A Randomised Controlled Trial of an Automated Oxygen Delivery Algorithm for Preterm Neonates Receiving Supplemental Oxygen without Mechanical Ventilation.

Zapata J., Gómez J.J., Araque Campo R., Matiz Rubio A., Sola A. *Acta Paediatr*. 2014 May 11.

Aim

Providing consistent levels of oxygen saturation (SpO2) for infants in neonatal intensive care units is not easy. This study explored how effectively the Auto-Mixer® algorithm automatically adjusted fraction of inspired oxygen (FiO2) levels to maintain SpO2 within an intended range in extremely low birth weight infants receiving supplemental oxygen without mechanical ventilation.

Methods

Twenty extremely low birth weight infants were randomly assigned to the Auto-Mixer® group or the manual intervention group and studied for 12 hours. The SpO2 target was 85-93% and the outcomes were the percentage of time SpO2 was within target, SpO2 variability, SpO2 >95%, oxygen received and manual interventions.

Results

The percentage of time within intended SpO2 was 58% ± 4% in the Auto-Mixer® group and 33.7% ± 4.7% in the manual group, SpO2 >95% was 26.5% versus 54.8%, average SpO2 and FiO2 were 89.8% versus 92.2% and 37% versus 44.1% and manual interventions were zero versus 80 (p <0.05). Brief periods of SpO2 <85% occurred more frequently in the Auto-Mixer® group.

Conclusion:

The Auto-Mixer® effectively increased the percentage of time that SpO2 was within the intended target range and decreased the time with high SpO2 in spontaneously breathing extremely low birth weight infants receiving supplemental oxygen.