RESEARCH ARTICLE

Journal of Anatolian Medical Research
JAMER 2024;9(1):19-26
DOI:10.55694/jamer.1396972

Evaluation of Basic and Advanced Cardiac Life Support Knowledge of Resident Doctors at Kayseri Training and Research Hospital

Kayseri Eğitim ve Araştırma Hastanesi Asistan Doktorların Temel ve İleri Kardiyak Yaşam Desteği Bilgilerinin Değerlendirilmesi

Bahadır Karaca[1], Levent Avşaroğulları[2], Vesile Şenol[3], Avni Uygar Seyhan[4], Mükerrem Altuntaş[5]

[1] University of Health Sciences, Sancaktepe Prof. Dr. İlhan Varank City Health Training and Research Center, Istanbul, Turkey
[2] Erciyes University, Faculty of Medicine, Department of Emergency Medicine, Kayseri, Turkey
[3] Cappadocia University, School of Health Sciences, Nevşehir, Turkey
[4] University of Health Sciences, Istanbul Kartal Dr. Lütfi Kırdar City Health Training and Research Center, Istanbul, Turkey
[5] Kayseri City Hospital, Kayseri, Turkey

ABSTRACT

Aim*: Cardiopulmonary resuscitation (CPR), which includes Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), and Post Resuscitation Care (PRC), has become an important medical topic that is kept current with constantly changing and updated guidelines. The aim of this study was to evaluate whether medical residents (MRs) at Kayseri Training and Research Hospital (KTRH) can recognize cardiac arrest, their knowledge and skill level of BLS and ACLS.*

Materials and Methods: *This study was conducted between 30.12.2015-01.05.2016, as a descriptive questionnaire study to evaluate the approaches and knowledge levels of MRs working in 11 different clinics at KTRH. The questi-onnaire consisted of a personal information form as well as questions assessing BLS and ACLS, CPR training and CPR application history. The questionnaires were administered face-to-face by the researchers. SPSS Statistics 22.0 (SPSS Inc. ®, Chicago, USA) program was used for statistical analysis.*

Results: *There were 163 participants in the study. The mean number of correct responses to the knowledge assessment questions was significantly ($p<0.05$) higher among those who felt CPR training in medical school was adequate and who followed ALCS and CPR guidelines than among those who felt CPR training was inadequate and who did not follow CPR guidelines. There was a significant ($p<0.05$) positive correlation between age and length of practice and the correct rate of BLS knowledge scores. There was a significant ($p<0.05$) positive correlation between age and years of practice and BLS knowledge scores. In addition, the mean ACLS knowledge level correct response rate was significantly ($p<0.01$) higher in surgical specialties than in medical specialties.*

Conclusion : *In order to increase the chances of survival in cases of reversible sudden cardiac arrest, BLS and ACLS training should be renewed and updated on a global and national level, starting with the health care professionals.*

Keywords: *Advanced cardiac life support, basic life support, emergency medicine, resident doctors*

ÖZET

Amaç: *Temel Yaşam Desteği (TYD), İleri Kardiyak Yaşam Desteği (İKYD) ve Resüsitasyon Sonrası Bakımı (RSB) içeren kardiyopulmoner resüsitasyon (KPR), sürekli değişen ve güncellenen kılavuzlarla güncel tutulan önemli bir tıbbi konu haline gelmiştir. Bu çalışmanın amacı, Kayseri Eğitim ve Araştırma Hastanesi'ndeki (KEAH) asistan hekimlerin (AH) kardiyak arresti tanıyıp tanımadıklarını, TYD ve İKYD konusundaki bilgi ve beceri düzeylerini değerlendirmektir.*

Gereç ve Yöntemler*: Bu çalışma 30.12.2015-01.05.2016 tarihleri arasında KEAH'de 11 farklı klinikte çalışan AH'ların yaklaşımlarını ve bilgi düzeylerini değerlendirmek amacıyla tanımlayıcı anket çalışması olarak yapılmıştır. Anket, kişisel bilgi formunun yanı sıra TYD ve İKYD, KPR eğitimi ve KPR uygulama geçmişini değerlendiren sorular-*

