Assessing Malignant Hyperthermia Protocol Familiarity Through the Incorporation of Simulation Training in Certified Registered Nurse Anesthetists

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Purpose

The purpose of this project was to examine the impact of an educational presentation and MH simulation on clinician confidence while managing an MH crisis.

Background and Significance

- MH is a rare, inherited skeletal muscle disorder manifested as a hypermetabolic reaction from the mishandling of calcium by the body. Triggers include volatile anesthetic agents or succinylcholine. Mortality rate is 1.4% when treated but can be up to 80% when untreated.
- Due to the infrequency, clinicians may be underprepared and lack confidence in responding to an MH crisis.
- The Joint Commission recommends enhancing teamwork and collaboration with simulation training as an adjunct to traditional education methods.
- American Association of Nurse Anesthetists recommends conducting MH crisis team training.

Results

- Increased confidence in role during an MH crisis from 57.1% to 100%.
- Increase in knowledge of roles and responsibilities in an MH crisis from 71.4% to 100%
- Increase in confidence reconstituting and dosing dantrolene from 42.9% to 100%
- All CRNAs reported simulation as a preferred delivery method compared to traditional methods to increase clinician confidence.
- Participants expressed a desire to incorporate simulation into their annual education.

Methods

- CRNAs completed a 12 question Likert-style pre-test to establish baseline knowledge and confidence.
- A PowerPoint presentation explained MH pathophysiology, symptoms, perioperative stabilization, and postoperative management.
- An MH crisis simulation was reenacted by the researchers followed by education on the MH cart contents.
- A 13 question Likert-style post-test was completed 4 weeks after to assess changes in confidence.
- Convenience sample: Pre-test (n=9); post-test (n=7 )

Conclusion

- Results are consistent with previous literature demonstrating positive effects of simulation in crisis management training and enhancing clinician confidence.
- Clinical confidence increases the accuracy of initial diagnosis, early intervention and detection of deterioration, reduced care variation, and produces more predictable patient outcomes.
- More confident providers deliver higher quality care in emergent situations.
- Simulation training can advance MH management, create better patient outcomes, and increase patient safety within the operating room.
- Recommendations include the use of simulation with high-fidelity hands-on training and incorporating education of MH cart contents into annual MH education.