Basic life support - Perception and awareness among healthcare interns in Pune city- A Cross Sectional study

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Abstract-

Introduction - BLS is an important component of the cardiopulmonary resuscitation (CPR), which includes adequate maintenance of ventilation and circulation in cases of cardiac arrest (3) A sudden cardiac arrest requires emergency interventions that increasingly occurs in all age groups (2) therefore, Individuals in the community at least the health care professionals should know how to perform BLS as they encounter such situations very often in their day to day life.

Materials and methods-A pretested close ended questionnaire study was designed to collect the data which considered of four parts and consisted of 32 questions related to Perception and awareness among healthcare interns about BASIC LIFE SUPPORT. Results- Almost all of the responders (94.4%) knew the abbreviation of CRP and about 89.7% responders knew what BLS stands for About 104(82.5%) of the responders have never attended a BLS workshop.

And about half the population feel the requirement of training in BLS. And half (50%) of them Believed BLS should be included in the 3rd year of their UG curriculum.

Conclusion-the study concludes that overall knowledge, attitude and practice of the participants related to BLS was average.

Keywords- BLS, CPR, healthcare, emergency, cardiac arrest, resuscitation, choking.

INTRODUCTION

Basic Life Support (BLS)is the recognition of sudden cardiac arrest followed by activation of emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED)(4). It is an important component of the cardiopulmonary resuscitation (CPR), which includes adequate maintenance of ventilation and circulation in cases of cardiac arrest (3) A sudden cardiac arrest requires emergency interventions that increasingly occurs in all age groups(2) therefore, Individuals in the community at least the health care professionals should know how to perform BLS as they encounter such situation very often in their day to day life.(1) Successful cardiopulmonary resuscitation at the scene by health care professionals plays an Important role in reducing mortality related to cardiac arrest and also decreases its severity .(2)

To ensure that healthcare individuals can deliver necessary life-saving measures in cases of emergency, it is important to have adequate knowledge and awareness about BLS and CPR. It is expected that at least health care professionals irrespective of the branch they practice, should have a sound knowledge about BLS.(3) However, in the underdeveloped and developing countries, BLS training is not routinely practiced. One of the leading causes of death and disability worldwide is out-of-hospital cardiac arrest (OHCA)which is 10% of total

mortality in developing countries (4). Apart from doctors and nurses, dental practitioners as a part of

Health care professionals also encounter life-threatening medical emergencies. 4) In order to reduce the rate of sudden cardiac arrests, The American Heart Association emphasizes the need to gain competency regarding cardiopulmonary resuscitation practices in health team members.4 However, theoretical education alone is not sufficient for performing successful cardiopulmonary resuscitation.(2)therefore AHA recommends repeating the course after every two years. Since 1966 BLS training has been recommended for

all health care professionals In the United States, (6) .Demand for courses of BLS is ever-increasing In the world nowadays.(1) Proper practice of the techniques and maneuvers enables a person to effectively resuscitate a victim.(5)

There is a scarcity of data regarding knowledge and awareness of BLS among healthcare interns of India. Therefore, this study was planned with the aim to assess the Perception and awareness of BLS in healthcare Interns of Pune city and identify the factors affecting the knowledge regarding BLS in healthcare Professionals.

MATERIALS AND METHODS: -

A pretested close ended questionnaire study was conducted among healthcare interns in Pune city, Maharashtra, India to determine the Perception and awareness among healthcare interns about BASIC LIFE SUPPORT. The study duration was about three months (January to March). Dental interns, Unani interns and physiotherapy interns and Participants who are willing to participate in the study. Undergraduate students and staff members were excluded from the study.A structured, self-administered, close-ended

questionnaire was designed to collect the data which consisted of four parts and comprised of 31 questions related to Perception and awareness about BASIC LIFE SUPPORT among healthcare interns . The first part of the questionnaire consisted of demographic data and the second part consisted of questions based on knowledge, the third part consisted of questions based on attitude and the fourth part consisted of practice based questions about BLS. The questionnaire was prepared using Google forms (GOOGLE LLC, mountain view, California, United states) and the link was distributed to the selected participants via phone call and WhatsApp number. A pilot study was performed in a population of 20 participants. A brief introduction about the study was given One phone call to all the participants. Data collected were entered in spreadsheets (Microsoft Excel 2016. Statistical analysis was done using descriptive statistics. SPSS (Statistical package for the social science)23.0version software (IBM Chicago, Illinois, United states) was used for analysis. The input parameters for the sample size calculation used were as follows: 80% power of the study, alpha error 0.05, effect size 0.5 and degree of freedom as 5. The calculated sample size for the study was around 120. The convenient sampling technique was used in this study..The reliability statistics calculated using Cronbach alpha was 0.83. After this , the questionnaire was distrusted among the healthcare interns via SMS and WhatsApp messages and the remaining responses were collected .The results are presented using tables and graphs.