Corresponding Author : Bahadır Karaca, University of Health Sciences, Istanbul Sancaktepe Prof. Dr. İlhan Varank City Health Training and Research Center, Department of Emergency Medicine, ***Email***: dr.bk40@hotmail.com
Cite this article as: Karaca B, Avşaroğulları L, Şenol V, Uygar SA, Altuntaş M. Evaluation of Basic and Advanced Cardiac Life Support Knowledge of Resident Doctors at Kayseri Training and Research Hospital. JAMER 2024;9(1):19-26.

Received: 02.12.2023
Accepted: 27.02.2024
Online Published: 15.04.2023

dan oluşuyordu. Anketler araştırmacılar tarafından yüz yüze uygulanmıştır. İstatistiksel analiz için SPSS İstatistik 22.0 (SPSS Inc.®, Chicago, ABD) programı kullanıldı.
***Bulgular:** Araştırmaya 163 katılımcı katıldı. Bilgi değerlendirme sorularına verilen ortalama doğru yanıt sayısı, tıp fakültesinde KPR eğitiminin yeterli olduğunu hisseden ve İKYD ve KPR kılavuzlarını takip edenler arasında anlamlı derecede ($p<0,05$) daha yüksekti. Yaş ve uygulama süresi ile TYD bilgi puanlarının doğruluk oranı arasında pozitif yönde anlamlı ($p<0,05$) bir ilişki vardı. Bunun yanında yaş ve çalışma yılı ile TYD bilgi puanları arasında pozitif yönde ($p<0,05$) anlamlı bir ilişki vardı. Ek olarak, ortalama İKYD bilgi düzeyi doğru yanıt oranı, cerrahi uzmanlıklarda tıbbi uzmanlıklara göre anlamlı derecede ($p<0.01$) daha yüksekti.*
***Sonuç :** Ani kalp durması vakalarında hayatta kalma şansını arttırmak için sağlık çalışanlarından başlayarak kü-resel ve ulusal düzeyde TYD ve İKYD eğitimlerinin yenilenmesi ve güncellenmesi gerekmektedir.*

***Keywords:** Acil tıp, ileri kardiyak yaşam desteği, temel yaşam desteği, tıpta uzmanlık öğrencisi.*

INTRODUCTION

The unexpected cessation of circulation and/or spontaneous respiration is called cardiopulmonary arrest (CPA). When cardiac and/or pulmonary arrest occurs, all of the procedures performed urgently to provide circulatory and respiratory support are called Cardiopulmonary Resuscitation (CPR) (1). Ninety percent of sudden deaths are due to heart disease and 10% are due to non-cardiac causes. There is a vital and important relationship between the heart, lungs and brain. Therefore, if one of these three organs stops functioning, the other two will also stop functioning within a short period of time (2,3). When the patient stops breathing, even if the heart continues to pump for a few minutes, the blood supply to the brain decreases dramatically in terms of oxygen.

As a result, the brain tissue eventually dies from lack of oxygen (2). The most common reversible cause of CPA is ventricular fibrillation. These patients should be defibrillated as soon as possible to increase the success of CPR. This should be considered a public health practice, and efforts are being made by the World Health Organization (WHO) to develop global guidelines for the training of personnel and the provision of physical conditions for defibrillation.

Resuscitation is a skill that requires ongoing training. However, it is important to provide practical as well as theoretical training (4). CPR, consisting of Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), and post-resuscitation care, is a significant medical topic that stays current with frequently updated guidelines. Thus, healthcare professionals' knowledge and practices in managing arrested patients must be periodically reviewed and refreshed.

Because BLS is the initial stage of cardiac arrest treatment, healthcare professionals, such as physicians and nurses, in high-risk areas should possess adequate BLS skills before initiating ACLS (5). According to published guidelines, BLS and ACLS are revised approximately every 5 years. Quick and precise patient management is crucial for patient survival and prevention of neurological complications (6). Approaches to cardiopulmonary arrest by medical residents, who will take responsibility as specialists in various hospitals and clinics after their specialty training, are of special importance within the framework of this responsibility as well as the framework of their clinical duties during their specialty training.

