.66), while mean mask leak was 39% (SD 20) in LMA and 46% (SD 24) in FM arms (p=0.32) during the first 60 breaths. Peak inspiratory pressure (PIP) was 39.4 cm H2O (SD 7.6) in LMA and 34.5 cm H2O (SD 8.2) in FM (p=0.04). The mean number of given breaths was 87 (IQR 64-162) in LMA and 236 (IQR 60-593) in FM arms (p=0.15). HR rate was higher in LMA than FM arm (p=0.05) and increased faster during the first 60 breaths (p=0.0001). In 26 infants with HR100 bpm in LMA (median 13 seconds, IQR 9-15) with respect to FM arm (median 61, IQR 33-140) (p=0.0002).

Mask leak and expiratory tidal volume were similar with a cuffless LMA compared to the standard Face Mask. LMA provided higher PIP, shorter ventilation time and a significantly improved heart rate response. The results are relevant for both low and high-income settings since this is the first report of respiratory function and heart rate during resuscitation with LMA. An ongoing trial will address potential benefits on long-term outcomes.

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Newborn resuscitation by midwife using LMA

COI: None declared
ID: 788

TITLE: VENTILATION ON A LOW RESOURCE SETTING NEONATAL UNIT: JUST BECAUSE WE CAN, DOES THAT MEAN WE SHOULD?

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CONTENT:

There is plenty of research on neonatal resuscitation in low to middle resource countries, but less about ongoing ventilation. Zambia's only tertiary Neonatal unit, based at University Teaching Hospital, Lusaka has four ventilators. The decision to intubate is clinical with oxygen saturations the only monitoring. The infant should be above 1kg with an available ventilator. There is no carbon dioxide monitoring, no blood gases, no chest Xray. Therefore we cannot monitor for hypocapnia or hyperoxemia in infants ventilated for a prolonged period. With the mortality rate of these patients unknown, is it right or safe to intubate and ventilate those infants without ways to safely monitor?

A retrospective review of intubated and ventilated patients persisting beyond the acute neonatal life support setting, over a three month period was undertaken in the NICU. Exclusion criteria for ventilation was infants less than 1kg, those with congenital abnormalities and ventilator availability. A proforma was filled out including gestation, weight, reason for intubation, intubator grade, tube size, premedication used, length of intubation, how they extubated and outcome. If applicable, those infants with Hypoxic Ischaemic Encephalopathy (HIE) had a score out of 22 on arrival and at discharge, a higher number is associated with poorer outcome. Primary outcomes looked at mortality, secondary at documentation of event, if premeditation or surfactant was given and self extubation rates.

In total 44 patients, with average weight was 2.5kg. Main reason for admission to NICU was HIE with 64%, main reason for intubation was respiratory distress 34% then apnoea 27%. Registrars were responsible for 55% of intubations. 75% noted ETT size, 5% documented number of attempts. No one was premeditated and 9% received surfactant. There was no documentation of ETT length or grade of view. 14% documented air entry as means to assess tube position, no other method documented of confirmation. Average length of intubation was 23 hours. 30% were planned extubations. 36% self extubated, 66% did not document planned versus self extubation. 27% were reintubated after extubation, with 8 (67%) of these due to self extubation. 25% survived to discharge. 68% died prior to discharge. Of those who had HIE scores performed on admission, the average was 12/22 and on discharge the average was 12/22.

Whilst this is a small cohort of patients, it gives some indication of outcomes of ventilated infants. The question remains an uncomfortable unanswered one, for which further work is needed. An intubation check list has been created to aid documentation, teaching of nursing and medical staff includes how to intubate, use of premedication, how to secure ETT and ventilation. We will re audit to see if these interventions have made any difference.

COI: None declared
ID: 794

TITLE: IMPROVING GUIDELINE COMPLIANCE AND DOCUMENTATION THROUGH AUDITING NEONATAL RESUSCITATION

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CONTENT:

To improve the quality of neonatal resuscitation, several Neonatal Intensive Care Units started recording and reviewing interventions in the delivery room on a regular basis. In order to improve delivery room management in our unit, we implemented weekly audits in 2014. The aim of this study was to assess whether weekly auditing increased providers’ compliance with the resuscitation guideline and improved documentation of delivery room management.

