

gestational and postnatal age. LUS score shows high reliability for surfactant need (AUC = 0.82;  $p = 0.005$ ; best cut off 11.5 [sensitivity 75%, specificity 90%]).

**Conclusions** LUS score is well correlated with oxygenation status and shows enough reliability to predict surfactant need. LUS can be used to monitor serially the course of respiratory conditions in critically ill neonates.

#### REFERENCE

- 1 Via G, Lung ultrasound in the ICU: from diagnostic instrument to respiratory monitoring tool. *Minerva Anestesiol* 2012;78:1282–96

#### PS-282 RESTRICTED USE OF REPEAT DOSES OF SURFACTANT AFTER THE PROPHYLACTIC DOSE DOES NOT INCREASE THE RISK OF BPD OR DEATH IN PRETERM INFANTS

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Repeat doses of surfactant after the prophylactic dose for treatment of RDS are currently recommended by the manufacturers to be administered at minimal levels of respiratory support. Reducing the number of unnecessary repeat doses will represent a significant cost-saving.

We determined if restricting repeat doses of Survanta by using high-threshold criteria for respiratory support increased the risk of the composite primary outcome of BPD or death before hospital discharge.

**Methods** A total of 140 infants of  $\leq 28$  weeks gestation who received prophylactic Survanta soon after birth were reassessed 12 h after the initial dose for retreatment if the infant remained intubated and required at least 40% inspired oxygen with a MAP  $>10$  cm H<sub>2</sub>O, and compliance of  $<0.5$  ml/cm H<sub>2</sub>O.

Multivariate analysis identified which risk factors from a set of a priori predictors including the need for Survanta retreatment could predict the primary outcome.

**Results** Eighty-eight (59%) of 140 infants reached the retreatment criteria and received repeat doses of Survanta. Sixty-eight (49%) infants developed BPD or died. Infants who developed BPD or died were younger and smaller; were more likely to have PDA, NEC or sepsis, longer ( $>28$  days) stay on mechanical ventilation, and receive retreatment with Survanta. On forward stepwise logistic regression analysis of a priori risk factors only the need of ventilation  $>28$  d ( $p < 0.001$ , OR 7.3, 95% CI 2.7–19.5) was independently associated with increased risk of primary outcome.

**Conclusion** Restricting repeat doses of Survanta did not increase the risk of BPD or death in preterm infants with RDS.

#### PS-283 INSURENCPAP APPROACH VERSUS SURFACTANTMECHANICAL VENTILATION IN EXTREMELY LOW BIRTH WEIGHT INFANTS

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**Background and aims** We evaluated the efficacy of nasal continuous positive airway pressure (nCPAP) treatment following the administration of surfactant using the INSURE (INTubation SURfactant Extubation) approach. We aimed to compare the efficacy of INSURE during nasal CPAP application and post-surfactant mechanical ventilation in extremely low birth weight (ELBW) infants.

**Methods** A total of 182 ELBW infants with a diagnosis of respiratory distress syndrome admitted to the neonatal intensive care unit during January 2012 and 2014 were retrospectively screened. Of these 74 received INSURE during nasal CPAP application (INSURE-nCPAP group) and 108 received mechanical ventilation following endotracheal surfactant application (MV group). The rate of mortality, intraventricular haemorrhage (IVH), repeat doses of surfactant, pneumothorax, pulmonary haemorrhage, necrotizing enterocolitis (NEC), sepsis, broncho-pulmonary dysplasia (BPD) the duration of hospitalisation were compared between the two groups.

**Results** Infants in the INSURE-nCPAP group had significantly lower rates of IVH and pulmonary haemorrhage ( $p = 0.02$  and  $0.01$ ; respectively). The need for mechanical ventilation, BPD and the rate of mortality was lower in infants in the INSURE-nCPAP group. While there was no significant difference in the rates of bloodstream infection and ROP between the groups; the duration of hospitalisation was shorter in infants in the INSURE-nCPAP group.

**Conclusions** In the current study we found that the INSURE-nCPAP approach in preterm infants with respiratory distress syndrome was effective. Additionally, we found that the rate of mortality, IVH, pulmonary haemorrhage and BPD was lower in infants treated with INSURE approach.

#### PS-284 EARLY INTUBATE-SURFACTANT-EXTUBATE (INSURE) VERSUS NON-INVASIVE CONTINUOUS POSITIVE AIRWAY PRESSURE (NCPAP) TO PREVENT BRONCHOPULMONARY DYSPLASIA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Background and aims** In preterm infants, early non-invasive continuous positive airway pressure (NCPAP) use decreases “bronchopulmonary dysplasia (BPD) or death” compared with early intubation. However, it was not yet clear whether early Intubation-for-SURfactant-followed-by-Extubation to NCPAP (INSURE) is more effective to prevent BPD or Death or “BPD or death” or either than keeping infants on NCPAP. This systematic review aimed to investigate this question.