The study aimed to assess the ability of medical residents (MRs) at Kayseri Training and Research Hospital (KTRH) to recognize cardiac arrest, apply and sustain BLS and ACLS, and their knowledge level on these topics. In addition, the study explored the factors that influence MRs' performance, their interest in recent advancements, and the potential benefits of related training opportunities.

MATERIALS and METHODS

Study Design

This descriptive survey assesses the methods and knowledge levels of medical residents at the Kayseri Training and Research Hospital concerning cardiopulmonary resuscitation practices in children and adults between 30 December 2015 and 1 May 2016.

Permission was obtained from both the Erciyes University Clinical Research Ethics Committee (Decision number: 96681246/195, Meeting date: 18 December 2015) and the KTRH Education Planning Coordination Board prior to the study's commencement. In addition, the research adhered to the "World Medical Association Declaration of Helsinki Ethical Principles."

Inclusion and Exclusion Criteria

Medical residents currently working in 11 different clinics at KTRH and who consented to participate in the study were eligible for inclusion. Individuals who were not graduates of the Faculty of Medicine, those who were on leave during the study period, those who declined to participate, and those who provided assistance in the study were not eligible for the study.

Formation of Study Groups

The medical residents involved in the study were categorized based on the departments they were working in - either internal medicine or surgical sciences. Furthermore, a comparison was made between the knowledge levels of medical residents working in departments with intensive care, such as internal medicine, cardiology, general surgery, and pediatrics, and those working in departments without intensive care.

Questionnaire Design and Data Collection

The survey comprised 46 questions consisting of both multiple-choice and Likert scale questions. The first 16 questions in the questionnaire consisted of questions assessing the medical resident's age, gender, year of graduation (duration in the medical profession), department, year of medical residency training, previous CPR training, and CPR application history. All responses to the aforementioned questions were single-answer or based on a 3-point Likert scale. The following 30 questions were composed of BLS and ACLS topics referencing cardiopulmonary resuscitation guidelines published by the American Heart Association in Circulation magazine in October 2010, in accordance with relevant literature reviews and expert opinions (7). Of these, 15 questions addressed BLS and 15 questions addressed ACLS. All questions were designed as multiple-choice questions with 5 options. The answers were evaluated using CPR guidelines as the basis. The researchers conducted the surveys in person and recorded the data on a computerized form for statistical analysis.

Data Analysis and Statistical Methods

Continuous variables were expressed as arithmetic mean ± standard deviation or median, minimum and maximum values while categorical variables as numbers and percentages according to their distributional structure. The compatibility of the data with normal distribution was evaluated by Kolmogorov Smirnov test and nonparametric statistical methods were utilized for cases that did not show normal distribution. The Mann-Whitney U test was used for two independent groups while Kruskal-Wallis test was used for more than two independent groups. The relationships between categorical variables were analyzed by Chi-square analysis. SPSS Statistics 22.0 (SPSS Inc. ®, Chicago, USA) program was used for data analysis. Results were considered significant when $p<0.05$ at a 95% significance level.

RESULTS

At the beginning of the study on December 30, 2015; 113 (63.3%) of a total of 163 MRs in the CTRH staff agreed to participate in the study and responded to the questions. Among the research assistants who participated in this study, 80 (70.8%) were male and 33 (29.2%) were female. Their ages ranged from 25 to 38 years old, with an average of 28.9±2.6 years and a median of 28 years. Upon analyzing the years of graduation from medical school, the study revealed that the oldest graduate finished in 2001. The newest graduate obtained their degree in 2015. The graduates of 2010 (64 people; 56.6%) had the highest participation frequency in the survey based on graduation year. Upon analyzing the MR periods, the median duration was found to be 3 years. There was a higher percentage of individuals in their first year of MR (29.1%) compared to others. Of all the research assistants that participated in the study, 26.5% worked at the internal medicine clinic, 21.2% at the pediatrics clinic, and 13.3% at the emergency medicine clinic.

