

Weaning Protocol Possible with Pulse Oximeter Technology

Patel DS, Rezkalla R. *Advance for Managers of Respiratory Care* 2000;9(9):86

Introduction

Managed care protocols are critical to the efficient practice of medicine. Physiologic endpoints can be used as targets for guiding the care paths taken in a variety of settings. Monitoring site hypoperfusion and motion artifact are a common source of problems with pulse oximetry monitoring for patients in an intensive care unit (ICU). The typical result of such conditions is an under estimation of the correct SpO₂. These errors are especially problematic in patients during weaning from mechanical ventilation and could prolong the process while the clinician verifies the patient's oxygenation status through other means, e.g., clinical assessment or blood gases. More reliable pulse oximetry should reduce weaning delays thereby reducing the time and associated costs of mechanical ventilation.

Methods

A mechanical ventilation weaning protocol was implemented in the multi-purpose ICU of a 130-bed community hospital. The patient and caregivers outcomes were compared before and after a change in pulse oximeter technology (from use of the Invivo 4500+ and Ohmeda 3700 to that of Masimo SET contained in an MDE Escort Prism monitor). Nine months of data was reviewed.

Results

“We reported the following evidence of decreased costs and improved patient outcomes:

- decreased oxygen requirement and usage
- 40% reduction in mechanical ventilation hours/patient
- significant reduction in frequency and quantity of ABG's drawn
- 42% reduction in length of stay (from 5.3 to 3.1 days)”

Authors' Discussion and Conclusions

“Because the ABG's consistently correlated with the pulse oximeter, the RT's grew confident with the readings. The number of ABG's declined, and the weaning times became faster. We are delighted with the results.” Masimo SET pulse oximetry proved successful to a care protocol for weaning patients from mechanical ventilation. Caregiver confidence, mechanical ventilation weaning time, patient length of stay and costs associated with ICU care all declined. This success was found when older Invivo and Ohmeda pulse oximetry was replaced with Masimo SET contained in an MDE Escort Prism monitor.