Comparison of the Clinical Performance between Two Pulse Oximeters in NICU: Nellcor N-595 versus Masimo SET

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Purpose

Numerous false alarms by pulse oximetry, which is widely used in neonatal intensive care unit, can delay response to true alarms. Masimo SET® was introduced lately, to overcome false alarms by motion. We compared the clinical performance of two devices (Nellcor N-595® and Masimo SET®) for the evaluation of the false alarm frequency during usual motion artifacts and stable state.

Methods

A total of 20 preterm infants weighing 1,000-2,500 g were enrolled in the study. The sensors of two devices were placed on the different feet on the same infants, and both devices were programmed to emit an alarm for episode of hypoxemia (SpO2≤85%). The false alarms were defined as episodes of poor correlation with ECG heart rate, poor waveforms, and the absence of obvious signs of hypoxia. We compared the frequency of false alarms between the two devices.

Results

The mean chronological age was 20.8 days and the mean body weight was 1,668 g on the study day. The frequency of total false alarm was significantly fewer for Masimo SET® pulse oximetry (48 in Nellcor N-595®, 27 in Masimo SET®) although the false alarm during usual motion artifacts was not significantly between two devices (32 in Nellcor N-595®, 19 in Masimo SET).

Conclusion

The Masimo SET pulse oximetry has fewer false alarm rates and identified more true hypoxic events than Nellcor N-595 pulse oximetry. Therefore, it is useful for adequate oxygen therapy and helps to decrease unnecessary handling by clinicians and nurses.