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Study on Awareness of Basic Life Support/ Cardio Pulmonary Resuscitation among Medical Undergraduate Students in Nashik

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Abstract

Background: Basic Life Support (BLS)/Cardio Pulmonary Resuscitation (CPR) is a core skill in which all health care professionals should be proficient, in case of an emergency to save lives. It is logical to provide BLS training during undergraduate years ensuring basic competence in all graduating healthcare students. **Objectives:** The present research was undertaken with an objective to know the knowledge of BLS and awareness about BLS among medical students in Nashik. **Methods and Materials:** This cross sectional study was carried out among randomly selected 358 medical undergraduate students. Pre-tested semi-structured questionnaire was used to collect data. The questionnaire included the following parts: 1. Basic characteristics of the study participants, 2. Knowledge about BLS/CPR, 3. Awareness about BLS/CPR. The components of knowledge and awareness based questions were scored. The data was analyzed using SPSS version12. **Results:** The majority (87.8%) of students had heard of BLS/CPR, among them 40.6% could give the correct order of performing CPR as per the AHA guidelines (Year 2010). Only 20% of students had undergone prior training in BLS while 19.7% had been in a situation that needed BLS/CPR. Overall awareness was not favorable and approximately 68.9% of the students were no tconfident of performing BLS/CPR. Only 46.5% of students had adequate knowledge about BLS/CPR. **Conclusions:** The major lack of knowledge and awareness is due to lack of training. Hence it is essential to train the students in CPR/BLS early in the curriculum to improve their knowledge and repeated training would increase their confidence.

Keywords: Awareness, Medical Students, Basic Life Support, Cardiopulmonary Resuscitation, Knowledge

1. Introduction

A fast and structured patient management algorithm is crucial for the outcome of acutely ill and injured patients. Society has a right to expect that all physicians possess the basic knowledge and skills to manage common emergencies[1]. All students graduating from medical school should be capable of handling emergencies, as they are generally the first on scene as residents. Training in Emergency Medical Services is reported to be poor in India[2]. There is a Shortage of emergency medical professionals[3] and Master's degree in Emergency Medicine is not offered in most of the medical colleges in India. Hence, most of the emergencies are handled by doctors working in casualties of various private and government hospitals[2]. An appropriate response in an emergency situation depends on good technical knowledge, which decides the patient's outcome[4,5]. Therefore, teaching medical students and training doctors in emergency care is essential.

Basic Life Support (BLS)/Cardio Pulmonary Resuscitation (CPR) is a part of emergency medical care. Timely provision of BLS/CPR saves lives. It is given to the victims of life- threatening illnesses or injuries until provision of full medical care at hospitals. Cardiac arrests and accidents are the most common emergencies with grave prognosis but the high mortality can be prevented many a times. Resuscitation is the art of restoring life or consciousness of one who is apparently in a state of death. This is achieved by knowing the art of BLS - Basic Life Support[6].

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BLS includes recognition of signs of Sudden Cardiac Arrest (SCA), heart attack, stroke and Foreign-Body Airway Obstruction (FBAO); Cardio Pulmonary Resuscitation (CPR) and defibrillation with an Automated Externalde Fibrillator (AED)[7]. It is very important that every person in the community know about Basic Life Support to save lives and improve the quality of community health. At least the doctors, nursing and paramedical staff are expected to know about it, as they are frequently facing life threatening situations and the knowledge of BLS will be definitely useful. While CPR/ BLS competency is considered a very basic fundamental skill, there are evidences stating that the true knowledge and skills about BLS is generally poor among health care professionals ' especially medical students.

In countries like United States, BLS training has been recommended as compulsory since 1966. This is lacking in our country and the students of course are becoming inefficient in handling the situations which may endanger both the patient and the student. Thus BLS competence is an expectation of regulating authorities and thus is usually a component of curriculum. It is therefore essential for this subject matter to be embedded in the curriculum[8]. Hence with this background we aimed to know the knowledge of BLS and awareness about BLS among medical students in Nashik.

