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Transcutaneous oxygen saturations at five minutes after birth and morbidity and mortality in infants <29 weeks gestational age

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Abstract

Since 2011, the Neonatal Resuscitation Program has been recommending target oxygen saturations (SpO_2) of 80-85% at five minutes and 85-95% at 10 minutes after birth for preterm infants. Only a small percentage of these infants are found to reach these SpO_2 target ranges during the first minutes after birth. Current research showed that preterm infants <32 weeks gestational age (GA) who do not reach SpO2 ≥80% at five minutes after birth are at higher risk for intraventricular hemorrhage (IVH) and death. Furthermore, resuscitation for these infants was more often started with less than 30% oxygen. By reviewing delivery room (DR) data for preterm infants <29 weeks GA, we aimed to examine if SpO_2 <80% at five minutes after birth is associated with a higher incidence of morbidity and mortality. This is an observational study at the NICU at Peyton Manning Children's Hospital using routinely collected DR data from the "Golden Hour" quality improvement project and the electronic medical record. Infants born between July 2014 and July 2018 were screened for eligibility. All infants were resuscitated initially with 30% oxygen. We compared mortality and typical neonatal morbidities between infants with SpO_2 <80% at five minutes and infants with SpO_2≥80% at five minutes. The study was approved by the St. Vincent IRB. SpO_2 measurements at five minutes after birth were available for 202 eligible infants. 37% (74/202) of infants reached SpO_2 ≥80% at five minutes. GA, birth weight, gender, mode of delivery and exposure to antenatal corticosteroids for infants with SpO_2 ≥80% were not different from infants with SpO_2 <80%. At five minutes after birth, infants with SpO_2<80% had a lower Apgar score ($p<0.001$), a lower heart rate ($p<0.001$) and a lower median SpO_2 ($p<0.001$) despite higher oxygen administration ($p<0.001$). Infants with SpO_2 <80% at five minutes are less likely to have any spontaneous respirations.

Biography

Taha Ben Saad grew up in Tripoli, Libya and graduated from Faculty of Medicine, Tripoli University. He completed his residency at Woodhull Medical Center, Brooklyn, New York, and Fellowship in Neonatal –Perinatal Medicine at University of Rochester. He joined St. Vincent Women's Hospital after completing his fellowship. He earned an MBA Degree from Indiana Wesleyan University, also appointed as Clinical Assistant Professor, Marion University, and College of Osteopathic medicine. He is the Medical Director of the Neonatal Transport. He was awarded The Outstanding Outpatient Teaching Faculty Award for 2011. He has strong interest in resident teaching and education.

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