Result:

Among 130 questionnaire which were distributed to the participants, 126 returned with a

response rate of 96.92%. Among the participants, 33(26.2%) were male and 93(73.8%) were female . a large population (85.7%) were in the age group 20to 25 years .Of the 126 responses, 72 were dental interns , 27 were unani intern and 27 were physiotherapy interns .

Almost all of the responders (94.4%) knew the abbreviation of CRP and about 89.7% responders knew what BLS stands for.. About half of the responders knew the abbreviation of AED. About 88(69.8%) responders were aware of the latest AHA guidelines of BLS because the AHA guidelines for BLS change every 2 years and the participants need to attend the course again after 2 years . As to questions on chest compression in adults, nearly 73.8% of the participants could identify that the right location of the hands for chest compression is one hand on the lower half of sternum and other on the top , and only 35.7% knew the compression rate is 100/min, However, only 41.3% of the participants knew that the recommended depth of chest compression in an adult is 1.5-2 inches. About 66.7% responders answer Syncope as the most Common medical emergency. About 59% of the responders didn't know the number to be called in case of emergency and 30% of the responders failed to answer the correct sequence of resuscitation. About 104(82.5%) of the responders have never attended a BLS workshop.

And about half the population feel the requirement of training in BLS. And half(50%) of them

Believed BLS should be included in the 3rd year of their UG curriculum. And 61.9% responders rated themselves average regarding the knowledge of BLS .

Discussion

In India, there has been very limited data on the outcome of cardiopulmonary resuscitation in out-of- hospital cardiac arrests. A study conducted in 2014-2015 by Moolchand Medcity, New Delhi, India has shown that the survival rate to hospital admission was 32.5%, whereas the survival rate to hospital discharge was 8.8%. The survival to hospital discharge with good cerebral performance was seen to be 3.8%. This figure is slightly higher than in certain previous reports, like an Indian study published in 1999 by Rajaram et al which showed the overall survival rate to hospital discharge was 5.9%. If we compare with western countries, where BLS and ACLS protocols and emergency medical services (EMS) are well developed; the overall survival to hospital discharge rate is 9.6% (CARES), so we are still lagging behind.(15)

In all of the major trauma and cardiac arrest cases, BLS support increases the chances of survival in a prehospital facility. The BLS program is designed to deliver knowledge to a wide range of healthcare professionals about several life-threatening emergencies.(3) Health professionals should have sound CPR/ BLS knowledge and skills, but there is a major problem with retention of skills and outdated information. This study was to explore the present knowledge and perception of healthcare interns of Pune about BLS/CPR (1)

According to the study conducted in Pakistan in 2009 the knowledge about BLS among healthcare students across the subcontinent was found to be low the result of this study also show a similar Trend in our study (12)

Accordingly In this study 82.5% Of the healthcare interns have not attended any

Workshopson BLS. Similarly a study conducted in kist medical college in Nepal in 2012, 69% of the participants had no BLS training .Which is similar to our study.(1)

A study conducted in 2013 in kS hegde medical and dental college in Karnataka showed that

about 95.4% (14)of the participants knew the abbreviation of BLS which is quite similar to ours

which came to be around 89.7%. Though the abbreviation of AED in our study was known only by (50%) of the population which the latter study (14) showed only 14.6% participants knew the abbreviation of AED. In our study we found that about 73.8% of the participants were aware

about the hand positions for CPR in adults when compared to a study conducted in jubilee

medical college Kerala 2022 Where only 22% of the participants were aware of the same (6) and similarly a study from Nepal in 2012 demonstrated that only half(50%) the participants were aware of the hand position (1). This might be because of the population difference. A study conducted in Kerala 2020 (6) Showed that 54% of the participants were aware of the correct sequence of resuscitation which was the same (55.7%) in our study