2. Aims and Objectives

To assess the knowledge of undergraduate medical students regarding Basic Life Support

3. Materials and Methods

This was a questionnaire based cross-sectional study, carried out among randomly selected 358 medical undergraduate students from first to final year of MBBS from Dr. Vasantrao Pawar Medical College, Hospital and Research Centre, Nashik, Maharashtra. Pre-tested semi-structured questionnaire was used to collect data. The questionnaire was developed based on the previous literatures and articles reviewed. The Questionnaire had 26 questions stating the Year of Study, three questions regarding abbreviations, twelve facts, five questions based on response during life threatening scenarios, five questions regarding psychological analysis. Official permission to conduct the study was obtained from the college administration and from the Institutional ethics committee. After obtaining the informed written consent from the participants, the questionnaire was administered to the students.

3.1 Statistical analysis

Data obtained were checked by Microsoft Excel Computer Program for any inconsistency.

The results obtained were tabulated and calculations were made using SPSS version 12. Appropriate descriptive statistics were used to analyze the data. Simple frequencies of each variable were done. Comparisons were made between students who had undergone previous training, if any and those who had no such training. $P< 0.05$ was considered significant.

4. Observations and Results

A total of 358 students participated in the study. The proportion of males (54.6%) was slightly higher than females (45.4%). Among all the responders, 91(25.41%) were from first year MBBS, 90 (25.31%) were from second year MBBS, 88 (24.58%) were from third year MBBS and 89 (24.86%) were from final year MBBS. The majority (87.8%) of students had heard of BLS/CPR, among them 40.6% could give the correct order of performing CPR as per the AHA guidelines (Year 2010).

Table 1 shows that among 358 students nearly 88% knows the abbreviation of BLS as Basic Life Support, 84% knows what is EMS but only 49% knows the abbreviation of AED as Automated External Defibrillator. Higher the year of study, better the knowledge about the abbreviations among medical students.

Table 1. Knowledge on abbreviations

Year of Study	BLS (Basic Life Support)	EMS (Emergency Medical Services)	AED (Automated External Defibrillator)
First Year	62 (68.13%)	72 (79.12%)	18 (19.78%)
Second Year	80 (88.88%)	68 (75.55%)	25 (27.77%)
Third Year	84 (95.45%)	78 (88.63%)	56 (63.63%)
Final Year	88 (98.89%)	81 (91.01%)	77 (86.51%)
Total	314 (87.8%)	299 (83.51%)	176 (49.16%)

Students did not have proper knowledge about the 'Indications for BLS/CPR, 'the results of which were

Table 2. Knowledge about indications for Cardio Pulmonary Resuscitation

Indications		Number (%)
Unconscious person with no palpable pulses and no respiration (n = 298)	Yes	249 (83.55%)
	No	26 (8.72%)
	Don't Know	23 (7.71%)
Victim of road traffic accident with multiple injuries (n = 277)	Yes	91 (32.85%)
	No	126 (45.48%)
	Don't Know	60 (21.66)
Unresponsive person with normal pulse and respiration (n = 280)	Yes	108 (38.57%)
	No	130 (46.42%)
	Don't Know	42 (15%)
Victim of drowning (n = 289)	Yes	241 (83.39%)
	No	26 (8.99%)
	Don't Know	22 (7.61%)
Burns victim (n = 264)	Yes	64 (24.24%)
	No	131 (49.62%)
	Don't Know	69 (26.13%)
Choking (n = 282)	Yes	130 (46.09%)
	No	102 (36.17%)
	Don't Know	50 (17.73%)
Total scores for knowledge about indications (12-0)	Adequate (Score more than or equal to 7)	147 (41.06%)
	Inadequate (score less than or equal to 6)	211 (58.93%)

