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Original Research Paper

Skill Development Training Amongst Anaesthesiology Residents: A Comparative Study of Simulation Based Training with Traditional Lecture Based Training Using Osce as Assessment Tool

Anesthesiology

KEYWORDS :Objective Structured Clinical examination(OSCE), Skill development, Anaesthesiology education. Simulation , Skills lab .

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ABSTRACT

The aims of this study were to conduct an observational study to compare the efficacy of skill development using Simulation based skill training with traditional lecture based training amongst anaesthesiology residents. ***Materials and methods*** *: Thirty two residents pursuing a post graduate degree course in Anaesthesiology were divided into two similar groups using a block randomization technique to receive training by either a lecture and instructor demonstration method or by the simulation based training. They were then assessed for skill development on a scale of 10 by the OSCE method.* ***Results*** *: The performance of students receiving training by the simulation method of training had better scores for complex procedures with no critical steps being missed while the number of critical steps missed were significantly higher in the traditional method of training*

INTRODUCTION

Medical education for Anaesthesiology residents requires an active learning approach with andragogical values to provide training to attain numerous life saving and clinical skills .

The older pattern of traditional lecture cum demonstration based education with assessment by the viva-voce method to evaluate development of clinical skills was subjective with variation in inter examiner results. Also there was dissatisfaction amongst the students since all aspects could not be assessed during a viva-voce exam.

The development of OSCE based assessment and training using hands on skill stations for skill development has allowed a more objective and fairer system which allowed the candidate to display clinical skills to a number of observer assessors on a uniform marking sheet.

While OSCE based examinations are the norm in western countries and the assessment of choice, the university pattern of examinations do not currently follow this system. However, in our internal assessment examination it was decided to observe the effectiveness of simulation based training and assessment in comparison to the traditional lecture demonstration training with OSCE based assessment.

Aims: The aims of this study were to conduct an observational study to compare effectiveness of traditional lecture cum demonstration based training with simulation based hands on skills station training in skill development .

Objectives: The primary objective of this project was to assess the effectiveness of simulation based training and assessment in skill development amongst Anaesthesiology residents. The secondary objective was to assesss the satisfaction levels of students with the OSCE pattern of evaluation.

Methods :

The study was carried out for anaesthesiology residents posted to a tertiary care teaching hospital. Post Graduate students were randomised into two groups having equal distribution of students from each year of training. The total number of students observed was 32 with 16 in each group. Sample size adequacy was arrived at by analyzing similar model done in other western studies on the OSCE pattern of examinations.

All the students were informed about the nature of the study and consent obtained from each of them.

Group 'A' – The lecture cum demonstration group received two thirty minute lectures with power point multimedia demonstrations on insertion of supraglottic airway (LMA supreme) in a difficult airway scenario and needle cricothyrotomy (using standard cricothyrotomy kits). At the end the students were assessed as a post test along with Group B by independent assessors on an OSCE marking sheet for proficiency using simulator manikins in the skills lab.

Group 'B'- The simulation based training group was trained on skills stations with instructors to receive a hands on step- wise training on insertion of supra-glottic airway (LMA supreme) and performance of needle cricothyrotomy on manikins for thirty minutes on each station. A ratio of one instructor to four students was maintained for each hands on skills station. At the end the students were given a post test by independent assessors along with Group "A" students on a common marking system on proficiency achieved.

A feedback form was given to students to score on a scale of five points their preference and choice about training methodology and OSCE assessment stations.

STATISTICAL ANALYSIS

Statistical analysis was done by calculation of Mean and Standard Deviation (SD) and p value. All the data were expressed as Mean +/- SD and analyzed using Students t test. p values less than 0.05 indicated a significant difference.

RESULTS

Students were evaluated by independent group of instructors based on a 10 point OSCE marking sheet on both the skills based on individual performance. Any critical steps missed were not marked . Mean and SD for both groups in both skills tested are as tabulated in Table 1 for traditional training received by Group A vs simulation based training received by Group B .

Table 1 : Results for traditional vs Simulation based training

Skill station	Group A (n=16) (Mean+/- SD)	Group B (n=16) (Mean+/- SD)	P value
Supraglottic Airway insertion	**7.625+/- 0.806**	**8.875 +/- 0.885**	0.0002 (< 0.05)
Cricothyrotomy procedure	6.31 +/- 0.704	7.37 +/- 0.718	0.00023 (< 0.05)

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It was observed that students in Group B receiving the simulation based training performed better for acquiring proficiency in skills as compared with Group A which received the traditional lecture based education for both the procedures.

It was seen that students from Group B did not miss any of the critical steps in the performance of skills while many students in the lecture based education Group A missed critical steps. Students in Group B had higher scores than Group A .

In the feedback submitted by the students on the OSCE based assessment both groups felt that the exam was fair and reliable as compared to viva voce pattern of examination.

DISCUSSION :

Harden and Gleeson evolved an assessment tool in 1979 using the Objective Structured Clinical Examination as a multipurpose versatile tool for assessment of clinical competence.[1] It has become the assessment of choice to assess core competency in clinical and communication skills.

A review on OSCE based assessment by Marliyya Zayyan in 2011 found it to be precise, and reproducible allowing uniform testing of students for clinical skills.[2] Another review by A Shirwaikar in 2015 found the OSCE to be useful for assessment of interpersonal skills, professional judgement, skills of resolution as compared to other methods of assessment. [3]

In medical education OSCE based assessment is increasing popularity in training curriculums for post graduates and under graduate training. The training involves structured training in skill based topics with assessment based on standardized marking patterns using simulated scenarios or standard patients by direct observation.

It is debated that real life scenarios cannot be accurately recreated by textbook scenarios. Also , it is more expensive and time consuming to organize ,conduct and assess by the OSCE methodology.

In a study by Maddry et al[4] it was found that performance of students was better after lecture based education as compared to simulator based training on immediate assessment while skills retention was found to be better in the simulator group after 03 months. In our study the simulator based hands on skills station education fared better for teaching specific skills. OSCE based assessment allows for demonstration of emergency skills, skill stations can be designed/ modified based on teaching objectives. There is uniform assessment for all candidates which creates a greater satisfaction levels amongst students .

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