In our study we found that almost half of the participants (51.6%) preferred to use a barrier

while performing mouth to mouth' ventilation Which is a lower score as in a study in Nepal 2012(1) 64% preferred to use a barrier . In 2019, a survey conducted in kingdom of Saudi Arabia concluded that the major reason for the lack of professional training in BLS is the busy schedule of the health care professionals (3) A survey conducted in 2020 in jubilee medical college in Kerala (6) showed a huge number 96% of the population which had attended BLS training program and about 92% of the participants have performed CPR in their UG curriculum. The reason for a positive number in this survey might be because of the difference in population i.e. MBBS STUDENTS and also because BLS is mandatory in the MBBS curriculum.

CONCLUSION

This study has revealed a critical issue that the average healthcare professional lacks adequate knowledge in CPR/BLS which should be addressed promptly. Since prior CPR training and clinical exposure influence the retention of knowledge there is a need for all health care professionals to have some standard of CPR/BLS training and assessment. Therefore, BLS training should be made compulsory and must be included in the curriculum of all undergraduate and postgraduate curriculum, irrespective of medical branch as appropriate training of BLS improves survival rates and following resuscitation of cardiac arrest patients and such courses with hands on practice are essential for the betterment of CPR outcomes.

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TABL	ES -
DEMO	GRAPHIC DATA
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Sr. no	Demographic data	Response	Number	Percentage
<u>1.</u>	Gender	Male	33	26.2%
		Female	93	73.8%

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<u>2.</u> Age	Age	20-25	108	85.7%
		25-30	15	11.9%
		30-35	2	
		35-40	1	
<u>3.</u>	Intern	Dental	70	57.1%
		Physiotherapy	27	21.4%
		Unani	27	21.4%

KNOWLEDGE BASED QUESTIONS

Sr. No	Question	Response	Number	Percentage
1	BLS Stands For	Basic Life Support	113	89.7%
		Basic Lung Support	2	1.5%
2	CPR Stands For:	Cardio Pancreatic Resuscitation	2	1.5%
		Cardiopulmonary Resuscitation	119	94.4%
3	AED Stands For:	Automated External Defibrillators	63	50%
		Advanced External Defibrillators	11	8.7%
4	EMS Stands For:	Effective Medical Service	6	4.7%
		Emergency Medical Service	102	81%
5.	Are You Aware Of Latest AHA Guidelines Of BLS.?	Yes	88	69.8%
		No	38	30.2%

6.	What Is The Number To Be Called In Case Of An Emergency?	101	25	19.8%
		102	41	32.5%
7.	What Is The Correct Sequence Of Resuscitation In BLS.?	Airway ,Breathing ,Compression	70	55.6%
		Compression , Breathing, Airway	4	3.2%
8.	Location Of Hands For CPR In Adults	One Handon Lower Half Of Sternum And Other On Top Of The First	93	73.8%
		One Finger Breadth Above The Nipple	7	5.6%
9.	Rate Of Chest Compression In Adults	120 per min	45	35.7%
		90 per min	18	14.3%
10.	Rate Of Chest Compression In Infants	120 per min	24	19%
		70 per min	70	19%
11	Correct Depth Of Chest Compression In Infant	1-1.5 inch	48	38.1%
		2-2.5	5	3.9%
12	Correct Depth Of Chest Compression In Adult	1-1.5 inch	52	41.3%
		0.5-0.75 inch	11	8.7%
13	Which Artery To Be Felt For A Pulse In An Adult Patient?	Carotid artery	62	49.2%
		Femoral artery	4	3.5%
14	Recommended Action In Response To Choking Person	Attempt Abdominal Thrust	53	42.1%
		Perform Blind Sweep Of mouth	6	4.7%
15	What Is The Number Of Breath Per Min In A Healthy Adult.?	16-18 per min	42	33.3%
		20-22 per min	8	6.3%