Table 3. Response to a situation when Basic Life Support was needed

Response		Number (%)
Leave the person unnoticed (n = 257)	Yes	20 (7.78%)
	No	237 (92.21%)
Check the victim for a response (n = 326)	Yes	306 (93.86%)
	No	20 (6.13%)
Make sure the victim, any bystanders and you are safe (n = 288)	Yes	258 (89.58%)
	No	30 (10.41%)
Shout for help (n = 297)	Yes	257 (86.53%)
	No	40 (13.46%)
Call for an ambulance (n = 310)	Yes	296 (95.48%)
	No	14 (4.51%)
Do nothing till the help arrives (n = 297)	Yes	24 (8.08%)
	No	273 (91.91%)
Keep the airway open, look, listen and feel for normal breathing (n = 320)	Yes	300 (93.75%)
	No	20 (6.25%)
Give chest compression with rescue breaths (n = 298)	Yes	256 (85.90%)
	No	42 (14.09%)
Total scores for response to situation needing BLS (16-0)	Adequate (Score more than or equal to 8)	278 (77.65%)
	Inadequate (score less than or equal to 7)	80 (22.34%)

Table 4. Signs of successful Cardio Pulmonary Resuscitation

Signs		Number (%)
Spontaneous gasp or breathing (n = 300)	Yes	249 (83.00%)
	No	21 (7.00%)
	Don't Know	30 (10.00%)
Abdominal distention (n = 286)	Yes	61 (21.32%)
	No	124 (43.35%)
	Don't Know	101 (35.31)
Chest rise and fall with each rescue breathing (n = 298)	Yes	213 (71.47%)
	No	37 (12.41%)
	Don't Know	48 (16.10%)
Return of normal pulse and normal heart beat (n = 297)	Yes	241 (81.14%)
	No	16 (5.38%)
	Don't Know	40 (13.46%)
Total scores for signs of Successful Resuscitation (8-0)	Adequate (score more than or equal to 4)	278 (77.65%)
	Inadequate (score less than or equal to 3)	80 (22.34%)

Table 5. Comparison of students who were trained and not trained in BLS

Total scores of various components of knowledge and perception characteristics	Are you trained in BLS (SD)		't' value (p)
	Yesmean	No mean	
Indications for BLS/CPR	1.54 ± 0.37	1.47 ± 0.47	0.5 (0.93)
Response to a situation needing BLS/CPR	1.87 ± 0.12	1.6 ± 0.5	1.99 (0.07)
Signs of successful resuscitation	1.94 ± 0.21	1.82 ± 0.33	2.65 (0.02)
Perception toward BLS/CPR	1.96 ± 0.32	1.93 ± 0.23	0.56 (0.45)

presented in Table 2. Similarly the results pertaining to' response to a situation that needs BLS/CPR 'and 'signs of successful resuscitation' were presented in Tables 3 and 4, respectively, indicate that the students had good overall awareness.

Table 5 shows that students who had training had higher mean scores for 'response to a situation needing BLS/CPR and' signs of successful resuscitation'. These differences were statistically significant. However, training made little difference in their knowledge of indications for BLS/CPR'.. Overall awareness was not favorable and approximately 68.9% of the students were not confident of performing BLS/CPR. Only 46.5% of students had adequate knowledge about BLS/CPR. Most (96.8%) of them were interested in learning BLS/CPR.

5. Discussion

A main goal of medical education is to train students to be able to cope with real-life situations, especially in emergency medicine, where highly skilled performance is crucial[9]. The sample size selected for the study was 358 undergraduate students and it was considered adequate for the interpretation of results. The majority (87.8%) of students had heard of BLS/CPR, among them 40.6% could give the correct order of performing CPR as per the AHA guidelines (Year 2010). As we had studied knowledge according to separate components like, Indications, Response to a Situation and Signs of Successful Resuscitation, we could not find comparative data on these aspects from the previous published reports. The study results showed that first year medical students have in adequate knowledge and final year students have more knowledge in the awareness of BLS.