Since 2014, neonatal care providers reviewed recordings of neonatal resuscitation during weekly plenary audits. In an observational pre-post cohort study, we studied a cohort of infants born before and after implementation of weekly audits. Video and physiological parameters recordings of infants needing resuscitation at the Neonatal Intensive Care Unit of Leiden University Medical Center were analyzed. Using a pre-set checklist, recordings were compared with the prevailing resuscitation guideline and corresponding documentation in the medical record.

In total 212 infants were included, 42 before and 170 after implementation of weekly audits, with a median (IQR) gestational age of 30 (27-35) vs. 30 (29-33) weeks and birth weight of 1368 (998-1780) vs. 1420 (1097-1871) grams. Providers complied more often to the guideline after weekly auditing was implemented (63% vs. 77%). Appropriate respiratory support, air conditions (dry vs. humidified air), fraction of inspired oxygen (FiO2), timely start of interventions and evaluation of delivered care improved. Total number of correctly documented items in medical records increased from 39% to 65%. Documentation of present providers, mode of respiratory support and details about transport to the Neonatal Intensive Care Unit were most obtained improvements.

Regular auditing using video and physiological parameter recordings of infants needing resuscitation at birth improved providers’ compliance with resuscitation guideline and documentation in medical records. When preconditions for a safe environment are met, regular auditing can be recommended.

COI: None declared
ID: 815

**TITLE:** RESPIRATORY CHANGES IN TERM INFANTS IMMEDIATELY AFTER BIRTH.

**AUTHORS:** Douglas A. Blank* 1,2; Vincent D. Gaertner* 1,3; Omar Kamlin 1,4; Kevyn Nyland 1; Neal Eckard 1; Jennifer Dawson 1,4; Stefan Kane 5; Graeme Polglase 2; Stuart Hooper 2; Peter Davis 1,4

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**CONTENT:**

Over 5% of infants worldwide receive breathing support immediately after birth. Studies have shown that exhaled carbon dioxide (ECO2) levels correlate with lung aeration and that increasing ECO2 precedes increases in heart rate and oxygen saturation in effectively resuscitated infants. The presence of ECO2 indicates airway patency, establishment of lung aeration, pulmonary blood flow, and pulmonary gas exchange. Monitoring ECO2 and exhaled tidal volume (VTe) may guide ventilation of the compromised newborn in the delivery room. Thus, our goal was to define reference ranges for ECO2, VTe, and respiratory rate (RR) immediately after birth in spontaneously breathing infants.

This was a single-centre, observational study at the Royal Women's Hospital in Melbourne, Australia. Healthy infants ≥36 weeks gestational age were eligible for participation. A combined CO2/flow sensor was used to record ECO2, VTe, and RR. An attached face mask was placed over mouth and nose of the infant as soon as the head was delivered and data was saved using a respiratory function monitor. Respiratory measurements were recorded continuously for the first 60 s after birth, then every 30–60 s from 1 to 10 min after birth. The measurements were repeated at one hour. In case of caesarean sections data was collected using a sterile technique. Distribution of the data was assessed and appropriate parametric and non-parametric statistic tests used for analysis.

We analysed 14,731 breaths in 101 spontaneously breathing infants ≥36 weeks gestational age (51 born via planned caesarean section and 50 born vaginally). It took a median (IQR) of 7 (4–10) breaths until ECO2 was detected. ECO2 quickly increased to a median (IQR) peak value of 48 mmHg (43–53) at 143 s (76–258) after birth, and decreased steadily to post-transitional values of 27 mmHg (24–30) by 7 min. There were no significant differences in ECO2 based on mode of delivery. VTe increased after birth, reaching a plateau of 5.3 ml/kg (2.5–8.4) by 130 s for the remainder of the study period. Individual maximum VTe was 19 ml/kg (16–22). RR values increased slightly over time and remained stable from minute 4 onwards. Median (IQR) RR values at 1 hour were 57 breaths per minute (48–66).

