



Structured Nasal Packing Module Training Using Intubation Mannequin For Undergraduate Students

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ABSTRACT

Nasal packing is a skill which all primary care physicians should possess. The current curriculum does not include this skills training in undergraduate studies. The aim of this study is to evaluate the efficacy of structured nasal packing module for 3rd MBBS students in the skills lab and to evaluate the improvement of student's confidence level in managing epistaxis. Project proposal approval was obtained from the Institutional review board in Saveetha Medical College & Hospital. After obtaining informed consent, 114 students of III MBBS-Part I was included in the study. They were divided into 3 batches. Students were given study material and video at least one day before the session. A brief lecture followed by a demonstration of nasal packing was done. Students were allowed to practice nasal packing on intubation mannequins in the presence of faculty. Confidence level questionnaire were given to assess their confidence level before and after practicing on mannequins. Question 1 was on instrument use, 2 on traditional anterior nasal packing, 3 on ivalon pack and 4 on postnasal pack with foley's catheter. The mean confidence level scores before and after hands on training on mannequin were 9.18 and 12.45 respectively. T-test and Wilcoxon Signed Ranks Test was done to compare the results. There was a statistically significant improvement in the confidence level of students following hands on training (p value: 0.000). Practicing nasal packing on intubation mannequins improved the confidence level of students in managing patients with epistaxis



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INTRODUCTION

Epistaxis or bleeding from the nose is a common complaint which a primary care physician encounters. About 60% of individuals will have epistaxis at least once in their lifetime. It can vary from mild bleeding to profuse bleeding. It could be life-threatening in a few patients. It is a common emergency faced by the primary care physician. The first-line management of epistaxis with a nasal pack is usually done in an emergency (Ho and Chan, 2008). Nasal packing skill will be very useful to the primary care physician in these circumstances (Almaç, 2005). However, most primary care physicians are not confident to perform nasal packing world-

wide (Mace and Narula, 2004).

Nasal packing is a skill which all primary care physicians should possess (Ferguson *et al.*, 2016). The current curriculum does not include this skills training in undergraduate studies. There is gross underrepresentation of this skill in undergraduate training worldwide (Powell *et al.*, 2011). Training students with mannequin will be a good option. This study aims to evaluate the nasal packing module for undergraduates in skills lab using intubation mannequin, which is already available in the skills lab. The aims of this study are,

1. Evaluate the efficacy of structured nasal packing module for 3rd MBBS students in the skills lab.
2. Evaluate the improvement of student's confidence level in managing epistaxis.

MATERIALS AND METHODS

The nasal packing module with intubation mannequin was developed. The learning objective of the module was as follows, At the end of the session participants should be able to,

1. Describe the etiology and management of epistaxis
2. Use Thudicum nasal speculum and Tilley's nasal dressing forceps effectively
3. Perform anterior nasal packing with Paraffin gauze and Ivalon pack
4. Perform posterior nasal packing with foley's catheter.

Contents of study material, video and lecture were validated. The confidence level of students was used to evaluate this module. The confidence level questionnaire (Table 1) was developed based on 4 point likert scale and validated.

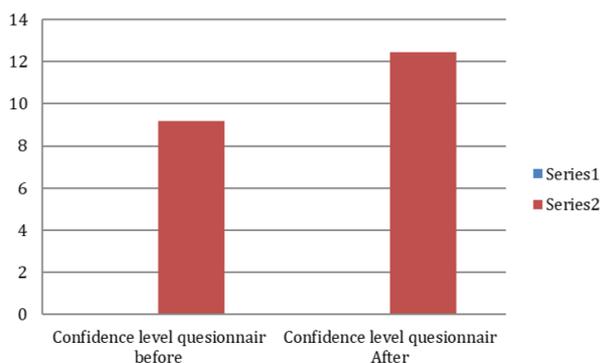


Figure 1: Average confidence level before and after the module

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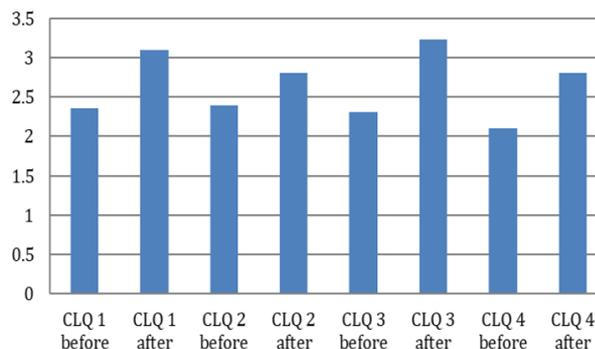


Figure 2: Confidence level in each parameter

lege & Hospital (SMC/IEC/2018/10/206). After obtaining informed consent 114 students of III MBBS-Part, I was included in the study. They were divided into 3 batches.