In general, when analyzing the correct responses of MRs to questions that determine their BLS and ACLS knowledge level, researchers found that the median correct answer value for BLS questions was 8 (on a scale of 1-12) and the mean rate of correct responses was 51.8 ± 14.8%. The median value of answering ACLS questions correctly was 8 (2-15) and the mean value of the correct answer rate was 53.6 ± 19.2%.

When we evaluated the participants' resuscitation training, we discovered that 40.7% (n=46) of medical residents did not receive resuscitation training after finishing medical school. However, 33.6% (n=38) of them attended MR orientation training. In their professional career, 27.4% (n=31) of MRs faced at least one patient requiring CPR. On the flip side, 68 (60.2%) of the research assistants who took part in the study failed to follow the updates to the CPR guidelines. 27.4% (n=31) performed CPR outside the hospital, whereas the percentage of those who felt skilled in CPR was 58.4% (n=66). Out of the MRs who took part in the research, 73 (64.6%) believed that the CPR lessons taught during their medical studies were insufficient. Additionally, 90 (79.6%) of the MRs agreed that they should receive refresher CPR training. Only 45.1% of participants knew when the most recent resuscitation guideline was released. The findings of the participants regarding CPR training are shown in Table 1.

When comparing the BLS knowledge levels of participants, those who considered themselves competent in CPR had a significantly ($p<0.05$) higher mean of correct answers than those who did not. In addition, those who found CPR training in medical school adequate had a significantly ($p<0.05$) higher mean of correct answers than those who did not find CPR training adequate (Table 2).

Participants who underwent MR orientation training had a significantly higher mean score ($p<0.05$) on the ACLS knowledge level assessment compared to those who did not receive the training. The mean number of correct responses on the ACLS knowledge assessment was significantly higher ($p<0.05$) for those who felt their CPR training in medical school was adequate compared to those who felt it was inadequate. Following CPR guidelines resulted in significantly higher ($p<0.05$) mean correct ACLS knowledge scores than not following guidelines (Table 3).

Table 1. Findings related to MRs' CPR experience and CPR training

Survey Questions	Answers	n	%
Has a basic and advanced life support course been taught at the faculty you graduated from?	Yes	92	81.4
	No	12	10.6
	I do not remember	9	8.0
Have you taken any courses, seminars, congresses or in-service training on basic and advanced life support after graduation?	Yes	61	54
	No	46	40.7
	I do not remember	6	5.3
Did you attend assistant orientation training?	Yes	38	33.6
	No	75	66.4
Did you perform basic life support outside the hospital?	Yes	31	27.4
	No	82	72.6
Do you consider yourself competent in CPR?	Yes	66	58.4
	No	30	26.5
	I do not remember	17	15.0
Do you find the CPR training given in medical schools sufficient?	Yes	33	29.2
	No	73	64.6
	I do not remember	7	6.2
Would you like to repeat CPR training?	Yes	90	79.6
	No	16	14.2
	I have no idea	7	6.2
Are you following the CPR guide?	Yes	45	39.8
	No	68	60.2
When was the last resuscitation guide published?	2005	2	1.8
	2008	1	0.9
	2010	51	45.1
	2012	26	23.0
	2014	33	29.2

CPR: *Cardiopulmonary Resuscitation*

Table 2. Comparison of BLS knowledge levels of the participants according to some characteristics.

