surfactant, varespladib, both or nothing (overall p=0.016; Dunnett *post-hoc* between cultures treated with varespladib and varespladib+surfactant against untreated cultures p=0.01). FFA are higher in untreated cultures (394±82 μM), than in surfactant- (219±70 μM) and in varespladib-treated ones (148±51 μM). Combined treatment reduced FFA to 206±47 μM (overall p=0.017; Sidak *post-hoc* p=0.036 and p=0.023 for the varespladib and combined treatment against control cultures).

Conclusions The joined administration of varespladib and poractant-α significantly reduce sPLA2 activity and FFA production. Surfactant+varespladib affect sPLA2 pathway significantly more than the surfactant alone.

59 THE PEDIATRIC ALIEN STUDY: INCIDENCE AND OUTCOME OF THE ACUTE RESPIRATORY DISTRESS SYNDROME IN CHILDREN

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Introduction The incidence and outcome of the acute respiratory distress syndrome (ARDS) in children is not well known, especially under current ventilatory practices. The goal of this study was to determine the incidence, etiology and outcome of ARDS in the pediatric population in the setting of lung protective ventilation.

Method A 1-year, prospective, multicenter, observational study in 12 geographical areas of Spain covered by 21 pediatric intensive care units (PICUs).

Results Data on ventilatory management, gas-exchange, hemodynamics, and organ dysfunction were collected. A total of 146 mechanically ventilated patients fulfilled the ARDS definition, representing an incidence of 3.9/100,000 population ≤15 years of age/year. Pneumonia, sepsis and respiratory syncytial virus-related infection were the most common causes of ARDS. At the time of meeting ARDS criteria, mean PaO_2/FiO_2 was 99±41 mmHg, mean tidal volume was 7.6±1.8 ml/kg predicted body weight, mean plateau pressure was 27±6 cmH_2O, and mean PEEP was 8.9±2.9 cmH_2O. Overall ARDS PICU and hospital mortality was 26% (95%CI: 19.6–33.7) and 27.4% (95%CI: 20.8–35.1), respectively. At 24 h, after assessment of oxygenation under standard ventilatory settings, 118 (80.8%) patients continued to meet ARDS criteria (PaO_2/FiO_2 104±36 mmHg; PICU mortality 30.5%) whereas 28 patients (19.2%) had a PaO_2/FiO_2 >200 mmHg (PICU mortality 7.1%) (p=0.014).

Conclusions This is the largest study to estimate prospectively the pediatric population-based ARDS incidence and the first incidence study performed during the routine application of lung protective ventilation in children. Our findings support a lower ARDS incidence and mortality than those reported for adults.

60 COMPARISON BETWEEN AEROSOLIZED PERFLUOROCARBON AND PARTIAL LIQUID VENTILATION IN PRETERM LAMBS WITH SEVERE RESPIRATORY DISTRESS SYNDROME

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Background and aim Perfluorocarbon (PFC) aerosolization is feasible; however, it is unknown whether aerosolization is better than Partial Liquid Ventilation (PLV).

Methods 18 preterm lambs were randomly assigned to receive aerosolized PFC (10 ml/kg/h for 2h) delivered via an inhalation catheter, (PFC-aero group), instilled intratracheal PFC (20 ml/kg; PLV group), or just mechanical ventilation (CONTROL group). Gas exchange, pulmonary mechanics, and histological scores were assessed. Mean ± SD, ANOVA, p<0.05.

Results Both PFC administration techniques significantly improved gas exchange and pulmonary mechanics compared to CONTROL group (two-way ANOVA). 15 minutes after PLV, OI and VEI were significantly better in the PLV group compared to other groups. However, in terms of OI, aerosolized PFC remained significantly better than CONTROL group for the entire observational period (360 min), whereas at 240 min and on, the differences between PLV and CONTROL groups were not significant. PLV and aerosolized PFC significantly decreased the degree of atelectasis but did not significantly improve the general histological score.