It also reveals the effect of training in the form of retention of knowledge and skills regarding BLS in the following year. It is evident from the results that the pretraining knowledge regarding BLS was inadequate. Studies conducted in India by Chandrasekaran et al.[10] and Chaudhary et al.[11] have also reported poor awareness of

BLS among medical, dental and nursing students. Zaheer et al.[12] studied the awareness of BLS of medical students in Pakistan using a questionnaire only. They concluded a lack of awareness regarding BLS among medical students and suggested that resuscitation skills become a part of the undergraduate curriculum. Preprofessional students are probably living in a competitive world to get admission in professional courses. Even their parents are eager for the same. Hence, students do not bother to read anything else than the routine curriculum.

After the BLS training, student knowledge and skills improved and there was a significant retention in the following year. This explicitly justifies the acquisition of skill by training, indicating that the training program was effective. Students asserted in the feedback that they were confident in their ability to deliver BLS in an emergency. Chaudhary et al.[11] reported that a simulation-based intervention offered a positively evaluated possibility to enhance skills in recognizing and handling emergencies. Ruesseler et al.[4] also advocated that practicing BLS on mannequins enhanced students 'skills in recognizing and handling emergencies. Studies[13,14] have also stressed the importance of reinforcement to attain adequate Cardio Pulmonary Resuscitation (CPR) skills and maintain continued competency in the technique. The results of present study reflect that students had adequate overall understanding about the ' response to a situation where CPR is needed and 'signs of successful resuscitation', this was correlated with previous studies[11,13,14]. The apparent good knowledge observed in our study about 'response to a situation 'and ' signs of successful resuscitation 'probably reflects guess work/common sense'. As the study subjects consist of students from all the years of MBBS, it can be inferred that final year students would be in a better position to do guesswork. Lack of knowledge about specific aspects of CPR/BLS reflects the truth, which was similar to the situation reported from the other studies[11,13,14]. Most (76%) of the students wanted to avoid/ were uncomfortable and about 53.2% were not confident of performing CPR/BLS, although the total perception scores were higher (80.5%). Similar findings have been reported from Europe[15]. Very few (22.5%) had undergone training. Low levels of training have been reported from Pakistan and UK[12,16]. Comparison of students who had undergone training with those who had not undergone training revealed that training improved knowledge, but did not improve the confidence or alter the perceptions of the students. A study from Netherlands reported that only 38% of the clinical picture and diseases and 69% of the skills were mastered by the students after the training[17]. As the skills deteriorated over a period of time, the students did not have confidence or have a favorable perception about CPR/BLS. Although training improves the knowledge, the loss of skills with time highlights the need to have repeated training over a period of time. This is possible only if the training is introduced at the beginning of the curriculum rather than in the final year, which is the current practice. As most (93.7%) of the students wanted to learna bout it from the beginning of the course, it reflects the 'felt needs 'of the students.

This being a questionnaire based study; a certain amount of guesswork from students could have resulted in higher levels of certain components of knowledge about CPR/BLS, as discussed earlier in the text. By exploring the awareness and perceptions of various components, it was possible to get an overall idea, thereby, reducing the impact of guess work.

6. Conclusions

There is an increased risk of death from cardio vascular disease, stroke, choking and drowning. These deaths actually are easily preventable. But this study found that there is lack of adequate knowledge among undergraduate medical students. The major lack of knowledge and awareness is due to lack of training. Hence it is essential to train the students in CPR/BLS early in the curriculum to improve their knowledge and repeated training would increase their confidence.

