Virtual Learning in Endocrine Education: Evaluating the Effectiveness of Online Simulation for Medical Students

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Background

High-Fidelity simulation has been well accepted as an effective learning tool for medical students. This method of learning is highly regarded by the students and continually receives excellent evaluations.

However, high-fidelity simulation requires a significant number of resources, mainly simulation space and faculty time. The online simulation was added to meet a need for more simulation within the Endocrine Module.

Methods

We used a computer-based program called eTrainETC© that provided us with a platform to create a patient care scenario, which allows the student to act as the primary physician taking care of an animated character (the patient). The computer-based simulation was directed mostly at decision making for a particular patient with a medical diagnosis, followed by a short quiz for knowledge assessment. The simulations were implemented into the required course work during the fall of the MS2 year in the Endocrine Module. Two simulation cases were created; an outpatient case of uncontrolled diabetes, and an ER visit for chest pain in a patient with thyrotoxicosis.

Results

All students were required to complete the computer-based simulation, but the post-encounter survey was optional. Out of the 240 students, we had a response rate of 71% (170 students).The survey was a 5-question Likert scale survey with a free-text response at the end. The computer-based simulation was well received by the students. Findings include:

- 84% responded that the simulation helped them have a better understanding of the material
- 88% responded that the simulation helped them apply the material to clinical practice
- 86% responded that the simulation helped them identify gaps in their knowledge

Discussion

Implementing a high-fidelity simulation curriculum is an effective way to teach medical application and teamwork, but it can be limited by cost, simulation lab space and faculty availability. Other forms of simulation, such as computer-based simulation, can provide an alternative learning tool for decision-making and knowledge application. Despite some limitations of this teaching method such as singularity of the encounter (i.e. inability to have teamwork and communication skills built into the encounter), computed-based simulation can provide an effective alternative to high-fidelity simulation, that is easily accessible, cost-effective, and can be tailored to meet different learning needs in medical education.