A comparison of clinical simulation and classical learning for airway management in medical undergraduate students: a randomized controlled trial

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Introduction

Clinical simulation is a useful learning method in medical teaching (1). Multiple studies have shown its benefits over classical learning technique (2). Research on simulation of airway management has focused on endotracheal intubation training, while on ventilation via facemask is scant (3). The investigators compared both learning methods regarding the acquirement of basic skills for airway management by medical students.

Materials and methods

A total of 102 last year medical students were randomized to clinical simulation or classical learning (51 per group). First group received a 3-hour long training on airway management on the first day of their 28-day anesthesia rotation, while classical learning did not. On the last day of rotation, they were evaluated based on a validated instrument of scores. Primary outcome was airway management scores. Secondary outcomes were rate of success of intubation and incidence of complications.

Results

Students in the clinical simulation group obtained a significant higher score than classical learning in ventilation but not in endotracheal intubation (P=0.046 and P=0.065, respectively).

Average score	Control Group n=51	Simulation Group n=51	P value
Positive Pressure Ventilation	6.9 (1.3)	7.4 (1)	0.046*
Endotracheal Intubation	5 (1.1)	5.4 (1)	0.065

Table 1. Overall score for positive pressure ventilation and endotracheal intubation

	Control Group n=51 (%)	Simulation Group n=51 (%)	P value
Successful intubation	40 (78.4)	47 (92.2)	0.091
First pass success	32 (62.8)	37 (72.6)	0.291

Table 3. Successful intubation

	Control Group n=51 (%)	Simulation Group n=51 (%)	P value
Accidental esophageal intubation	2 (3.9)	0 (0)	0.495
Oral trauma	2 (3.9)	1 (2)	1.000

Table 2. Incidence of complications

Conclusion

Clinical simulation in addition to clinical practice demonstrated to be educationally effective for ventilation via facemask. Endotracheal intubation skills acquisition didn't differ between the groups, suggesting that last one is a more complex intervention, and that undergraduate students may benefit from longer training in this context.

References

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