

MEDICINE

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TRAINING STUDENTS OF GENERAL ANESTHESIA SIMULATOR "SIMMAN 3G"

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Abstract

In recent years in medical educational process new innovative technologies are widely used with computer simulation, providing the reality of medical interventions and procedures. Practice-training teaching with using of simulation allows to improve the efficiency of learning material at the expense of creating imaginary professional activity and leading barring material to practical activity.

The aim of the investigation is evaluation of the students training efficiency at the Medical Institute on the topic "General Anesthesia with using a modern simulation "SimMan 3 G".

The material of the investigation is the results, carried out on the basis of the Centre of Practical skills and medical virtual educational technologies (Simulation Centre) at the Medical Institute of NEFU by M.K. Ammosov.

The Object of the investigation was made up by 55 students of the third (3) course of the Faculty of General Medicine of the Medical Institute of NEFU. The investigation was hold during practical trainings (April-May 2014) of the General Surgery Department on the topic “General Anesthesia”. A simulation practical course “General Anesthesia” consisted of 12 academic hours.

Practical training was carried out using instruments, equipments and facilities to install anesthesia on the SimMan 3G with shooting the process and further discussions of the results.

The methods of the investigations were the appreciation of students background know ledge before and after practical training (by 5 points scale) and the analysis of the results.

The results of the investigation showed that before the practical course only 23 students (41,8%) had dot positive marks: “Good” – 7 students (12,7%) and “Satisfactory” – 16 (29,1%) students. The rest 22 (58,2%) students had bad results. The practical trainings using real instruments, equipments and facilities with imitation of installation of preparations for introductory anesthesia, main analgesics and muscle relaxants showed a patients reaction on the virtual trainer SimMan 3 G.

Students were divided into anesthetic team, co-assisting of an anesthesiologist, an assistant and nurses anesthetist, who conducted general anesthesia (the mask anesthesia, intravenous anesthesia, endotracheal anesthesia).

After finishing the practical course 16 students (29,1%) got 5 marks (Excellent), 35 students (63,6%) – 4 (Good) and 4 students (7,3%) – 3 mark (Satisfactory).

Keywords: general anesthesia, simulation methods, patients simulator, teaching (training) efficiency.

Introduction

Leading worlds experience in the medical education shows that increasing in efficiency of practical training is possible with using new innovative training technologist. More perspective technologist in Medicine are those which allow to form and improve students and specialists professional knowledge and skills using special wax works, phantoms and trainers as well as virtual (computer) simulators, providing the creation of real medical interventions and prosedures [1, 2, 3, 4, 5].

Simulation methods reached more development in surgical professions where mistakes during trainings on real patients can lead to fatal complications with subsequent legal investigation and big financial expenses.

Using medical trainers and simulations without any risk for patients life one can get necessary practical skills and improve them. Apart from that practice training with simulators allow to increase the efficiency of leaning

material creating the imitation of professional activity and approaching learning material to practical activity.

Aim of investigation

Evaluation of training effectiveness of the 3-d (third) course students of the Medical Institute on the topic “General Anesthesia” using the modern patients, simulator SimMan 3G.

Material of investigation

The material of the investigation were result of the prospective investigation, carried out on the basrs of Practical Skill Centre and Medical Virtual educational technologies (Simulaton Centre) of the Medical Institute of NEFU by M.K. Ammosov.

The Object of the investigation was made up by 55 students of the third (3) course of the Faculty of General Medicine of the Medical Institute of NEFU. The investigation was hold during practical trainings (April-May 2014) of the General Surgery Department on the topic “General Anesthesia”. A simulation practical course “General Anesthesia” consisted of 12 academic hours.

Practical training was carried out using instruments, equipments and facilities to install anesthesia on the SimMan 3 G with shooting the process and further discussions of the results.

The methods of the investigations were the appreciation of students background know ledge before and after practical training (by 5 points scale) and the analysis of the results.

Results of the investigation

Evaluation of background knowledge on Anesthesiology before practical course revealed that only 23 students (41,8%) had positive marks: “Good” – 7 students (12,7%) and “Satisfactory” – 16 (29,1%) students. The rest 22 students (58,2%) had bad results. We should notice, that according to curriculum there are 2 lectures on the topic “Local anesthesia”, and “General Anesthesia”, each for 2 academic hours.

The testing checked of the students know components of general anesthesia (anesthesia, analgesia, neurovegetative protection, mioplegii, auxiliary methods) and preparations, which are used during general anesthesia.

Practical training were carried out with using real instruments, equipments and facilities for installation anesthesia (airducts, endotracheal tubes, laryngeal mask, laryngoscope, Ambu bad, anesthesia apparatus “Polinarkon-5”). The following actions were imitated: the installation of preparations for introductory anesthesia, main analgetics and muscle relaxants, which allowed to see a patients reaction on the virtual trainer of the third generation SimMan 3G.

The students were divided into anesthetic team, consisting of an anesthesiologist, an assistant and anesthetist nurses and under the teachers instruction they carry out general anesthesia (mask, intravenous, endotracheal).

The process of installation the anesthesia was showed for subsequent discussion.

The results of know ledges evaluation after finishing the course of practical trainings in Simulation Centre showed the following: 16 (29,1%) students got practical skill evaluated for 5 points (“Excellent”), 35 (63,6%) students – for 4 points (“Good”) and 4 (7,3%) students – for 3 points (“Satisfactory”).

It is necessary to notice, that the discussion of the results had great interest in comparison with a common lecture-room class. The students were more emotional, they exchanged their own impressions, made an analysis and discussion of the material covered.

Conclusions:

1. The evaluation of background know ledge on Anesthesiology showed that 23 (41,8%) students had positive marks: “Good” – 7 (12,7%) students and “Satisfactory” – 16 (29,1%) before the practical course.

2. Practical training using real anesthesiological tools and equipments, anesthesia imitation on the simulator SimMan 3G improves the results of learning material. Thus 16 (29,1%) students gained practical skill for 5 points (“Excellent”), 35 (63,6%) students – for 4 points (“Good”) and only 4 (7,3%) for 3 points (“Satisfactory”).

3. Methods of simulation training using modern simulators of a patient allows to increase practice oriented approach in teaching, motivates and improves the best mastering of theoretic knowledge, increase the level of students practical preparation.

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