Abstract 60 Table 1

OXYGENATION INDEX	BASELINE	1h	3h	6h
Control	79 (52)	46 (18)	52 (30)	64 (27)
PLV	102 (49)	6 (1)*#	12 (6)*	32 (35)
PFC-aero	71 (45)	23 (11)*	10 (2)*	18 (18)*

* vs. CONTROL; # vs. PFC-aero. One-way ANOVA

Conclusion Both PFC administration techniques show pulmonary efficacy in RDS. Future research should focus on the PFC aerosol delivery efficiency.

61 ASSOCIATION OF VITAMIN D RECEPTOR GENE POLYMORPHISMS AND BRONCHOPULMONARY DYSPLASIA

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Background and aims Vitamin D is considered as an important regulator of fetal lung development and innate immune system. Its functions involved in susceptibility and resistance to infections and pulmonary diseases may be important for the occurrence of bronchopulmonary dysplasia (BPD). The aim of the study was to investigate the relationship between Vitamin D receptor gene polymorphism and BPD in preterm infants.

Methods Fok I, Bsm I, Apa I, and Taq I polymorphisms in the Vitamin D Receptor (VDR) gene were genotyped using restriction fragment length polymorphism in109 preterm infants (47 with BPD, 62 without BPD) born at gestational age ≤ 32 weeks and admitted to NICU at Ege University Hospital.

Results The univariate analysis showed Ff (OR=3.937, p=0.022, 95% CI= 1.22–12.69) and ff (OR=5.238, p=0.004, 95% CI= 1.69–16.23) genotypes of Fok I polymorphism were associated with increased risk of BPD; whereas tt genotype of Taq 1 polymorphism; was associated with a protective effect against BPD (OR=0.30, p=0.04, 95% CI= 0.098–0.094). In a multivariate logistic regression analysis of the model including variant Fok1 genotype with significant PDA, clinical and culture proven sepsis, mechanical ventilation and surfactant treatment; variant Fok 1 genotype increased the risk of BPD (OR=4.115, CI=1.080–15.686, p=0.038) independent from these factors. Taq 1, Bsm 1 and Apa 1 polymorphisms did not have any effect in the same model.

Conclusion Fok1 polymorphism was associated with increased frequency of BPD after adjusting for multiple confounders. VDR gene polymorphisms may be suitable for prediction of infants at high risk for BPD.

62 TECHNIQUES AND DEVICES FOR NEONATAL RESUSCITATION

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Establishing breathing and oxygenation after birth is vital for survival and long-term health of premature infants. However, approximately 10% of premature infants require breathing support at birth. An international consensus and various national resuscitation guidelines suggest techniques and equipment for neonatal resuscitation. They all agree positive pressure ventilation is the cornerstone of breathing support in the delivery room.

A lung-protective strategy should start immediately after birth. To facilitate the early development of functional residual capacity, and improve oxygenation during the transition of preterm infants, sustained inflations, positive end expiratory pressure and continuous positive airway pressure (CPAP) should be applied at the initiation of respiratory support. Although sustained inflations (SI) are advocated as lung recruitment maneuvers and positive end expiratory pressure helps to maintain end expiratory lung volume, neither of these has been mandated in neonatal resuscitation guidelines. This presentation will provide an update on current literature about techniques and devices used during neonatal resuscitation. Initial respiratory support provided with either CPAP, SI, and positive pressure ventilation along with available devices (e.g. face mask, nasal prong, Guedel airway, Laryngeal airway mask) will be discussed. In addition, new insights about intubation and chest compressions will be presented.

63 ADULT OUTCOMES IN ACHIEVEMENT AND SOCIAL INTEGRATION

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The lecture will provide a wide overview of studies on achievements as indicated by academic and occupational outcome and independent living of those born preterm. The lecture will further explore how well preterm children are integrated into society, participate in peer activities, have formed partner relationships and are reproductively active. How do they view their quality of life? Most of these studies have focussed on very preterm or very low birth weight infants but where available, information on moderate to late preterm adults will also be addressed.

