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Research Article

Knowledge, Exposure and Practice of Health Care Workers Regarding Emergency Airway Management in a Tertiary Care Centre of West Bengal: Questionnaire-Based Analytical Study

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Abstract

Background: Endotracheal intubation is an essential resuscitative procedure in the emergency setting, to maintain a patent airway. In our day-to-day practice at a tertiary care centre calls for intubation remain in quite a demand. As we all know in the emergency setting we first advocate maintaining the so-called A (airway), B(breathing) and C(circulation) and this is where lies the importance of intubation.**Objective:** The study was done to assess the knowledge, competency, and exposure regarding emergency airway management among healthcare workers in this region of West Bengal which caters topatients from the Mahananda Basin, in particular, Malda.

Methodology: A questionnaire-based cross-sectional study was conducted. The study tool was a standard questionnaire containing 14 questions, which was developed to assess the knowledge, exposure, and practice of the study group in a Tertiary Care Centre of West Bengal.

Results: the questionnaire based analytical study revealed gross lack of knowledge among caregivers regarding management of airway during emergency situations.

Inference: Basic knowledge in terms of theory seems to prevail among almost all the participants but they lack the congruity between knowledge and exposure, hence an interactive curriculum should be designed to train the target groups in order to avoid the catastrophe seen during emergency situations.

Keywords: intubation, ACLS, BMV, BLS, curriculum, simulation

Introduction

Life is a fine thread that is maintained by the various systems of our body. Losing a patient is not merely one life lost, it creates a deep crater among the family members too and many of themoften require grief management, which is not practised well throughout India.

The existing curriculum in MBBS covers the theory of almost all the basic medical sciences including topics of trauma, resuscitation, advanced cardiac life support (ACLS) and basic life support (BLS). Hence it is presumed to be a fact that fresh graduates are aware of the indications as well as the steps involved during endotracheal intubation. The graduates as well as junior and senior residents work in a wide domain of clinical scenarios including wards, OT, HDU, ICU, SNCU and emergency triage, thus creating a huge opportunity to gain adequate skills. Endotracheal intubation is a skill required not only for routine anaesthesia provision but also as a component of ACLS (1). The real-life medium fidelity simulation is a valuable tool for training

the multidimensional aspects of endotracheal intubation with the facility of having repetitive practice sessions. The technique can also be used for the assessment of competence (2) without compromising the patient's safety.

The steps and theory although being taught by the Department of Anaesthesiology it is very disheartening to state that the graduates do not have enough competencies to land in a critical situation and fail to intubate. They still rely upon anaesthesia faculty to get the patient intubatedand many a time the time gap is wide enough to land up into the devastating result of losing one life. It is of utmost importance to simulate all the healthcare workers regarding intubation aiming at the best patient care.

Materials and Methods

It was a cross-sectional questionnaire-based study carried out in a Tertiary Care Centre of West Bengal. Freshly graduated MBBS interns, non-academic junior residents, junior residents, technicians and nurses who were willing to participate were included in the study. A questionnaire was developed including 5 questions about exposure, 6 questions about knowledge and 3 questions regarding practice. The study was conducted over one day period on 6th February 2023. The questionnaire was sent in as Google forms to the specified groups after explaining the purpose of the study. Any doubts regarding the questionnaire were clarified by the investigator. 2 minutes were given to fill up the questionnaire. 114 responses came within 24 hours and out of that 109 were selected for the study. Data was compiled, entered in Microsoft Excel sheet using SPSS version 19 and analysed manually.

Results

The study involved 109 participants out of which 7 were academic junior residents(6.42%), 45 MBBS interns(41.28%), 36 non-academic junior residents(33.03%), 3 nurses(2.75%) and 18 technicians(16.52%) shown in *Table 1 and Figure 1.*

Table 1:

Current Post		Frequency	Percent
Valid	Academic JR	7	6.42
	MBBS Intern	45	41.28
	Non- Academic JR	36	33.03
	Nurse	3	2.75
	Technician	18	16.52
	Total	109	100.0

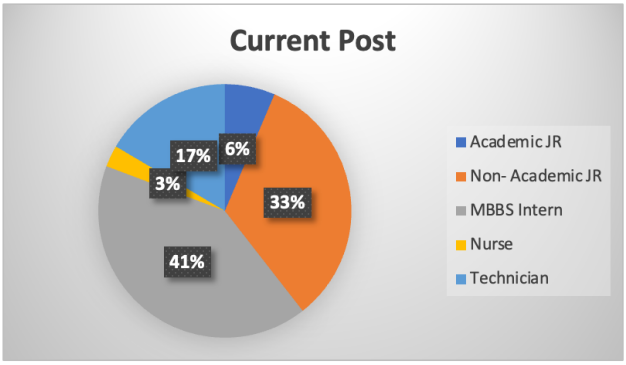

Figure 1: Out of the total participants, 102 (94%) knew about BLS/ACLS and 7(6%) were unaware of the term as shown in Figure 2.

