

Failure to Detect Ward Hypoxaemia and Hypotension: Contributions of Insufficient Assessment Frequency and Patient Arousal During Nursing Assessments

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Postoperative hypotension and hypoxemia are common and often unrecognized. With intermittent nursing vital signs, hypotensive or hypoxemic episodes might be missed because they occur between scheduled measurements, or because the process of taking vital signs arouses patients and temporarily improves arterial blood pressure and ventilation.

Study Objective & Methods

The fraction of desaturated episodes (arterial oxygen saturation <90% for at least 90% of the time within 30 continuous minutes) and hypotensive episodes (MAP <70 mm Hg for 15 continuous minutes) that did not overlap nursing assessments in patients recovering from noncardiac surgery were estimated. Changes over time before and after nursing visits were also evaluated.

Notable Highlights

- Postoperative hypotension and hypoxemia are common and often unrecognized because nursing vital sign determinations are intermittent.
- Continuous vital sign monitoring was used to estimate the fraction of desaturation and hypotension episodes that did not overlap nursing assessments.
- Hypotensive and desaturation episodes were common and mostly occurred between routine nursing vital sign determinations, which themselves did not falsely elevate BP or oxygen saturation.
- More frequent, preferably continuous, vital sign monitoring can detect hemodynamic and ventilatory disturbances more often and sooner, potentially giving clinicians time to intervene to reduce critical events, although further study is required to determine effect on outcomes.

Results & Assessment

Among 782 patients, 878 hypotensive episodes were identified, **79% of which did not occur within 10 minutes of a nursing assessment and would therefore usually be missed.**

2,893 desaturation episodes were identified, **82% of which did not occur within 10 minutes of a nursing assessment and would therefore usually be missed.**

"The problem with intermittent vital signs is therefore not that the process of making the assessments produces false-normal values; instead, the problem is that assessments are sparse. In effect, hospitals continue to use a system for monitoring ward patients that was designed a century ago and never adapted to the much higher acuity that is now typical amongst hospitalized patients, and that fails to take advantage of available continuous monitoring technology."

Link to Full Article: https://www.soterawireless.com/british-journal-of-anaesthesia_cleveland_clinic_june2021