Introduction of Medical Simulation and the Experience of Computerized Simulation Program Used by MicroSim®

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Abstract

Background: Computer- and web-based simulation methods help students develop problem solving and decision making skills. In addition, they provide reality based learning to the student clinical experience with immediate medical feedback as well as repetitive training, on-site reviews and case closure.

Materials and Methods: Seventy-five third-year medical students participated in a two-week simulation program. The students selected four modules from eight modules as follows: airway and breathing 1, cardiac arrest 1, cardiac arrhythmia 1, and chest pain 1, and then selected the first case within each of the modules. After 2 weeks, a pass score was obtained and the data analyzed. The average pass score of over 70% was considered a passing grade for each module. If the student did not pass each module, there was no score (i.e., pass score was zero). In addition, when at least one of the four modules was zero, the student was not included in this study.

Results: Seventy-five students participated in the simulation program. Nineteen students were excluded based on their performance. The final number of students studied was 56 students (74.7%). The average scores for each module 1 to 4 were 86.7%, 85.3%, 84.0%, and 84.0%, and the average obtained pass score was 88.6 for the four modules in all 56 students.

Conclusion: Medical simulation enabled students to experience realistic patient situations as part of medical learning. However, it has not been incorporated into traditional educational methodology. Here we describe the introduction and the development of various simulation methods.

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modules and technologies for medical education.

Key Words: Medical simulation, MicroSim®

Introduction

Medical simulation is a rapidly expanding area of within medical education. Simulation-based medical education (SBME) is complementary to traditional methods of medical education.1, 2) SBME includes verbal role play, animal models, human cadavers, standardized patients or simulated patients, simple skills trainers, procedural simulators, virtual reality, computer screen-based simulation, and full-scale integrated patient simulators.2-4)

Laerdal medical in Norway developed computer- and web-based simulation methods. The MicroSim® system has been widely used worldwide; it is a self-directed computer program that mainly simulates medical emergencies. It helps students develop problem solving and decision making skills, and also provides reality based learning of clinical situations with debriefing for immediate medical feedback and enables repetitive training, on-site review and case closure.4, 5)

We present the results of a two week computer- and web-based simulation course as part of the Introduction to Clinical Medicine (ICM) for third-year medical students just before their clerkships and discuss simulation-based medical education and its various tools.

Materials and Methods

Seventy-five third-year medical students participated in a two week simulation program, at the Clinical Skills and Simulation Center (CSSC) and e-learning center at the lecture building of the Yeungnam University College of Medicine. MicroSim® inhospital version program (Laerdal medical in Norway, 2007) was already installed on the hospital network and was accessed by each computer (Fig. 1A). Each student had a seat equipped with a desktop computer with internet and

Fig. 1. Introduction of the MicroSim® program (Korean version). Picture A-C shows the methods of program access.