1788 EFFECT OF PATENT DUCTUS ARTERIOSUS (PDA) & RESPIRATORY SUPPORT ON OXYGEN SATURATION IN PRETERM BABIES?

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Background Oxygen saturations in premature babies are targeted between 91–94%. However presence of a PDA and respiratory support have been attributed to fluctuations in oxygen saturations.
Aim To study the effect of PDA and respiratory support on frequency and duration of desaturations in premature babies.
Methods Babies <32 weeks' gestation admitted to the tertiary level neonatal unit were included in this prospective study. Saturations were recorded using the Masimo® pulse oximeters that recorded data every 2 seconds. The data was downloaded and analysed using SPSS® version19. Babies were divided into 4 groups based on the presence of a PDA (>1.5 mm) and respiratory support (ventilation/CPAP) (Table 1).
Results Thirty six (~6 hour each) recordings were made and ~500,000 records captured.

In babies with a PDA the duration of desaturations was significantly longer.

Babies on respiratory support had significantly lower saturations and also significantly longer periods of saturation < 90% or < 86%.

Abstract 1788 Table 1: Pulse oximetry data in four study groups

Study group	No. of measurements	Saturation; Mean(SD)	Dips/hr; Mean(SD)	Average duration of dips (sec); Mean(SD)	Sats<90 (% of recording duration) Mean(SD)	Saturations<86% (% of recording duration)	Pulse rate; Mean(SD)
(1) PDA+ Resp. support +	117,000	92.60 (2.16)	14.04 (12.67)	30.50 (12.16)	14.7(12.4)	6.8(7.7)	153(14)
(2) PDA+ No resp. support	97,000	95.49 (1.79)	11.77 (7.90)	24.50 (10.95)	4.8(8.9)	1.8(3.4)	147(11)
(3) No PDA Resp. support +	64,800	93.64 (3.08)	22.40 (26.30)	14.17 (8.38)	14.9(17.3)	5.7(7.8)	147(16)
(4) No PDA No resp. support	169,200	94.07 (2.22)	36.51(19.53)	12.07 (6.08)	8.5(9.1)	2.8(4.0)	154(5)

Conclusions In babies with PDA the desaturation episodes are significantly longer but the saturations are consistent.

Babies on respiratory support have lower saturations and frequent fluctuations in saturations as compared to babies not on any support.

1789 BRONCHOALVEOLAR INTERLEUKIN-1 BETA: A MARKER OF BACTERIAL BURDEN IN LONG TERM MECHANICAL VENTILATION NEWBORN WITH VENTILATOR-ASSOCIATED PNEUMONIA

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Objective To assess the relationship between concentrations of bronchoalveolar cytokines and bacterial burden (quantitative bacterial count) in long term mechanical ventilation newborn with a presumptive diagnosis of ventilator-associated pneumonia.
Interventions According to the time course of ventilator-associated pneumonia at the time of study with bronchoalveolar lavage, 44 newborn were divided into two subgroups: referral (n=18), and treated (n=26) ventilator-associated pneumonia. Bronchoalveolar lavage was performed in the most abnormal area on chest radiograph by fiberoptic bronchoscope. Bronchoalveolar lavage fluid was processed for quantitative bacterial culture. The concentrations of bronchoalveolar lavage cytokines (tumor necrosis factor-alpha, interleukin-1 beta, interleukin-6) also were measured.
Measurements and Main Results 26 patients had a positive bacterial culture (bronchoalveolar lavage > or = 10 colony-forming units/mL), and made up 79% of pathogens recovered at high concentrations. The concentrations of bronchoalveolar lavage interleukin-1 beta were 200.4 +/– 22.4 and 44.8 +/– 14.2 pg/mL (mean +/– se) in the newborn with positive and negative bacterial culture, respectively (p<0.001). Bronchoalveolar lavage interleukin- 1 beta was significantly higher in the newborn with a high bacterial burden (p<0.001), with mixed bacterial infection (p<0.001), and with ventilator-associated pneumonia (p<0.001), compared with values in patients without these features.
Conclusions Since the concentration of bronchoalveolar lavage interleukin-1 beta was correlated with bacterial burden in the alveoli, it may be a marker for progressive and ongoing inflammation in long term mechanical ventilation newborn.

1790 OXIDATIVE STRESS AND CLINICAL OUTCOME OF PRETERM INFANTS RESUSCITATED WITH DIFFERENT CONCENTRATIONS OF OXYGEN

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Background and Aims Preterm infants are more sensitive to oxidative stress than older humans. Hyperoxic exposure, although essential for survival of neonates, induces excessive production of reactive oxygen metabolites which could be responsible of morbidities in these babies. Aims of this study were to evaluate the incidence of mortality and bronchodysplasia in preterm infants resuscitated at birth with different concentrations of oxygen. Secondary outcome was to evaluate the serum level of oxdative stress markers in the same population of infants.
Methods A randomized clinical trial has been performed in NICU of University of Messina, Italy.
Results 60 preterm infants (gestational age < 32 weeks) were recruited and randomly divided into three groups (40%, 60% and 100% of fractional inspired oxygen). We didn't find difference in mortality (p 0,877), but bronchodysplasia was represented only in the group of 100% oxygen (p<0.01). These newborns had also a longer time of ventilation (p 0,001) and hospitalization (p 0,007) and a higher incidence of pneumothorax (p<0.01). Serum levels of Interleukin-1β and nitrosylated protein were higher in preterm infants resuscitated with 100% oxygen in comparison with the other two groups of infants, which instead presented a significant reduction of interleukin-10 levels.
Conclusions In our study, the exposure of preterm infants to higher oxygen concentrations at birth is correlated with poor respiratory outcome without influencing neonatal mortality. Imbalances between pro- and anti-inflammatory cytokines may therefore be early indicators of developing chronic lung disease.

1791 COMPARISON BETWEEN HELIOX AND STANDARD OXYGEN-AIR MIXTURE FOR AEROSOLIZED ALBUTEROL SULFATE DELIVERY UNDER NEONATAL MECHANICAL VENTILATION CONDITIONS-IN VITRO STUDY

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