Impact of Didactic versus Simulation Education in the Treatment of Malignant Hyperthermia

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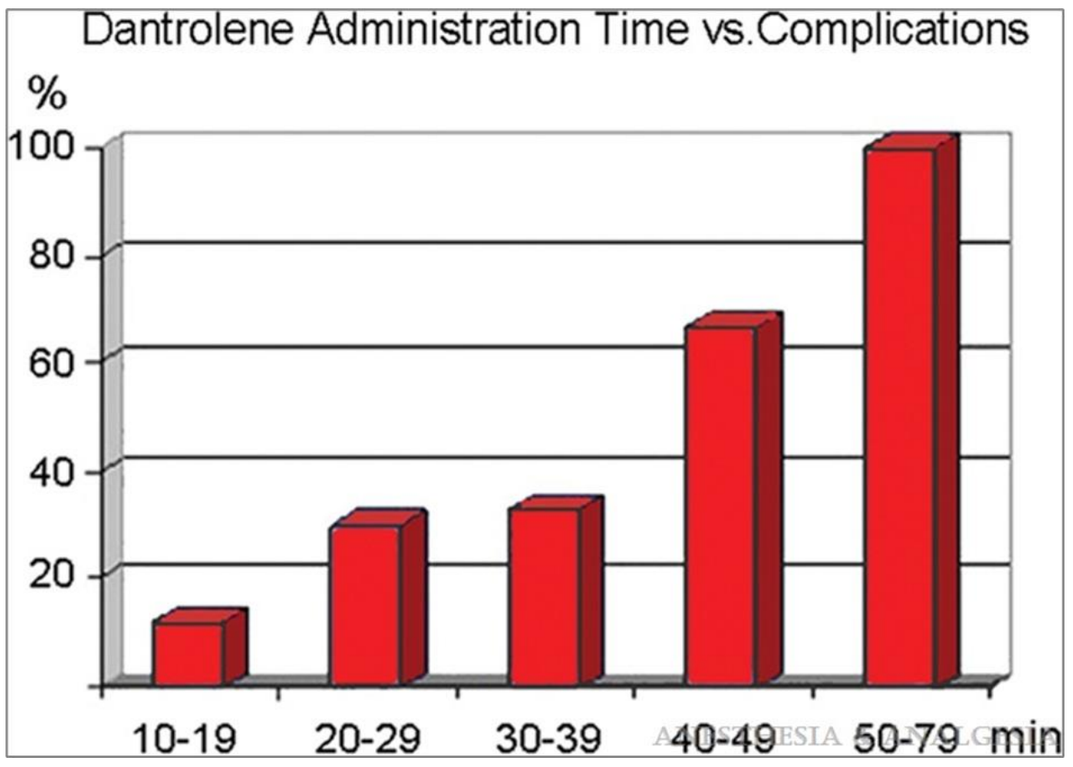
Background: Malignant Hyperthermia (MH) is a rare genetic disorder caused by the exposure of succinylcholine or halogenated inhalational anesthetics in susceptible individuals. A hypermetabolic crisis occurs with an unregulated influx of cytoplasmic calcium leading to sustained muscular contractions, destruction of muscle tissue, and anaerobic metabolism resulting in metabolic acidosis. Treatment of an MH crisis is IV dantrolene within the first 10 minutes of symptom presentation. Delaying treatment of MH increases the complications patients experience as shown in the graph (Riazi, et al., 2014).



Research Question: What is the effect of didactic versus simulation education of malignant hyperthermia for pre-licensure baccalaureate level nursing students in their final year of training on the recognition, and effective treatment of the crisis? The outcome will be measured by time to treatment and proper execution of interventions.

Methods: The study would use a quantitative, randomized posttest only control group design, measuring the participants ability to recognize an MH event and the time to treatment. Participants would be randomly assigned to two groups. Group A would receive didactic education on intra-operative/ post-operative complications and then complete an MH crisis simulation. Group B would the same education in a simulation environment and would then complete the MH crisis simulation. Both groups would receive a post test following the simulation assessing their knowledge.

Discussion: MH is a low frequency, high acuity event, requiring efficient and effective response to ensure better patient care outcomes. Due to the rarity of these events, training is one of the best avenues for improving recognition and response to emergent medical events (Park, et al., 2019). After the initial trial, group's would switch interventions and the test would be repeated for comparison of results.

References

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Riazi, S., Larach, M. G., Hu, C., Wijeysundera, D., Massey , C., & Kraeva, N. (2014). Anesthesia & Analgesia, 118(2), 381-387. doi:10.1213/ANE.0b013e3182937d8b

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