**Methods** This systematic review included randomised control trials comparing the INSURE and NCPAP for preterm infants with or at high risk of respiratory distress syndrome who had never been intubated before the study entry. Primary outcomes included BPD at 36 weeks postmenstrual age, Death, and “BPD or Death”. A systematic literature search was conducted of MEDLINE, EMBASE, CENTRAL, and CINAHL as well as conference proceedings and trial registrations. Two reviewers independently selected studies and extracted data. Meta-analyses were conducted with a random-effect method using Review

manager 5.2 (statistical significance with two-sided p-value of 0.05).

**Results** Nine trials were included from 1622 non-duplicate records. The meta-analysis results were shown in a table with pooled risk ratios (RR) and 95% confidence interval (CI).

**Abstract PS-284 Table 1**

Outcomes	Studies (Number, N)	INSURE (events, n/N)	NCPAP (n/N)	RR [95% CI]
BPD	5	125/519	146/518	0.85[0.71,1.02]
Death	7	60/698	63/701	0.94[0.67,1.32]
BPD or Death	5	175/569	197/569	0.88[0.76,1.02]
Pneumothorax	9	21/775	43/774	0.51[0.24,1.07]
Sever intraventricular haemorrhage	7	22/660	29/665	0.79[0.45,1.39]

**Conclusions** The rates of BPD, Death or “BPD or Death” were lower in infants receiving INSURE versus NCPAP group although, the differences did not reach statistical significance.

PS-285 WITHDRAWN

PS-286 SURFACTANT (S) SUPPLEMENTED WITH BUDESONIDE (B) FOR PREVENTION OF BRONCHOPULMONARY DYSPLASIA – BIOPHYSICAL AND CHEMICAL STABILITY OF S/B MIXTURE

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**Background and aims** Intra-tracheal instillation of budesonide (B) using surfactant (S) as a vehicle significantly improved pulmonary status. The stability of the S/B mixture has not been studied. The aim of study is to investigate if S can be used as a vehicle to facilitate B delivery in rats and if the S/B mixture is biophysically and chemically stable.

**Methods and materials** A Nano/PET digital scan was performed on rat that was intratracheally injected with S/18-F labelled B mixture, with 18-F-B only, or with free 18-F. The 18-F radioactivity was measured at 30 min. after injection. To test biophysical property, the dynamic surface tension behaviour of S/B suspension was conducted in Surfactometer. HPLC was performed with various S/B concentration ratios within 24 hrs after S/B mixing.

**Abstract PS-286 Table 1**

System	S(mg/ml)	B(mg/ml)	Ye (mN/m)	Ymin	Ymax
	25.0	-	19	-0	46
S	12.5	-	21	-0	51
	1.00	-	22	5	49
	-	0.50	31	27	47
B	-	0.25	33	29	49
S+B	12.5	0.25	20	-0	41
	1.0	0.25	28	20	45

**Results** 1) 18-F-B radioactivity was detected more in the peripheral lung in rat supplemented with S than in rat without S. 2) using a concentration of S/B  $\geq$  50:1, the dynamic surface activity of S was minimally affected 3) HPLC analysis revealed no new compound detected within 24 h after mixing of S/B

**Conclusions** S can be used as an effective vehicle and that, with a S/B ratio of  $\geq$  50, the mixture is biophysically and chemical stable.

## Paediatric Surgery: Congenital Anomalies

PS-288 THE PERFORMANCE OF IMAGING FOR SUSPECTED MALROTATION: NOT SO BAD AFTER ALL

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Despite reports of imaging characteristics that would identify intestinal rotational anomalies that predispose to volvulus, most paediatric surgeons would proceed to an operation when imaging is suggestive. The aim of this study was to test the performance of the upper gastrointestinal (UGI) contrast studies and its restrictions that lead to false positive or false negative reports.

**Methods** We performed a retrospective analysis of patients investigated for malrotation, or treated for it over 5 years (2008–2013). Radiology reports were graded as positive, equivocal or negative. If the study was inconclusive, further imaging or treatment was dictated by clinical status.

**Main**

**Results** 279 patients were investigated due to suspected malrotation, while in 24 patients malrotation was an incidental finding. In total, 86 patients underwent a Ladd's procedure. If the definite positive and equivocal reports were considered as positive regarding the intention to intervene surgically, the sensitivity of UGIS was 94%, specificity was 95.4%, with 18% false positive results and 1.4% false negatives. In the 11 patients with proven false positive results, two had a negative laparotomy, but all the remaining 9 patients had surgical findings (including 3 duodenal stenoses, and 3 intestinal atresias).

**Conclusion** The UGI series proved to be very sensitive and specific for the diagnosis of malrotation, when the clinical pathway dictates prompt surgical intervention in the presence of positive or at least non-negative radiology report. This approach can lead to a significant number of false positive results, although other surgically treatable pathology is commonly identified in these patients.

PS-287 WITHDRAWN

PS-289 DOES LOCAL EXPERIENCE IN THE MANAGEMENT OF SIMPLE GASTROSCHISIS (SG) MATTER? (LOCAL PRACTICE VERSUS NATIONAL BENCHMARK DATA)

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