Questions	Answers	Basic Life Support Knowledge Correct Rate			p*
		Mean	Median	Min-Max	
Gender	Female	52.5±15.1	53.0	7-80	0.260
	Male	50.1±14.1	47.0	13-80	
Has a basic and advanced life support course been taught at the faculty you graduated from?	(+)	51.7±14.7	53.0	7-80	0.797
	(-)	52.1±15.4	53.0	13-80	
Have you taken any courses, seminars, congresses or in-service training on basic and advanced life support after graduation?	(+)	51.7±14.3	53.0	13-80	0.935
	(-)	51.9±15.4	53.0	7-80	
Did you attend assistant orientation training?	(+)	49.2±16.3	47.0	7-80	0.140
	(-)	51.3±13.9	53.0	13-80	
Did you perform basic life support outside the hospital?	(+)	50.5±17.1	53.0	20-80	0.802
	(-)	52.3±13.9	53.0	7-80	
Do you consider yourself competent in CPR?	(+)	54.1±13.6	53.0	20-80	**0.025**
	(-)	48.6±15.9	47.0	7-80	
Do you find the CPR training given in medical schools sufficient?	(+)	47.9±15.6	47.0	20-80	**0.036**
	(-)	53.4±14.2	53.0	7-80	
Would you like to repeat CPR training?	(+)	52.8±13.6	53.0	13-80	0.129
	(-)	47.8±18.5	47.0	7-80	
Are you following the CPR guide?	(+)	54.0±15.9	53.0	7-80	0.130
	(-)	50.3±13.9	53.0	13-80	

CPR: *Cardiopulmonary Resuscitation,* ***BLS****: Basic Life Support, *:Mann-Whitney u test*

Table 3. Findings related to the ACLS experience and ACLS trainings received by MRs

Questions	Answers	Advance Cardiac Life Support Knowledge Correct Rate			p*
		Mean	Median	Min-Max	
Gender	Female	54.2±19.7	53.0	13-100	0.513
	Male	52.3±18.2	47.0	20-93	
Has a basic and advanced life support course been taught at the faculty you graduated from?	(+)	52.6±18.7	53.0	13-93	0.157
	(-)	58.4±21.2	60.0	20-100	
Have you taken any courses, seminars, congresses or in-service training on basic and advanced life support after graduation?	(+)	52.6±18.4	53.0	20-100	0.456
	(-)	54.8±20.2	53.0	13-93	
Did you attend assistant orientation training?	(+)	55.8±19.0	53.0	20-100	**0.021**
	(-)	49.4±19.2	47.0	13-93	
Did you perform basic life support outside the hospital?	(+)	50.2±20.9	47.0	13-93	0.180
	(-)	55.0±18.5	53.0	20-100	
Do you consider yourself competent in CPR?	(+)	55.1±17.4	53.0	20-100	0.235
	(-)	51.6±21.5	47.0	13-93	
Do you find the CPR training given in medical schools sufficient?	(+)	48.2±16.9	47.0	20-93	**0.035**
	(-)	55.9±19.7	53.0	13-100	
Would you like to repeat CPR training?	(+)	54.9±18.8	53.0	20-100	0.360
	(-)	58.7±20.4	53.0	13-93	
Are you following the CPR guide?	(+)	62.2±19.7	60.0	13-100	**0.000**
	(-)	48.0±16.7	47.0	20-93	

***CPR**: Cardiopulmonary Resuscitation, **ACLS**: Advance Cardiac Life Support, *: Mann-Whitney u test*

By comparing the numerical values with the values of the correct response rates given to the questions evaluating BLS and ACLS knowledge levels; there was a significant ($p<0.05$) positive correlation between age and the correct rate of BLS Knowledge Level, but there was no significant ($p>0.05$) correlation between age and the correct rate of ACLS Knowledge Level. There was a significant ($p<0.05$) positive correlation between length of practice and BLS Knowledge Level correct rate, but there was no significant ($p>0.05$) correlation between ACLS Knowledge Level correct rate. In addition, no significant ($p>0.05$) correlation was found between MR duration and BLS and ACLS correct rate (Table 4).

Table 4. Comparison of BLS and ACLS knowledge level accuracy rates of MRs by age, residency and training period.

