Oxygen Saturation Monitoring at Birth: Feasibility of the 2010 Neonatal Resuscitation Guidelines

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Background

The 2010 Neonatal Resuscitation Guidelines recommend preductal transcutaneous oxygen saturation (SpO2) monitoring at birth.

Objective

To verify the feasibility of SpO2 monitoring at birth by determining the time to get the first SpO2 value using a pulse oximeter.

Methods

The study included 100 healthy newborns at term by elective caesarean section (Elective CS, 50 neonates), vaginal delivery (VD, 32 neonates) and emergency caesarean section (Emergency CS, 18 neonates). A Masimo Radical-7 (Masimo, Irvine, CA) pulse oximeter sensor was applied on neonatal right hand noting the minute at which the first oximetry value was provided. For the comparison between the time to get the first oximetry value among the three groups, Chi Square and Fisher Exact Test were used. A p value < 0.05 was considered statistically significant.

Results

In the total study population, 52% of SpO2 values were obtained within the first minute of life; 28% in the second; 13% in the third; 3% in the forth; 3% in the fifth; 1% in the sixth. However, the first SpO2 value was more frequently obtained within the first minute of life in newborns by Elective CS (74%) and by Emergency CS (61%) than in those by VD (12.5%), $p<0.05$.

Conclusions

The first minute after birth is critical for Apgar score and neonatal resuscitation. This study demonstrated that SpO2 is not always rapidly measurable, especially in neonates born by VD. A change in current clinical practice is therefore required.