We demonstrated that ECO2 increases quickly in spontaneously breathing infants to peak values at 2–3 min after birth followed by a slow but steady descent to post-transitional levels. VTe and RR increased after birth, then plateaued in the first minutes after birth. This study may ultimately contribute to improved interventions in the delivery room by providing reference ranges of normal postnatal development of various respiratory parameters.
Exhaled carbon dioxide in millimetres of mercury (mmHg) over time (n=101). Median values and the 10th, 25th, 75th and 90th percentile are shown.

COI: None declared
ID: 964

**TITLE:** CURRENT PRACTICE IN UK: USE OF ECG DURING RESUSCITATION AND STABILISATION OF THE NEWBORN ON LABOUR WARD

**AUTHORS:** Avineet Kaur 1; Marika Lasokova 2; Thomas Hixson 3; Jean Egyepong 4

**AFFILIATIONS:** 1-4: Neonatal department, Luton and Dunstable University Hospital, United Kingdom

**CONTENT:**

- Heart Rate is the most important clinical parameter used in evaluation of physiological status of newborns during stabilisation/resuscitation (S/R)
- All interventions depend on it
- Use of continuous ECG (C-ECG) monitoring is: quicker to apply, detects HR quicker, more accurate, reliable and objective, solves the problem of poor perfusion and delayed pick up by pulse-oximeters (Phillipos et al, 2016)
- Therefore the current drive towards its use: International Neonatal Guidelines (Perlman et al, 2015; Wyckoff et al, 2015)- suggesting to ‘consider’ its use as part of the S/R as this has clinical, safety and risk implications (Katheria et al 2012; van Vonderen et al 2015; Mizumoto et al 2012)

To evaluate practice in UK:

- Current standard method used to assess heart rate in delivery suite
- The use of C-ECG monitoring during S/R of newborns on labour ward after delivery
- The type/make of ECG machines currently in use for this purpose

**Design:**

- Survey of practice in all UK Neonatal Units that provide neonatal S/R after birth
- Date: April 2019
- Telephone survey
- Sister-in-charge or Advanced Neonatal Nurse Practitioner (nursing team member involved in providing the above)/ ST1-3 or ST>4 on-call doctor on shift or consultant on the day (member of the medical team)

**Questions:**

1. Current standard practice used to assess heart rate at delivery (including use of pulse oximetry (Pox))
2. Use of C-ECG monitoring
3. The make of the ECG machine

- Total number of units surveyed/ contacted: 196
- All 196 gave responses
- Level 1= 45 (23%): L2 = 95 (48.5%): L3= 56 (28.6%)
- 95.9% use Pox and auscultation
- 27 (13.8%) units have access to ECG monitoring if required at delivery: L1 14.8%, L2 44.4% & L3 40.7%
- 10/27 of above have it on their Transport Incubator
- Number currently using C-ECG monitoring = 17 (8.6%)
- Out of the 17, 7 (41.2%) unit unsure since when using ECG, 2 (11.8%) for 5yrs
- 4 use ECG as standard practice; 10 use if prolonged resuscitation, 1 if antenatal cardiac concerns and rest have available but rarely used
- 2 units are in process of getting them
- Portable ECG monitors in use – 8x Phillips model, 2x Mindray monitor (detachable from full cardiac monitor), 1x GE healthcare medical system and rest unknown.

- Majority of UK NICUs currently use Pox for continuous HR monitoring
- C-ECG monitoring used as standard practice for S/R in only 8.6%
• Although several studies, systematic/meta-analysis cites the need for its use in S/R in delivery room, yet to be used as part of standard practice
• Would be useful to monitor future trend in line with risk and safety governance strategies and if this will change from a recommendation to a requirement

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Distribution of ECG monitor use on labour ward for neonatal stabilisation/resuscitation based on neonatal unit level (27Units)

COI: None declared
ID: 965
TITLE: CURRENT PRACTICE IN UK: USE OF END TIDAL CO2 DETECTOR OR RESPIRATORY MONITORING DURING RESUSCITATION AND STABILISATION ON LABOUR WARD
AUTHORS: Avineet Kaur 1; Marika Lasokova 2; Thomas Hixson 3; Jean Egyepong 4
AFFILIATIONS: 1-4: Neonatal department, Luton and Dunstable University Hospital, United Kingdom

CONTENT:

• Adequate airway management and commencing ventilation is crucial for newborn stabilisation/resuscitation (Wyllie and Carlo, 2006)
• Clinical methods to verify ETT position (i.e. air entry auscultation and vital signs improvement) may be fallible at times.
• Non-clinical methods through use of End tidal CO2 (ETCO2) and Respiratory Function Monitoring has proven to be safe, reliable and associated with faster detection of ETT position compared to clinical evaluation, effective tool for assessing accidental extubations and airway obstruction.
• There has never been any UK-wide survey of practice on its use, neither is this a recommendation in the nationally taught Newborn Life Support course.
• Telephone survey consisting of questions on standard and current practice of respiratory monitoring during neonatal resuscitation in the UK.
• Date: April 2019
• All Neonatal units in United Kingdom (UK) that provide neonatal resuscitation/stabilisation after birth were identified and contacted via telephone
• Survey was targeted at Sister-in-charge/Senior nurse, ST1-3/ST>4 on-call doctor or consultant on the day
• Questions were asked to assess current practice in UK Neonatal Units regarding:
  1. Use of ETCO2 monitoring during resuscitation/stabilisation in neonates on labour ward at delivery
  2. Type of ETCO2 used
  3. Use of respiratory monitoring to assess adequacy of mask ventilation and to confirm endotracheal intubation in clinical practice and for training

• Total number of units surveyed: 196 units
• L1=45 (23%): L2=95 (48%): L3=56 (23%)

Respiratory Function Monitoring:
• 1 unit (0.51%) in UK is currently using respiratory monitoring of mask ventilation during resuscitation, however this was not for clinical indication but as part of a double blinded clinical trial
• 2 units (1.2%) had access to use of respiratory monitoring for training and education purposes.

ETCO2 monitoring:
• 189 units (96.4%) are using ETCO2 monitoring
• Equal numbers at all Levels: L1=95.5%, L2=96.8%, L3=96.4%)
• 186 (95.2%) use Calorimeters (pedi-cap); 8 (3.8%) capnometry & 2 (1.06%) other
• Of these main indication for use in 98.9% was to assess correct ETT placement.
• Other indications for ETCO2 use included assessing effectiveness of resuscitation, monitoring CO2 in babies who are intubated, ventilated and being transferred to the neonatal unit
  • Respiratory Function monitoring to assess seal during mask ventilation is not widely used in UK NICUs
  • Few units are looking into it for training purposes.
  • 189 Neonatal Units (96.4%) currently use ETCO2 as a resuscitation tools for accurate assessment of correct ETT placement
• Although use of ETCO2 monitoring does not form part of the NLS recommendations, almost all UK NICUs currently use this to ascertain correct ETT placement

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Use of ETCO2 monitoring in UK in stabilisation and resuscitation of newborn

COI: None declared
ID: 981

TITLE: NEONATAL INTUBATION - UK TRAINEES' EXPERIENCE

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CONTENT:

Neonatal intubation is a delicate but often lifesaving procedure, which must be mastered during paediatric and neonatal training. However, with a practice trend towards less invasive treatment options, trainees are presented with ever fewer opportunities to practice this critical skill. Trainees’ neonatal intubation success rates are reported as low as 25%. Failed intubation attempts, resulting in multiple attempts increases the likelihood of adverse events during intubation and adverse long term outcomes. Senior trainees are frequently expected to teach junior trainees how to intubate, often with little experience of the procedure themselves.

Aim: To gauge the experience level of trainee paediatric doctors (below consultant level) in the UK in performing and teaching neonatal intubation.

An online survey was sent to trainee paediatricians in the UK via deanery tutors and trainee representatives. The survey asked doctors to recall their training in neonatal intubation, experience of intubation and success rates (for term and preterm infants (<37 weeks’ gestation)) and experience in teaching others to intubate. Names and contact details of respondents were not collected. Doctors working on a tier 1 (senior house officer) rota were deemed to be 'junior trainees' and doctors working on a tier 2 (middle grade/registrar) rota deemed to be 'senior trainees'.

