1805 OXYGEN SATURATION MONITORING AT BIRTH: FEASIBILITY OF THE 2010 NEONATAL RESUSCITATION GUIDELINES

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Background The 2010 Neonatal Resuscitation Guidelines recommend preductal transcutaneous oxygen saturation (SpO_2) monitoring at birth.
Objective To verify the feasibility of SpO_2 monitoring at birth by determining the time to get the first SpO_2 value using a pulse oximeter.
Methods The study included 100 healthy newborns at term by elective caesarean section (Elective CS, 50 neonates), vaginal delivery (VD, 32 neonates) and emergency caesarean section (Emergency CS, 18 neonates). A Masimo Radical-7 (Masimo, Irvine, CA) pulse oximeter sensor was applied on neonatal right hand noting the minute at which the first oximetry value was provided. For the comparison between the time to get the first oximetry value among the three groups, Chi Square and Fisher Exact Test were used. A p value < 0.05 was considered statistically significant.
Results In the total study population, 52% of SpO_2 values were obtained within the first minute of life; 28% in the second; 13% in the third; 3% in the forth; 3% in the fifth; 1% in the sixth.

However, the first SpO_2 value was more frequently obtained within the first minute of life in newborns by Elective CS (74%) and by Emergency CS (61%) than in those by VD (12.5%), p<0.05.
Conclusions The first minute after birth is critical for Apgar score and neonatal resuscitation. This study demonstrated that SpO_2 is not always rapidly measurable, especially in neonates born by VD. A change in current clinical practice is therefore required.

1806 MOLECULAR MECHANISMS OF PERINATAL LUNG FLUID CLEARANCE IN TERM NEWBORNS

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Background and Aim The perinatal switch from secretion to absorption in airway fluid transport includes increase in gene expression and activity of ion channels, e.g. apical amiloride-sensitive epithelial sodium channel (ENaC) and basolateral Na-K-ATPase. The serum- and glucocorticoid-induced kinase (SGK) may induce ENaC and Na-K-ATPase.

Our objective was to study airway expression of SGK1, Na-K-ATPase α1-subunit and αENaC during adaptation in term infants.
Methods 86 term infants (GA= 39.43±0.91; mean ± SD) were included in the study (vaginal delivery, VD, n=25 and elective cesarean section, CS, n=61). Within 3 hours and at 22–29 hours after delivery airway cell samples were obtained from the infants' nasal epithelium. αENaC, Na-K-ATPase α1-subunit, and SGK1 mRNAs in the samples were quantified with real-time RT-PCR and normalized to cytokeratin 18 (CK18).
Results ENaC and Na-K-ATPase α-subunit mRNA amounts were similar after VD and CS. During the first postnatal day Na-K-ATPase α1 gene expression decreased in infants delivered by CS (p<0.001). After CS SGK1 mRNA was higher at < 30 min than at 1–3 hours of age (p<0.001). Within 3 hours after vaginal delivery ENaC and Na-K-ATPase α-subunit mRNA correlated with SGK1 mRNA (r = 0.46, p= 0.04, and r=0.63, p=0.005, respectively).
Conclusions Na-K-ATPase α1 is highest during early adaptation coinciding with the challenge of fluid absorption during immediate postnatal life. High SGK1 may be related perinatal stress. SGK1 dependent induction of ENaC and Na-K-ATPase may be an important physiological mechanism for lung fluid clearance.

1807 THE COMPARISON OF FORKHEAD BOX M1 MRNA EXPRESSION OF LUNG TISSUES BETWEEN PRETERM AND TERM RABBITS

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Background Recent reports on Forkhead box m1 (Foxm1) of the mice provided correlations between this gene and lung maturation. However, there has been no study on human Foxm1 concerned with lung maturation. The purposes of this study are to compare the mRNA expression of SP-A, -B, -C and Foxm1 gene of preterm rabbits to that of mature term ones and to trace the relationship between Foxm1 and lung maturation.
Methods Pregnant New Zealand White rabbits were grouped according to gestational age. The cesarean sections were carried out after the group was divided into two groups of 30~31 days of gestation (Term group) and 26–27 days of gestation (Preterm group). The numbers of fetus rabbits of each group were 18. We compared the expression levels of mRNA of SP-A, -B, -C and Fxom1 by using RT-PCR and real-time RT-PCR (qRT-PCR).
Results When relative ratio of SP-A, -B, and -C mRNA expression level of term group was 1, there were markedly decreased expressions of them in preterm group-0.380, 0.563, and 0.448 respectively in order in qRT-PCR. On the contrary to these results, Foxm1 expression was increased in preterm group and its relative expression ratio was 1: 2.166 on both RT-PCR and real-time RT-PCR (P<0.01).
Conclusion The preterm rabbits showed two times more mRNA expression of Foxm1 gene in their lungs than full terms. This Foxm1 is the gene associated for lung maturation of preterm rabbits.

1808 PORACTANT ALFA THERAPY ASSOCIATED WITH C-REACTIVE PROTEIN RISE

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Background and Aims French and Finnish studies report a rise in C-reactive protein [CRP] after poractant alfa [PA] therapy; we have made a similar observation. Neither study excluded perinatal infection as a cause. This research hypothesized that the rise in CRP was not caused by infection but rather by a reaction to PA.
Methods This study reviewed newborns weighing < 1500 g at birth with respiratory distress syndrome [RDS] and who received PA. Clinical and radiographic criteria defined RDS. Clinical and laboratory findings established that infection was not present in the mother or infant (inclusion criteria). Infants given PA were compared to infants with RDS and no therapy [NO-PA]. A CRP measurement ≥1 mg/dL was considered elevated. SPSS was used for statistical analyses.
Results The 2nd and 3rd CRP rose in PA v. a decline in NO-PA [Table]. Tracheal aspirate and blood cultures had no growth in all subjects.