		BLS Knowledge Correct Rate	ACLS Knowledge Correct Rate
Age	r	0.187	0.068
	p	**0.047**	0.473
Years working as a physician	r	0.289	0.164
	p	**0.002**	0.083
Years working as an assistant physician	r	0.113	0.026
	p	0.234	0.781

*Spearman Correlation, **BLS:** Basic Life Support,**ACLS**: Advance Cardiac Life Support*

In the comparison of BLS knowledge levels according to departments, there was no significant difference ($p=0.122$, $p=0.067$, respectively) in the BLS knowledge level correct rates in internal sciences and surgical departments with and without intensive care unit. The mean ACLS knowledge level correct response rate was significantly ($p<0.01$) higher in surgical departments (63 ±21.3) than in internal departments (48.4±15.7). There was no significant ($p=0.216$) difference in the ACLS knowledge level correct rate between internal and surgical sciences with intensive care units.

DISCUSSION

The study assessed the BLS and ACLS knowledge and status of medical residents at KTRH. When researchers assessed opinions on the CPR training received, they found that about half of the participants did not receive BLS and ACLS training after graduating from medical school. Two-thirds of the participants believed they had adequate CPR skills. Almost two-thirds did not think the CPR training offered in medical schools was sufficient. Over half of the participants did not follow the new CPR guidelines and were unaware of the date of the most recent guideline

publication. Additionally, the overwhelming majority thought that CPR training should be repeated. When evaluating participants' knowledge levels, it was found that those who felt competent in BLS, had satisfactory training in medical schools, participated in resident orientation sessions, and followed the current guidelines had higher knowledge levels.

In a study conducted by Pillow et al. with fourth-year medical faculty students, it was observed that most of the students considered themselves inadequate in resuscitation and CPR and 36.8% of the students avoided resuscitation practice for this reason. They emphasized that BLS and ACLS training should be included in the medical school curriculum (8). In our study, 64.6% of the research assistants who participated in the study thought that they were inadequate in CPR.

In a study conducted by Demirkıran et al. on BLS training with first-year students at Istanbul University Cerrahpaşa Medical Faculty, it was observed that the training given was successful. In their study, it was concluded that since CPR training was important for medical faculty students, it was considered appropriate to start this training in the first year (9). In the following education periods, BLS and ACLS training are given in departments such as emergency medicine, anesthesia, and reanimation, cardiology, and pediatrics. However, the number and qualifications of these trainings are not standardized and may vary between medical faculties. In this study, it was found that 64.6% of the participating medical residents thought that the CPR training given at the undergraduate level in medical faculties was inadequate.
In the study by Kımaz et al. in which they evaluated the knowledge levels of BLS and ACLS with the participation of 53 physicians, it was observed that 33 of the physicians (62.3%) participated in CPR courses after graduation (10). In our study, we found that 61 (54%) of the physicians attended a course, seminar, congress or in-service training on BLS and ACLS after graduation. The high percentage of participation in CPR courses in the study by Kımaz et al. may be attributed to the fact that the participants were physicians working in 112 emergency services, that CPR was relatively predominant in their in-house training, and that their participation rates in training were high.

In 1999, Garcia-Barbaro and Caturla-Such surveyed 168 medical faculties and 202 teaching hospitals from 47 countries in Europe, including 11 universities from Turkey, and found that 167 of these institutions offered CPR, 135 BLS, 136 ACLS and 114 both. It was found that medical school students received an average of 7.7±5.7 hours of theoretical and 6.7±5.3 hours of practical training in BLS and an average of 9.8±7.6 hours of theoretical and 8.7±6.8 hours of practical training in ACLS. It was found that CPR training was given in 11 faculties in Turkey and the mean hours of theoretical and practical life support training in these universities were similar to the total mean (11). In this study, similar to the data in the literature, it was found that more than half of the participants were of the opinion that the CPR training given at the medical faculty was not sufficient and 58.4% of them found themselves sufficient in CPR.