ATTITUDE BASED QUESTIONS

Sr no	question	response	number	percentage
1.	Have U Attended A Workshop On BLS?	Yes	22	17.5%
		No	104	82.5%
2.	Do U Feel U Require Training In BLS For Managing A Medical Emergency Situation?	Strongly Agree	66	52.4%
		Strongly Disagree	0	0
3.	In Which Year Of Course Should BILS Be Included In Ug Curriculum?	Second year	16	12.7%
		Third year	47	37.3%
4.	What Is Your View On Mouth To Mouth Ventilation?	Prefer To Use Some Type Of Barrier	65	51.6%

		Refuse To Perform	7	5.6%
5. Do You Think BLS Training Should Be Given To Individuals Other Than Healthcare Workers?	Agree	53	42.1%	
	Other Than Healthcare Workers?	Strongly Disagree	0	0
6. Should BLS Training Be Mandatory For Healthcare Workers ?	Should BLS Training Be Mandatory For Healthcare	Strongly Agree	67	53.2%
	Strongly Disagree	2	1.6%	
7.	7. How You Rate Yourself Regarding The Knowledge Of	Below average	13	10.3%
BLS?	Average	78	61.9%	

PRACTICE BASED QUESTION

Sr no	Questions	Response	Number	Percentage
1	What Is The Most Commonly Encountered Medical Emergency?	Syncope	84	66.7%
		Allergic reaction	17	13.5%
		Seizures	9.	7.1%
		Anaphylactic reaction	16	12.7%
2	Are You Confident To Perform BLS In Any Emergency Case.?	Yes	42	33.3%
		No	84	66.7%
3 .If You And Your Friend An Having Food In Canteen An Suddenly Your Friend Star Expressing Symptoms C Choking.What Is Your Fir Response?	.If You And Your Friend Are Having Food In Canteen And Suddenly Your Friend Starts Expressing Symptoms Of	Give Chest Compression	15	11.9%
	Choking.What Is Your First Response?	Confirm Foreign Body Aspiration By Talking To Him	38	30.2%
		Give Abdominal Thrust	41	32.5%
		Give Back Blows	32	25.4%

4	4 You Are Witnessing An Infant Who Suddenly Started Choking While He Was Playing With The Toy, You Have Confirmed That He Is Unable To Cry Or Cough , What Will Be Your First Response?	Start CPR Immediately	17	13.5%
		Give Water To The Infant	6	4.8%
		Back Blows And Chest Compressions Of 5 Cycles Each And Then Try To Remove Foreign Body From The Mouth Only When It Is Seen	77	61.1%
		Try To Remove The Foreign Body Using A Blind Finger Sweeping Technique	26	20.6%
5 You Are Witnessing An Unresponsive Victim Wh Been Submerged In Fresh And Just Removed From Has Spontaneous Breathin He Is Unresponsive.What I First Step?	You Are Witnessing An Adult Unresponsive Victim Who Has Been Submerged In Fresh Water And Just Removed From It .He Has Spontaneous Breathing .But	Cpr For 1 Min And Inform Ems	33	26.2%
	He Is Unresponsive.What Is Your First Step?	Cpr For 2 Min And Inform Ems	31	24.6%
		Keep Him In Recovery Position	21	16.7%
		Compress In The Abdomen To Remove The Water	41	32.5%
6	You Noticed That Your Colleague Has Suddenly Developed Slurring Of Speech And Weakness Of Upper Limb.What Can Be Done ?	Offer Him Some Drinks , Probably Hypoglycemia	33	26.2%
		Probably Stroke , Get Him To The Nearest Clinic	56	44.4%
		Possibly Stroke , He May Require Thrombolysis, Activate Ems	33	26.2%

		Maybe Due To Sleep Deprivation , Make Him Sleep	4	3.2%
 Maybe Due To Sleep Deprivation , Make Him Sleep 31. A 50 Year Old Gentleman With Retrosternal Chest Discomfort , Profuse Sweating And Vomiting .What Is Next? 	Maybe Due To Sleep Deprivation , Make Him Sleep 31. A 50 Year Old Gentleman With Retrosternal Chest Discomfort , Profuse Sweating And Vomiting .What Is Next?	Probably Myocardial Infarction , Activate Ems And Give An Aspirin And Allow Him To Rest	71	56.3%
	Probably Indigestion , Hence Give Him Soda	19	15.1%	
	Walk Him To The Nearest Clinic	23	18.3%	
		Probably Acid Peptic Disease , Give Antacid And Ranitidin	13	10.3%