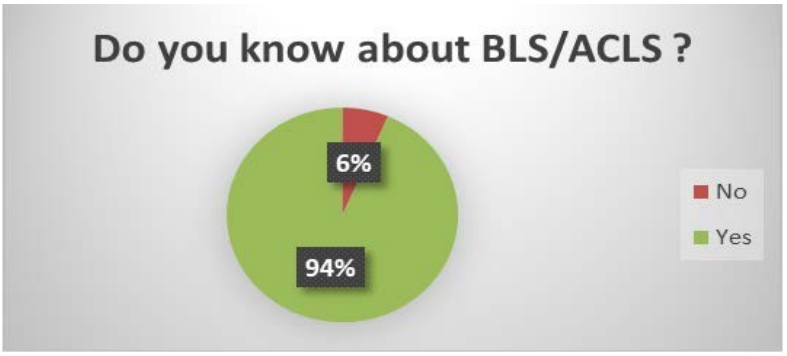

Figure 2: Similarly, 106(97.25%) knew about BMV and 3(2.75%) were not aware of this, shown in Figure 3.

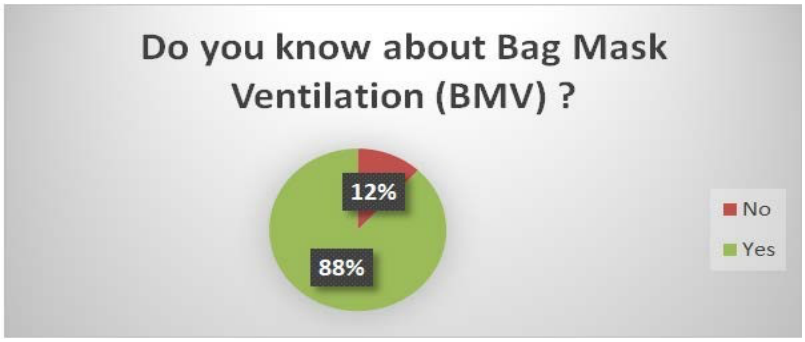

Figure 3: It was then asked, how many had done BMV (bag-mask ventilation) and it was found that 96(88.07%) have done the procedure and 13(11.93%) haven't shown in Figure 4.

Figure 4: Regarding the share of settings where BMV was done, it was found that most of them were done at CCU/HDU/SNCU 45(41.25%), followed by wards 44(40.37%), OT 17(15.60%) and emergency 3(2.75%), shown in Table 2.

Table 2: Among the 3 questions which were multiple choice based, one was asked about the basic meaning of intubation, which showed the result as in Table 3.:

Where you have done BMV?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CCU/HDU/SNCU	45	41.28	41.28	41.28
	Emergency	3	2.75	2.75	44.03
	OT	17	15.60	15.60	59.63
	Ward	44	40.37	40.37	100.0
	Total	92	100.0	100.0	

Table 3: It was then asked about the exposure of intubation among participants in their institution, which revealed 94(86.24%) had seen it while 15(13.76%) haven't, as shown in Figure 5.

What do you mean by Intubation?					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Intubation if unable to Bag-Mask Ventilate a patient	46	42.20	42.20	42.20
	It is Inferior to Bag-Mask Ventilation	4	3.67	3.67	45.87
	It is Superior to Bag-Mask Ventilation	59	54.13	54.13	100.0
	Total	109	100.0	100.0	

Figure 5: The setting where participants have seen intubation was also asked and the following result was found as shown in Figure 6.