BLS is tried to be simplified even more with each current guideline. It was reported that the level of theoretical knowledge increased significantly by providing BLS training even to non-healthcare professionals such as shopping center employees (12). In a study conducted by Çalışkan et al. in university students in departments other than health sciences, it was shown that the level of BLS awareness and knowledge increased with BLS training (13). In addition, in a study conducted with dentists and pharmacists, who are thought to have higher medical knowledge, it was shown that BLS knowledge levels could be increased with training (14). In addition, in this study, in parallel with the literature, it was shown that participation in CPR BLS trainings such as medical resident orientation training increased the level of knowledge statistically significantly. While the level of knowledge can be increased with training in non-physician medical departments, even in the non-healthcare worker population with low education level, BLS knowledge in physicians can be kept up to date and fresh with practical short and frequent repetitive trainings.

Similar to the results in the literature, it was shown that participation in CPR trainings such as MRs orientation training increased the level of knowledge statistically significantly (15). Resuscitation training should be repeated continuously since the guidelines are updated every five years and the practice of application should not be forgotten. The success of resuscitation is ensured by the prevalence, quality and practical applications of the training provided. Another point identified in our study is that only 45.1% of the MRs knew the year of the most recent resuscitation guideline. When this situation is considered together with the rate of those who do not follow the current guidelines, it may explain the low rate of correct responses to questions prepared according to the current guidelines for BLS and ACLS.

In a survey study conducted by Price et al. on CPR training, knowledge and behaviors of physicians, it was concluded that physicians who received resuscitation training in the last six months were safer in resuscitation practice (16). In our study, the relationship between physicians' thoughts about their own competence in CPR and their level of knowledge was examined. It was found that the knowledge levels of medical residents who considered themselves competent in CPR were higher than the others. This difference was

statistically significant for both BLS and ACLS knowledge levels. It can be said that these participants' high level of knowledge increased their confidence in the BLS and ACLS. However, the majority of medical residents (79.6%) believed that CPR training should be repeated.

Şener et al. reported that the BLS knowledge levels of those working in the Departments of Anesthesia and Reanimation and Emergency Medicine were better than those working in other departments in a study conducted on the BLS knowledge levels of research assistants in Dokuz Eylül University Medical Faculty hospital (17). In this study, BLS knowledge level rates were found to be higher in internal sciences and surgical sciences with intensive care units. This result may be thought to be due to the fact that resuscitation training is included in the training program in Emergency Medicine and branches with intensive care units and that clinical experience is high due to frequent encounters with patients in need of resuscitation.

In a study conducted by Filgueiras Filho et al. on physicians working in the emergency department regarding the care of cardiac arrest patients, no difference was found in the level of theoretical knowledge between non-surgeon clinicians and surgeons (18). In our study, although there was no significant difference between residents in medical and surgical departments, it was found that 50.3% of MRs in medical departments and 54.5% of MRs in surgical departments answered the questions related to CPR correctly. However, it was found that 48.4% of medical residents and 63.3% of surgical residents correctly answered questions about ACLS, and the difference was statistically significant. The reason for this difference may be that some of the acute procedures performed by surgical departments take place in the emergency department.

Limitations

This study was based on the BLS and ACLS guidelines at the time of the study. In addition, the study does not include all physicians since medical residents with ongoing training were included in the study. In this study, the level of resuscitation knowledge was evaluated only theoretically and practical skills were not evaluated. Since the research assistants graduated from different universities in different years, their prior resuscitation training is not clearly known.

Conclusion

BLS and ACLS are basic medical skills, and a physician graduating from medical school is expected to be able to perform these procedures. However, postgraduate medical education should include all physicians. To increase the chances of survival in reversible sudden cardiac arrest, BLS and ACLS training should be emphasized to be renewed and updated on a global and national level, starting with healthcare professionals.

Ethics Committee Approval: This study was approved by the Erciyes University Clinical Research Ethics Committee with decision number 96681246/195 and dated 18 December 2015.

Conflict of Interest: The authors declare no conflict of interest in this study.

Financial Support: No financial support was received from any institution or organization for this study.