64 WE THINK WE STILL HURT OUR NEWBORNS!

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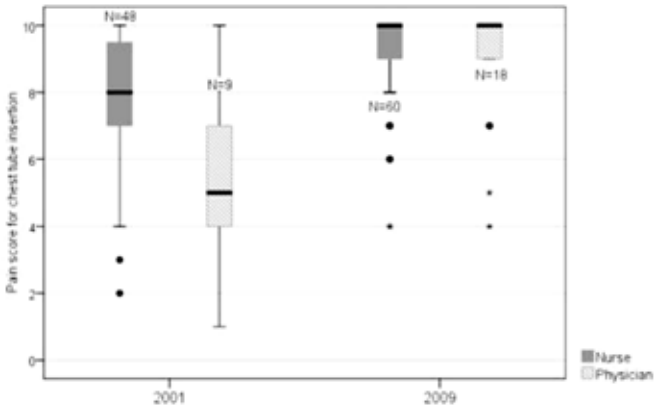
Background and aims Painful procedures in Neonatal Intensive Care Units are hard to avoid. We documented a drop in painful procedures from average 14 in 2001 to 12 in 2009 per patient per day. This study aimed to uncover how nursing and medical staff perceive the painfulness of these procedures and if perceptions have changed over time.

Methods Both in 2001 and 2009 nursing and medical staff rated the painfulness of 15 skin-breaking and 13 other procedures on a scale from 0 (not painful) to 10 (worst possible pain). The ratings of skin-breaking and other procedures served as outcome measures.

Results Response rates were 60% (N=58) and 72.4% (N=84) respectively in 2001 and 2009. The mean rating of the skin-breaking procedures decreased from 6.5 (SD 1.4) in 2001 to 6.1 (SD 1.5) in 2009 (p=0.18). The mean rating of other skin-breaking procedures decreased from 4.8 (SD 1.3) to 4.5 (SD 1.3) (p=0.25). Contrary to the trend, chest tube insertion was rated statistically significantly higher by nurses and physicians in 2009, p<0.001 and p=0.004 (Figure).



Abstract 64 Figure 1

Conclusion Overall, perceptions of health professionals in our Neonatal ICU concerning painfulness of procedures have not changed significantly over time despite the introduction of pain reducing interventions such as sucrose and developmental care after 2001.

65 COMPARISON OF EFFECT OF KANGAROO CARE AND MOTHER HOLDING ON SLEEP AND WAKING STATES OF PRETERM NEONATES

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Background and aim Sleep and waking disorders are the main problems of preterm neonates in Neonatal Intensive Care Unit (NICU) that occur influence by many stimuli and care activities of NICU and this may have irreversible effects on their brain development. So that the objective of this study is to assess the effect of two care methods on the sleep and waking states of preterm neonates.

Method In a clinical trial study a total of 70 eligible preterm neonates with gestational age between 32–37 weeks and admitted to NICU were selected and randomly divided in two groups of kangaroo care and holding by mother without directly skin contact. Data collection process was carried out using the behavioral sleep and wake scale of Als. The researcher every two minutes observed and recorded the sleep and wake behavior of neonates of two groups, in 20 minutes pre intervention, during 70 minutes of intervention and during 20 minutes post intervention. The collected data were analyzed using variance analysis test via repetitive sizes and Independent T test.

Result The kangaroo care group in compare to holding group significantly had more quiet sleep and alert awake and less drowsiness (P<0/001), active awake, and crying states (P=0/002).

Conclusion Neonates had more beneficial and less undesirable states of sleep and waking during kangaroo care. So that kangaroo care may be helpful to improve sleep and waking states of preterm neonates in NICU.

66 BREASTFEEDING PRETERM INFANTS - A DANISH SURVEY

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