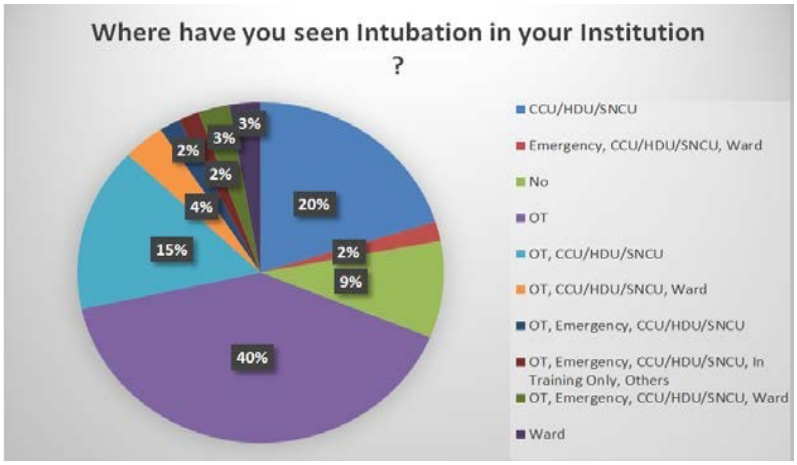

Figure 6: It was also found that the majority of the participants, 60(55.05%) didn't have hands-on experience with intubation whereas 49(44.95%) had a trial of it. Another multiple-choice question asked to test the basic knowledge was whether intubation is a part of BLS and the results revealed 57(52.30%) participants agreed and 42(38.53%) denied, which is shown in Table 4.

Table 4: Another multiple-choice knowledge-based question, asked regarding the year when ACLS/BLS was last updated and it revealed 77(70.64%) participants answered it to be 2020, 15(13.76%) marked it as 2022, 13(11.93%) marked it for 2015 and 4(3.67%) participants marked it as on 2010, illustrated on Table 5.

Is Intubation a part of Basic Life Support (BLS)?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Don't know	10	9.17	9.17	9.17
	No	42	38.53	38.53	47.70
	Yes	57	52.30	52.30	100.0
	Total	109	100.0	100.0	

Table 5: On the basis of the study, it was found that 66(60.55%) participants knew about the chain of survival whereas 43(39.45%) were unaware of it.

When was BLS/ACLS last updated by American Heart Association (AHA)?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2010	4	3.67	3.67	3.67
	2015	13	11.93	11.93	15.60
	2020	77	70.64	70.64	86.24
	2022	15	13.76	13.76	100.0
	Total	109	100.0	100.0	

Table 6:

Do you have an idea about the "Chain of Survival"?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	43	39.45	39.45	39.45
	Yes	66	60.55	60.55	100.0
	Total	109	100.0	100.0	

Discussion

According to Vision 2015 by the Medical Council of India, all medical graduates should be able to manage airway during emergency situations. Endotracheal intubation is the most effective way to secure the airway but it is hard to rely upon without proper training. Endotracheal intubation is taught in a series to avoid cognitive overload (3). Salam *et al* (4) did a cross-sectional study to assess competency among interns regarding intubation. They found out that even though the knowledge is compulsory, out of 70% of interns only 40% claimed their competency in endotracheal intubation. Bernard *et al* (5) did a study on 21 residents and assessed the success rate and the number of attempts required for successful intubation. Mayo *et al* (6) in their study further concluded that individualised training of medical interns using a computer-controlled simulator is an effective means of achieving and measuring competence in initial airway management. Burch *et al* (7) in their study concluded that learning outcomes of undergraduate medical programmes should include an explicit statement of competencies required for practice in the pre-registration year, and these should be adequately taught and rigorously assessed before graduation.

Limitations

- The questionnaire used is not a standard questionnaire, it was created and distributed to judge the very basic knowledge regarding.

- All interns and other categories of healthcare providers were not included in the study.
- The study excluded faculties senior to junior residents, which creates a lacuna of the actual picture regarding the knowledge of emergency airway management.
- Real-time expression of skill was not judged.

Conclusion

It was seen from the study that the first line of caregivers i.e., interns; only 45 out of 100 students participated in the study showing the reluctance of others, which needs urgentintervention. Similarly, participation from other categories was also not alarming. Although the theory is taught during undergraduate medical programmes, it is of no great value if it cannot combat an emergency. This study revealed that although basic knowledge prevails in many, they don't have as much hand on experience as expected. This advocates a carefully simulatedprogram in which the caregivers should be trainedthoroughly and followed up strictly to track the progression.

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