

Under-Recognition of Alarms in a Neonatal Intensive Care Unit

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Background

Treatment decisions for apnoea of prematurity (AOP) are usually based on nursing staff's documentation of pulse oximeter and heart rate alarms.

Objective

In an observational study, to compare the accuracy of oxygen saturation (SpO₂) and heart rate alarm documentation, and the resulting interventions by nursing staff, with objectively registered events using polysomnographic and video recording.

Methods

Data on 21 preterm neonates (12 male) with a diagnosis of AOP were analysed. Nursing staff's desaturation (<80% SpO₂) and bradycardia (<80/min) alarm documentation was compared with events registered objectively using simultaneous polysomnography. Interventions by nursing staff were evaluated using 24 h video recordings and compared with their chart documentation. Nursing staff had been unaware that the polygraphic and video recordings would be used subsequently for this purpose.

Results

Median (minimum-maximum) postnatal age was 15.5 (3-65) days. 968 SpO₂ desaturation events and 415 bradycardias were documented by polysomnography. Nursing staff registered 23% of these desaturation events, and 60% of bradycardias (n=223, and n=133, respectively). Intraclass correlation coefficient (95% CI) between objectively measured desaturation events and those documented by nursing staff was 0.14 (-0.31 to 0.53); and for bradycardias 0.51 (0.11 to 0.78). 225 nursing staff interventions were registered on video, of which 87 (39%) were documented.

Conclusions

The alarm documentation by neonatal intensive care unit staff does not appear to be sufficiently accurate to permit further understanding and treatment of AOP. It is unclear if the alarms missed here would have led to clinical consequences had they been documented.