Cureus

Shock and Trauma Simulation for Novice Learners

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Abstract

Introduction. The current medical education model divides education into pre-clerkship and clinical phases, and the clinical environment is susceptible to heterogeneity and inconsistency. Simulation-based learning (SBL) allows participants to practice formulating diagnoses and honing procedural skills required to manage patients in a controlled setting. While prior studies have shown that SBL can increase learning, there is a need for more objective data regarding overall patient care. In coordination with the Center for Advanced Medical Learning and Simulation (CAMLS), a two-case simulation exercise was administered to fourth-year medical students to evaluate the effect on medical knowledge and participants' satisfaction with SBL. We hypothesized that learning outcomes would be positively affected by the training.

Methods. Using a needs assessment, two scenarios were developed by integrating principles of trauma and septic shock. Before the simulation, students completed an untimed eight-question (four trauma-specific and four shock-specific) multiple-choice quiz. After the SBL, students answered an untimed post-test with the same questions as the pre-test. Results Of 33 participants, 29 completed the pre-test (88%) and 29 completed the post-test (79%). Significant improvement was demonstrated by the post-test p-value < 0.001. Scores improved from 46% correct in the pre-test to 73% in the post-test. Participant experience was measured on a 5-point Likert scale with positive results: The experience was helpful for learning 4.9, confidence in handling trauma or shock patients 4.7, ability to form a differential for a patient in shock 4.8, and confidence in performing trauma surveys 4.7.

Conclusions. This study confirmed that teaching via SBL can lead to learning gains. Limitations to the study included inter-participant variability and outcomes on learning gains. Further research should be directed on how SBL can lead to changes in patient care outcomes among residents.