Students were given study material and video at least one day before the session. A brief lecture followed by a demonstration of nasal packing was done. Confidence level questionnaire were given to assess their confidence level before practicing on mannequins. Students were allowed to practice nasal packing on intubation mannequins in the presence of faculty. Appropriate feedback was given to students during practice. Objective structured clinical examination was done to ensure all students achieved the desired learning. Confidence level questionnaire were given to assess their confidence level before and after practicing on mannequins. Feedback about the module was obtained.

RESULTS AND DISCUSSION

The overall mean confidence levels scores before and after hands on training on mannequin were 9.18 and 12.45, respectively (Figure 1). T-test and Wilcoxon Signed Ranks Test was done to compare the results. There was a statistically significant improvement in the confidence level of students following hands on training (p value: 0.000).

Confidence level in using Thudicum nasal speculum and Tilley's nasal dressing forceps on a patient in an emergency, anterior nasal packing with paraffin gauze, anterior nasal packing with Ivalon and posterior nasal packing with Foley's catheter were analyzed separately (Figure 2). There was a statistically significant improvement in the confidence level of students in each parameter following hands on training (p value: 0.000).

Skills and simulation laboratories provides a safe and protective environment for learning medical skills. It allows students to practice repetitively. The disproportion between a number of students and

Table 1: Confidence Level Questionnaire (CLQ)

1. How confident are you in using Thudicum nasal speculum and Tilley's nasal dressing forceps on a patient in an emergency?
1. Will not attempt 2. Will attempt in the presence of trained faculty while performing (at bed side) 3. Will attempt in presence of trained faculty backup (not at bed side) 4. Will perform the procedure without backup
2. How confident are you to manage a case of anterior epistaxis on a real patient with paraffin gauge?
1. Will not attempt 2. Will attempt in the presence of trained faculty while performing (at bed side) 3. Will attempt in presence of trained faculty backup (not at bed side) 4. Will perform the procedure without backup
3. How confident are you to manage a case of anterior epistaxis on a real patient with ivalon pack?
1. Will not attempt 2. Will attempt in the presence of trained faculty while performing (at bed side) 3. Will attempt in presence of trained faculty backup (not at bed side) 4. Will perform the procedure without backup
4. How confident are you to manage a case of posterior epistaxis on a real patient with a Foleys catheter?
1. Will not attempt 2. Will attempt in the presence of trained faculty while performing (at bed side) 3. Will attempt in presence of trained faculty backup (not at bed side) 4. Will perform the procedure without backup

patients, legal issues and fewer exposures to emergencies makes clinical teaching a challenge. Also, allowing untrained undergraduate students to perform an invasive skill on patients raises an ethical issue. This made skills lab compulsory in undergraduate training.

The nasal packing model was made in 1995 by Sugarman and evaluated (Sugarman and Alderson, 1995). But some anatomical features like the friction of nasal mucosa and elasticity of nares could not be mimicked.

Technology can be used to improve skills in medical education via simulation. Simulators can imitate an emergency situation requiring nasal packing. It reduces student's anxiety in facing epistaxis patients without concern regarding patient safety. It can be used as a self-learning module. Simulators also improve the performance of students as their confidence improves. Computer-assisted learning has shown better outcomes in a study done by (Glicksman *et al.*, 2009). The study by Carr *et al.* (1999) added that computer-assisted learning improves both cognitive and psychomotor training. A study done with low fidelity nasal simulators showed an increase in confidence level in

handling epistaxis patients (Maher, 2013). Multi sensorial cadaver simulators for nasal packing also significantly improved the confidence level of students (Kurien *et al.*, 2013). Unfortunately, simulators are expensive hence not available in most medical colleges.

Most skills labs are equipped with mannequins for airway, intravascular cannula, urinary catheterization, suturing, etc. Mannequins for nasal packing are rarely available as nasal packing mannequins are expensive. Using Intubation mannequin, which would be already available in most skills lab for nasal packing, would be a cheap alternative.

Nasal packing requires skill requires good practice and technique to arrest bleeding. The anxiety of the patient and their relatives aggravate the stress level of junior doctors. Untrained doctors can traumatize nasal mucosa or injure the turbinates. This can make the situation worse. Junior doctors should have proficiency in nasal packing so that it can be performed quickly and successfully (Kravchik *et al.*, 2019). The ideal nasal packing module should give students the confidence to face epistaxis patients and be able to perform nasal packing. This module meets the requirements. Feedback obtained from

students was encouraging.

However, the confidence of students would be higher after performing on the patient. But this module can be the first step in learning this skill.

CONCLUSION

Intubation mannequins are available in the most skills lab. Nasal packing with these Intubation mannequins improved the confidence level of students in managing patients with epistaxis. Instead of waiting for a costlier alternative, nasal packing skills training can be started with intubation mannequin.

Conflict of Interest

None.

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