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Using Ottawa Crisis Resource Management Global Rating Scale in Simulation Center of Ferghana Medical Institute of Public Health

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Abstract. The article describes the discussion on the assessment of the effectiveness of performing the skills of anesthesiology and intensive care sciences in the simulation center of the of the Ferghana medical institute of Public Health using the Ottawa scale.

Keywords: simulation; assessment, crisis resource management, non-technical skills assessment, simulated crisis anaesthesia management, endotracheal intubation (ETI).

Introduction

With the introduction of simulation technologies into medical education, many scales have been developed to accurately assess student learning. Examples of these are the Ottawa, ANTS and Team scales, which are widely used in anesthesiology and intensive care courses. Algorithmic correct and accurate assessment of the practical skills performed by the student in the evaluation of his behavior is an important task that ensures that he will become a good specialist in the future [1]. Practical skills taught especially in anesthesiology and intensive care are invasive and life-threatening. Therefore, it is appropriate to use simulators with high realism.

Patient safety is a key goal for high-reliability healthcare organisations. Despite an improved understanding of diseases and their treatment, and the use of improved technology and drugs, there are still significant numbers of deaths resulting from human error in healthcare [2]. The dynamic and stressful environment of the operating room, together with the complexities of surgical techniques and patient comorbidities require continual vigilance by anaesthetists [3]. Competent anaesthetists must possess specific characteristics and behaviours related to their practice, encompassing knowledge, technical skills and non-technical skills [4].

One of the essential procedure related to anesthesiology and intensive care is endotracheal intubation (ETI) wich requires many trainings. Endotracheal intubation (ETI) is an excellent

example of a complex life-saving intervention performed on critical care patients. Trainees in the field of critical care patient provision often acquire ETI skills through repeated exposure thereto, gained in the controlled operating room setting under the guidance of attending anesthesiologists or nurse anesthetists.

Intubation training is one of the most important subjects in the curriculum of anesthesiology residents. There are two methods of teaching in this regard; either at the patient's bedside in the operating room or through the use of simulation exercises involving a mannequin which allows residents to directly practice on the patient in a safe situation. The second choice is preferred nowadays as patient safety concerns are considered to be of utmost importance. Recently, pre-clinical modes of practical learning have been the focus of many researchers [5]. Experience with intubation skills that are exercised in a controlled way enhances residents' confidence and reduces stress prior to having to work in a real-life situation, such as the operating room [7-9]. Simulation-based learning is an increasingly included component in educational strategies. Recently, the use of sophisticated mannequins was introduced in college laboratories for the purposes of teaching intubation skills. In addition, the benefits of using mannequins to teach practical courses is supported in numerous studies [10-11]. The objective of the current study was to evaluate the effects of intubation skill training using mannequins in a knowledge, attitudes, and practices study because there is a paucity of relevant studies on this subject in our country and mannequin-based training is underutilized for logistical reasons.

Methods

We conducted our research at the Simulation Center of Fergana Medical institute of Public Health. The object of the research was the students of the 5th stage of the medical faculty (98 in total). 45 of them are women and 53 are men. Among the students, there are no disabled and those who are afraid of performing medical operations (iatrophobia, hemophobia, probophobia). Inquiries revealed that they had not performed any invasive procedures related to anesthesiology on patients. We evaluated students' non-technical skills and crisis resource management skills using the Ottawa global rating scale. The clinical scenario was a tracheal intubation procedure. The study was conducted retrospectively and prospectively. Students who missed classes in the cycle of anesthesiology and intensive care in the 2022-2023 academic year were not included in the study.

Results

All categories and elements of the ANTS and Ottawa GRS instruments were acknowledged by the experts as components of essential, non-technical skills. 74% (72 students) of the students participating in the research showed deficiencies in situation awareness skills when performing intubation practice in simulators. The remaining 24% (26 students) could not assess the situation correctly. It was found that 82% of the residents had resource utilization skills, while the rest of the students could not use resources wisely. 54% (of 53 students) lacked communication skills based on the situation, on the contrary, 46% (of 45 students) actively communicated. 69% (out of 66 students) were able to demonstrate problem-solving skills during practice, while the remaining 31% (out of 32 students) could not act on the problem in time. Leadership skills, one of the most important evaluation criteria, were found to be satisfactory in only 38% (37 students) of students,

while the remaining 60% (61 students) lacked skills such as leadership, teamwork and situation management.

Conclusion

The results show that no resident is perfect, some have well-developed leadership skills, while others have excellent problem-solving skills. However, these indicators may be different when performing other skills in anesthesiology and resuscitation. It should be said that the Ottawa scale remains the most optimal for assessing skills. It can be seen that many of the students who participated in the study had problems with communication, which may be the reason for the low teamwork skills of the students.

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