False Alarms in Very Low Birth Weight Infants: Comparison between Three Intensive Care Monitoring Systems.

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Introduction

Monitor alarms are a major burden on both patients and staff in intensive care units. We compared alarm rates from three different monitor systems (Hewlett Packard (HP), Kontron Instruments (KI), Marquette-Hellige (MH)) in a tertiary neonatal intensive care unit.

Methods

Monitors were used in random order on three consecutive days over 8 h each in 16 preterm infants (median gestational age at birth 29 wk (range 24-34), age at study 18 d (8-53), weight at study 1,160g (595-1,430)). Alarms were classified as true or false using flow sheets based on continuous observation of both the patient and related parameters.

Results

There was one alarm every 9 min of monitoring. The median number of true alarms did not differ significantly between systems, being 28 per 8 h (range 9-87) for HP, 26 (3-81) for KI, and 30 (5-135) for MH. The median number of false alarms differed widely, with the HP system generating 32 (7-77) such alarms per 8 h, compared to 8 (0-19) for KI and 15 (2-32) for MH ($p < 0.01$ HP vs KI and MH, $p < 0.05$ KI vs MH). These differences between systems were mainly due to differences in pulse oximeter and transcutaneous PO2 monitor alarm rates.

Conclusions

In conclusion, this study shows marked differences between both parameters and manufacturers in the frequency with which false alarms occur. It may provide a basis from which reductions in alarm rates can be sought.