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Part of:

guinsburg Neonatal Respiratory Assessment/Support/Ventilation Poster Cluster 1 [Enviar](#)

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### Info

#### Background:

There has been an ongoing controversy as to what the ideal oxygen concentration should be for ventilation of preterm infants at birth.

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#### Objective:

To verify whether the use of maximum oxygen concentration ( $\text{maxO}_2$ )  $\geq 60\%$  versus  $\text{maxO}_2 < 60\%$  for ventilation at birth improves the 5th minute Apgar score in preterm VLBW infants.

#### Design/Methods:

Prospective cohort study in 20 Brazilian public university hospitals. All inborn infants ventilated at birth with gestational age 23-33 weeks and birth weight 400-1499g without malformations during 2014-2015 were included. The studied intervention was the maximum oxygen concentration used during ventilation in the delivery room, classified as  $\text{maxO}_2 \geq 60\%$  or  $\text{maxO}_2 < 60\%$ . Indication of ventilation at birth followed ILCOR 2010 treatment recommendations. Indication of oxygen use at birth followed the 2010 Brazilian resuscitation guidelines starting at 40% for preterm infants. Logistic regression adjusted for confounding variables was applied for the outcome: Apgar of 7-10 at 5 minutes.

#### Results:

1893 infants met the inclusion criteria: 1401 (74%) received  $\text{maxO}_2 \geq 60\%$  and 492 (26%) received  $\text{maxO}_2 < 60\%$  during ventilation at birth. Characteristics of infants ventilated with  $\text{maxO}_2 \geq 60\%$  vs.  $\text{maxO}_2 < 60\%$  were: birthweight  $940 \pm 274$  vs.  $1044 \pm 261$ g; gestational age  $27.8 \pm 2.5$  vs.  $29.1 \pm 2.3$  weeks; ventilation at birth only by mask 32% vs. 73%; and failed mask ventilation requiring tracheal intubation 60% vs. 25%. Apgar of 7-10 at 5 minutes was achieved by 68% of infants that requires  $\text{maxO}_2 \geq 60\%$  vs. 92% of those with  $\text{maxO}_2 < 60\%$ . Logistic regression adjusted for center, prenatal care, maternal hypertension, chorioamnionitis, antenatal steroids, multiple gestation, mode of delivery, gestational age, gender, small for gestational age, heart rate  $< 100$ bpm in the 1st minute of life, and tracheal intubation after failed mask ventilation showed that the use of  $\text{maxO}_2 \geq 60$  during ventilation at birth independently decreased by 69% the infant's chance to achieve a 5th minute Apgar score of 7-10 (OR 0.31; 95%CI 0.21-0.48; Hosmer-Lemeshow goodness-of-fit: 0.622).

#### Conclusion(s):

In VLBW preterm infants ventilated in the delivery room, the use of  $\text{maxO}_2 \geq 60\%$  was associated with a failure to achieve Apgar score of 7-10 at 5 minutes after adjustment for conditions that lead to poor vitality at birth, suggesting that ventilation technique at birth, especially with mask, is more important than the use of high oxygen concentration.

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