The survey received 728 responses. Of these, 198 were junior trainees, 73 advanced nurse practitioners, 452 were senior trainees below consultant level and 5 were consultants. 44 (6%) respondents had no experience at all of neonatal intubation. 301(42%) had performed <5 term intubations and 242 (34%) 20 term and preterm intubations were 153(21%) and 167(22%). Self-reported success rates are shown in figure 1. 66% (470) of trainees had no formal intubation training.

Half (50%) of respondents regularly supervised others performing intubation. Of these, only 16% had received training on how to teach intubation. 19% of respondents reported that they felt completely confident intubating neonates. Reasons for lack of confidence included lack of opportunity to practice(63%), short neonatal rotations(15%), lack of training(24%) and competition between junior staff for limited opportunities.

Many paediatric trainees have had no formal teaching on intubation skills. With limited opportunities to practice, many report a lack of confidence in neonatal intubation and are often asked to teach a skill to others, having not fully mastered it themselves. The results will be used to develop an intubation teaching programme for paediatricians, aiming to maximise learning from limited training opportunities and improve intubation success rates.

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Figure 1: Respondents’ self-reported intubation success rates within 2 attempts

COI: none declared
ID: LATE BREAKER

TITLE: A CLINICAL COMPARISON OF BERACTANT AND PORACTANT ALFA IN PREMATURE NEONATES WITH RESPIRATORY DISTRESS SYNDROME UTILIZING REAL-WORLD EVIDENCE STUDIES AND RANDOMIZED CONTROLLED TRIALS

AUTHORS:

AFFILIATIONS:

CONTENT:

Background: Several clinical comparisons have been conducted to assess whether the animal-source of the surfactant (bovine: beractant; porcine: poractant alfa) has an impact on efficacy or safety outcomes in premature neonates with respiratory distress syndrome (RDS). However, such previous assessments did either consider randomized controlled trials (RCTs) for meta-analyses or were conducted in patient cohorts of real-world evidence (RWEs) studies, often with thousands of patients. To our knowledge, this investigation is the first approach combining both sources for a systematic review. Based on previous evaluations, we hypothesized that there won’t be any significant differences between the two products.

Methods: In order to generate a complete overview of full-text original articles which compare beractant and poractant alfa, a systematic literature search was conducted. Search terms, such as product names, RDS, and terms associated with comparative studies in premature infants/newborns were used to scan 7 common search engines with a last update on March 27, 2019. No limits were applied for publication dates or language. Data were extracted regarding study design, eligibility criteria, demographic characteristics, and key outcome parameters, such as death, bronchopulmonary dysplasia (BPD), pneumothorax (PT), and air leak syndrome (ALS). For RWE studies, the odds ratios (ORs), confidence intervals (CIs), and p-values are reported. For RCTs, a meta-analysis was conducted with all dosing regimens aggregated and treatment arms pooled.

Results: Our literature search identified 119 articles/abstracts of which 4 RWE studies and 15 RCTs fulfilled our selection criteria and were used for our evaluation. All RWE studies with adjusted ORs found no statistical significant between-treatment differences in key outcome parameters. In our meta-analysis using the identified RCTs, also no statistically significant between-treatment differences were observed for death (OR [95% CI]: 1.35 [0.98-1.86]), BPD (1.25 [0.96-1.62]), PT (1.21 [0.72-2.05]), and ALS (2.28 [0.82-6.39]). One sensitivity analysis using only doses labeled in the USA revealed a borderline significance in BPD (beractant vs poractant alfa): 1.34 [1.00-1.79], however, when only 100mg/kg doses were compared, again no significant differences were noted (BDS: 0.99 [0.64-1.52]).

Conclusion: It is critical to utilize all available information coming from both, RCTs and also from RWE studies for comparative analyses. This analysis showed that the efficacy and safety profiles of beractant and poractant alfa are very similar, confirming our hypothesis. Therefore, other criteria, such as the animal source, approved indications, and/or pharmacoeconomic parameters could become more important when selecting a surfactant for patients at need.

Disclosures

Manuel Sánchez Luna received travel and lectures grants from AbbVie Inc. and served as a consultant for Chiesi and AbbVie. Cristina Ramos Navarro has no relevant conflicts of interest.

Peter Bachler, Kristina Unnebrink, and Marisol Martinez-Tristani are employees of AbbVie and may own AbbVie stock and/or stock options.

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