7. References

1. Burdick WP, Jouriles NJ, D'Onofrio G, et al. Emergency medicine in undergraduate education. SAEM Education Committee, Undergraduate Subcommittee, Society for Academic Emergency Medicine. Acad Emerg Med. 1998; 5:1105e10. PMid: 9835475. https://doi.org/10.1111/j.1553-2712.1998.tb02671.x
2. Garg RH. Who killed Rambhor? The state of emergency medical services in India. J Emerg Trauma Shock. 2012; 5:49–54. PMid: 22416155 PMCid: PMC3299154. https://doi.org/10.4103/0974-2700.93113
3. Krishnan V. AIIMS to start specialized course in emergency medicine. Expressindia.com. 2009. http://www. expressindia.com/latest-news/aiims-to-start- specialised-course-in emergencymedicine/497292/

4. Ruesseler M, Weinlich M. Simulation training improves ability to manage medical emergencies. Emerg Med J. 2010; 27:734–8.
5. Harsha Kumar HN, Swasthik Upadhya P, Shruthi Ashok P, Akhil Chowdari G, Niranjan GM, Dinesh B. A cross-sectional study on awareness and perception about basic life support/Cardio Pulmonary Resuscitation among undergraduate medical students from coastal South India. International Journal of Medicine and Public Health. 2013; 3(31). https://doi.org/10.4103/2230-8598.118951
6. Seenivasan P, Tamilarasi R, Gokul Raman C, Boopathi Raja S, Kishore R, Harrison Gabriel GB. Study on awareness of Basic Life Support among medical students in Chennai. Stanley Medical Journal. 2016; 3(1):2–7.
7. Beck JD, Eke P, Heiss G, Madianos P, Couper D, Lin D, et al. Periodontal disease and coronary heart disease: Are appraisal of the exposure. Circulation. 2005; 112:19–34. PMid: 15983248. https://doi.org/10.1161/CIRCULATIONAHA.104.511998
8. American Heart Association-BLS for Health Care Providers-MaryFran Hazinski, R. MSN, Senior Science Editor.
9. Lunenfeld E, Weinreb B, Lavi Y, et al. Assessment of emergency medicine: A comparison of an experimental objective structured clinical examination with a practical examination. Med Educ.1991; 25:38e44. PMid: 1997827. https://doi.org/10.1111/j.1365-2923.1991.tb00024.x
10. Chandrasekaran S, Kumar S, Bhat SA, Saravanakumar, Shabbir PM, Chandrasekaran V. Awareness of Basic Life Support among medical, dental, nursing students and doctors. Indian J Anaesth. 2010; 54:121–6. PMid: 20661349 PMCid: PMC2900734. https://doi.org/10.4103/0019-5049.63650
11. Chaudhary A, Parikh H, Dave V. Current scenario: Knowledge of Basic Life Support in medical college. Natl J Med Res. 2011; 1:80–2.
12. Zaheer H, Haque Z. Awareness about BLS-CPR among medical students: Status and requirements. J Pak Med Assoc. 2009; 59:57–9.
13. Cooper S, Johnston E, Priscott D. Immediate Life Support (ILS) training. Impact in a primary care setting? Resuscitation. 2007; 72:92–9. PMid: 17069948. https://doi.org/10.1016/j.resuscitation.2006.06.004
14. Roshana S, Batajoo KH, Piryani RM, Sharma MW. Basic life support: knowledge and attitude of medical/paramedical professionals. World J Emerg Med. 2012; 3:141–5. PMid: 25215053 PMCid: PMC4129799. https://doi.org/10.5847/wjem.j.issn.1920-8642.2012.02.011
15. Freund Y, Duchateau FX, Baker EC, Goulet H, Carreira S, Schmidt M, et al. Self-perception of knowledge and confidence in performing Basic Life Support among medical students. Eur J Emerg Med. 2013; 20:145–6. https://doi.org/10.1097/MEJ.0b013e328355fd59
16. Mastoridis S, Shanmugarajah K, Kneebone R. Undergraduate education in trauma medicine: The students' verdict on current teaching. Med Teach. 2011; 33:585–7. PMid: 21696289. https://doi.org/10.3109/0142159X.2011.576716
17. Tan EC, Hekkert KD, vanVuqt AB, Biert J. First aid and basic life support: A questionnaire survey of medical schools in the Netherlands. Teach Learn Med. 2010; 22:112–5. PMid: 20614376. https://doi.org/10.1080/10401331003656538

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