



Oxygen Saturation Targets and Associated Neonatal Morbidities

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Session Abstract

In the last few decades, it has been well-established that the amount of supplemental oxygen given to neonates should be closely monitored. However, the most optimal oxygen saturation (SpO₂) target for use in neonates still remains widely debated, given that various morbidities have been associated with both higher and lower SpO₂ targets. This presentation will discuss the results of 5 randomized control trials (RCTs) conducted between 2005 and 2013, summarized within the Neonatal Oxygenation Prospective Meta-analysis (NeOProM) Collaboration, which investigated the clinical outcomes of neonates treated with differing oxygen saturation (SpO₂) targets. Two groups were studied (n ~ 5000 infants), with oxygen therapy titrated to target either low (85% to 89%) or high (91% to 95%) SpO₂. With the combined data from each RCT, it was demonstrated that infants in the high SpO₂ group showed a 5% increase in both the incidences of bronchopulmonary dysplasia (BPD) and ROP. In contrast, infants in the low SpO₂ group showed a 2% increase in incidence for necrotizing enterocolitis (NEC), a 1% increase for patent ductus arteriosus (PDA) requiring surgery, and a 3% increase in mortality. The findings of the NeOProM collaboration has prompted many institutions to reconsider the use of lower SpO₂ targets, and as a result some have opted to change their policies and target higher values. The Calgary Health Zone is no exception. In December 2018, the policy dictating SpO₂ targets to be used in the NICU was changed to increase SpO₂ levels from 88% - 92% to 91% - 95%. A follow-up observational study currently being conducted at the Foothills Medical Centre in Calgary will also be briefly introduced in this presentation. This study hopes to investigate the incidences of neonatal morbidities, with a focus on ROP, in all infants admitted to the Calgary Health Zone NICUs prior to and following the policy change. An estimated 1,300 infants will be enrolled in the study, with half being admitted in the years 2016 and 2017 (before group), and the other half in the years 2019 and 2020 (after group). Comparisons will be made between groups to observe the effect of the policy change on infants' clinical outcomes, and perhaps open up a discussion regarding best practice for SpO₂ targets in the Calgary neonatal population.

Session Objectives

1. Discuss and compare infant morbidities that were found to be associated with either low (85% - 89%) or high (91%-95%) oxygen saturation (SpO₂) targets."
2. Provide a rationale behind changing policies in some healthcare institutions, regarding increasing the SpO₂ targets being used in neonatal intensive care units (NICUs)."
3. Introduce a research project currently being conducted in the Calgary Health Zone to investigate the impact of increasing SpO₂ targets from 88%-92% to 91%-95% on neonatal morbidities, with a focus on retinopathy of prematurity (ROP).

Speaker Biography

Eiann Corpuz is a Provisional Respiratory Therapist, recently graduated in the class of 2020 at the Southern Alberta Institute of Technology. She received her Bachelor of Science in Biochemistry at the University of Calgary in 2017, and continued on to Respiratory Therapy school immediately afterwards to pursue her aspiration of becoming a healthcare professional. During her academic career she has devoted herself to respiratory health by being actively involved with the Alberta Lung Association, where she took on the leadership roles of Logistics Coordinator for Powered by Breathing Calgary, and Executive Coordinator for Breathe Smart Calgary. Eiann is also currently working as a Research Assistant under direct guidance from Dr. S. Hasan, a neonatologist with Alberta Health Services. Her current projects involves investigating the effects of increased oxygen saturation targets on the morbidities of infants admitted to the Calgary Health Zone NICUs, and studying predictors of extubation readiness in preterm infants. She is also working as a Respiratory Therapist at South Health Campus in Calgary.