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Malignant Hyperthermia Simulation

Michael D. Quidort
DePaul University, michaelquidort@gmail.com

Rachael K. Tse
DePaul University, rachaelktse@gmail.com

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Malignant Hyperthermia Simulation
Rachael Tse, BSN, RN and Michael Quidort, BSN, RN
Faculty Sponsor: Anne Sauri, CRNA, DNP and Julia Feczko, CRNA, DNP

Background: Malignant hyperthermia (MH) is a life-threatening condition in which survival is highly dependent on early recognition and prompt treatment. The purpose of this DNP project was to examine the impact of an in vivo high-fidelity malignant hyperthermia simulation on CRNA confidence in crisis management.

Objectives: Does a high-fidelity simulation training exercise improve CRNAs' confidence in identifying signs and symptoms during a MH crisis? Does a simulation-based training exercise improve CRNAs' confidence in the management of a MH crisis? Does a simulation-based training exercise improve CRNAs' confidence in teamwork dynamics, including establishing and delegating roles during a MH crisis? Does a simulation-based training exercise improve CRNAs' confidence in their ability to prioritize interventions during a MH crisis?

Method: A multigroup pre/post survey design was used to compare CRNA confidence in the management of a MH crisis. The study included a voluntary sample of CRNAs at Advocate Christ Medical Center. Participants were asked to complete a pre survey measuring confidence in the management of MH prior to a high fidelity simulation focused on MH crisis management. Following the simulation, a debriefing was facilitated and participants were then asked to complete a post survey.

Results: Three simulations were conducted to obtain a total of nine CRNAs. Mean confidence score on the pre survey was $M = 3.89$ and the mean confidence score on the post survey was $M = 5.47$, showing an increase of mean confidence score of 1.57 points ($SD = 0.62$) ($p < 0.000$) on a six point Likert scale, indicating the simulation increased confidence of CRNAs in the management of MH crisis. Post surveys demonstrated improved confidence in four specific categories as evidence by an increase in mean scores in management 1.84 points ($p < 0.000$), delegation 1.61 points ($p < 0.000$), prioritization 0.72 points ($p < 0.000$), signs and symptoms 0.5 points ($p < 0.029$).

Conclusion: Participation in a high fidelity MH simulation increased CRNA confidence in the management of a MH crisis.

Keywords: Malignant Hyperthermia, Simulation, Anesthesia, Crisis Management, Confidence, Teamwork Dynamics, High Fidelity Simulation

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