REFERENCES

1. Çete Y. Kardiyopulmoner resüsitasyonda son gelişmeler. Acil Tıp Dergisi 2000; III. Acil tıp sempozyumu özel sayısı:1-13.
2. Erdil F. Kardiyak arrest ve kardiyopulmoner resusitasyon. 2.baskı. Aydoğdu Ofset; 1994.
3. Kayhan Z. Klinik Anestezi. 3.baskı. Ankara: Logos Yayıncılık; 2004.
4. Akıllı NB, Cander B, Köylü R, Dündar ZD, Ayan M. How much do we know about cardiopulmonary resuscitation? JAEM. 2012; 11:102-103.
5. Bilir Ö, Acemoğlu H, Aslan Ş, Çakır Z, Kandiş H, Türkyılmaz ŞE. Tıp doktorlarının temel yaşam desteği konusundaki bilgi düzeyleri ve etkileyen faktörler. Turkish Journal of Emergency Medicine.2007; 7(1): 018-024.
6. Ruesseler M, Weinlich M, Müller MP, Byhahn C, Marzi I, Walcher F. Republished: Simulation training improves ability to manage medical emergencies. Postgraduate Medical Journal,2012;88(1040):312-316.
7. Field JM, Hazinski MF, Sayre MR, Chameides L, Schexnayder SM, Hemphill R, et al. Part 1: executive summary: 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Circulation. 2010; 122: 640-656.
8. Pillow MT, Stader D, Nguyen M, Cao D, McArthur R, Hoxhaj S. Perceptions of basic, advanced, and pediatric life support training in a United States medical school. The Journal of Emergency Medicine. 2014; 46(5): 695-700.
9. Demirkıran O, Dikmen Y, Ürkmez S, Bahar M. Tıp fakültesi birinci sınıf öğrencilerinin ilk yardım ve temel yaşam desteği eğitimi. Tıp Eğitimi Dünyası. 2003; 11: 20-27.
10. Kımaz S, Soysal S, Çımrın AH, Günay T. 112 acil sağlık hizmetlerinde görevli doktorların temel yaşam desteği, ileri kardiyak yaşam desteği ve doktorlar›n adli sorumlulukları konularındaki bilgi düzeylerinin değerlendirilmesi. Ulusal Travma Derg 2006; 12: 59–67.
11. Mila GB, Juan CS. What are we doing in cardiopulmonary resuscitation training in Europe? An analysis of a survey Resuscitation. 1999; 41:225-236.
12. Celik B, Ozturk D, Yapar N, Altinbilek E, Ikizceli İ, Celik N, et al. Evaluation of the effectiveness of first aid training in shopping center employees. Наука и здравоохранение, 2019;(1): 58-62.
13. Çalışkan HM, Çelik B. Evaluation of basic life support short-term education effectiveness in candidate teachers. Turkish Journal of Family Medicine and Primary Care, 2020; 14(2): 281-288.
14. Çiftçi Sivri HD, Çalişkan HM, Şahin Y, Şahin C, Çelik B. Evaluation of current basic life support knowledge level and effectiveness of training in dentists and pharmacists. Bozok Tıp Dergisi. 2021; 11(3): 13-18.
15. Hohenstein C, Rupp P, Şeischmann T. Critical incidents during prehospital cardiopulmonary resuscitation: what are the problems nobody wants to talk about? EJEM. 2011; 18:38-40.
16. Price CS, Bell SF, Janes SE, Ardagh M. Cardiopulmonary resuscitation training, knowledge and attitudes of newly qualified doctors in New Zealand in 2003. Resuscitation. 2006; 68:295-299.

17. Şener S, Ersoy G, Özsaraç M, Aksay E, Koyuncu N. The current status and factors affecting the level of knowledge regarding basic life support measured in resident physicians. Dokuz Eylül Üniversitesi Tıp Fakültesi Dergisi. 2006; 20(2): 95-101.

18. Filgueiras Filho NM, Bandeira AC, Delmondes T, Oliveira A, Lima Junior AS, et al. Avaliação do conhecimento geral de médicos emergencistas de hospitais de Salvador - Bahia sobre o atendimento de vítimas com parada cardiorrespiratória. Arq. Brasileiro Cardiologia. 2006; 87(5):634-640.