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EVALUATION OF THE EFFECTIVENESS OF FIRST AID TRAINING IN SHOPPING CENTER EMPLOYEES

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Abstract

Introduction: Cardiopulmonary arrest is one of the most important causes requiring first aid in big metropolises. Cardiac arrest may be often seen in airports, shopping centers (SC), prisons, sports facilities, industrial zones, public transport stations and nursing homes. In this study, we aimed to evaluate effectiveness of training by measuring knowledge level of SC employees before and after first aid training, and to create awareness for the presence and use of automatic external defibrillator.

Material & Methods: Employees of a shopping center were trained for first aid on voluntary basis in Sisli Hamidiye Etfal Training & Research Hospital, Emergency Medicine Clinic between 01.01.2015 and 31.06.2015. A total of 332 volunteer shopping center employees were included in the study. Pretest and posttest questions and first aid training were organized based on AHA 2010 guidelines.

Results: The mean age of participants was 33.8±8.0 years and 233 (70.2%) of them were male. Of participants 74.4% were working for less than one year, 83.1% were cleaning staff and security guard, and 42.8% were high school graduated. It was found that post-training correct answer rate was found to be statistically significantly increased in all test questions. There was a weak negative correlation before the training, and a strong negative correlation after the training between total test score and age. In addition, educational status of the participants was correlated with both pre- and post-training total test score with both pre- and post-training total scores were increased with educational level.

Conclusion: First aid training is important in crowded places such as shopping centers where cardiac arrest is likely to be encountered. Therefore, training employees for first aid could provide correct emergency first response.

Keywords: first aid training, shopping center, cardiac arrest, training.

Резюме

ОЦЕНКА ЭФФЕКТИВНОСТИ ОБУЧЕНИЯ СОТРУДНИКОВ ТОРГОВОГО ЦЕНТРА ПО ОКАЗАНИЮ ПЕРВОЙ МЕДИЦИНСКОЙ ПОМОЩИ

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Введение: Остановка сердечной деятельности является одной из наиболее важных причин, требующих неотложной помощи в больших городах. Остановка сердечной деятельности может произойти у посетителей торговых центров, в аэропорту, местах заключения, спортивных объектах, промышленных зонах, станциях общественного транспорта и домах ухода. Целью представленного исследования явилась оценка эффективности обучения сотрудников торгового центра путем измерения уровня знаний до- и после первого тренинга по оказанию неотложной медицинской помощи и повышение осведомленности о наличии и использовании автоматического внешнего дефибриллятора.

Материалы и методы: В период с 01.01.2015 по 31.06.2015 сотрудники торгового центра на добровольной основе проходили обучение для оказания первой медицинской помощи в Учебно-исследовательском госпитале, Больнице скорой медицинской помощи имени Сисли Хамидие Этфаль. Всего в исследование было включено 332 сотрудника волонтерского торгового центра. Предтестовые и посттестовые вопросы, а также обучение по оказанию

первой помощи были организованы на основе рекомендаций АНА 2010 г.

Результаты: Средний возраст участников составил 33,8±8,0 лет, 233 (70,2%) из них оказались мужчинами. Стаж работы у 74,4% участников составил не менее одного года, 83,1% относились к сотрудникам, занимающимся уборкой помещений и охранникам, 42,8% имели высшее образование. Частота правильных ответов после обучения статистически значимо возрастала во всех тестовых вопросах. Установлена слабая отрицательная корреляция до обучения и сильная отрицательная корреляция после обучения между общим баллом теста и возрастом сотрудников. Кроме того, образовательный статус участников коррелировал с итоговыми результатами как до-, так и после обучения, а общие баллы как до, так и после тренировки увеличивались с уровнем образования.

Заключение: Обучение первой медицинской помощи является очень важной мерой в общественных местах, таких как торговые центры, где может возникнуть остановка сердца у посетителей. Таким образом, обучение сотрудников по оказанию первой помощи может обеспечить правильное реагирование в неотложных ситуациях.

Ключевые слова: обучение первой медицинской помощи, торговый центр, остановка сердечной деятельности, тренинг.

Түйіндеме

БІРІНШІ МЕДИЦИНАЛЫҚ КӨМЕК КӨРСЕТУ БОЙЫНША САУДА ОРТАЛЫҒЫ ҚЫЗМЕТКЕРЛЕРІН ОҚЫТУДЫҢ ТИІМДІЛІГІН БАҒАЛАУ

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Кіріспе: Жүрек қызметінің тоқтауы үлкен қалалардағы шұғыл көмекті талап ететін ең маңызды себептердің бірі болып табылады. Жүрек қызметінің тоқтауы сауда орталықтары келушілермен, әуе жайда, бас бостандығынан айыру орындары, спорттық нысандар, қоғамдық көліктер стансаларында және күту үйлерінде болуы мүмкін. Шұғыл медициналық көмек көрсету бойынша бірінші тренингке дейінгі және содан кейінгі білім деңгейін өлшеу жолымен сауда орталығы қызметкерлерін оқытудың және автоматты сыртқы дефибрилляторды пайдалану тиімділігін бағалау ұсынылған зерттеу мақсаты болды.

Материалдар мен әдістер: 01.01.2015 - 31.06.2015 мерзімде сауда орталығы қызметкерлері ерікті негізде бірінші медициналық көмек көрсету үшін Оқу – зерттеу госпиталында, Сисли Хамидие Этфаль атындағы жедел медициналық көмек Ауруханасында оқытудан өтті. Зерттеуге сауда орталығы еріктілерінен барлығы 332 қызметкер енгізілді. Тесталды және тесттен кейінгі сұрақтар, сондай-ақ бірінші көмек көрсету бойынша оқыту АНА 2010ж нұсқаулары негізінде ұйымдастырылды.

Нәтижелері: Қатысушылардың орташа жасы 33,8±8,0 жасты құрады, осыдан 233 (70,2%) ер адамдар болды. Қатысушылардың 74,4% жұмыс өтілі бір жылдан кем емес, 83,1% бөлмелерді жинаумен айналысатын қызметкерлер мен күзетшілер, 42,8% жоғары білім бар. Оқытудан кейін дұрыс жауаптар жиілігі барлық тестілік сұрақтарда статистикалық барынша өсті. Оқуға дейінгі болымсыз теріс корреляция және оқудан кейінгі күшті теріс корреляция тестің жалпы баллымен және қызметкерлер жасы арасында байқалды. Содан басқа, қатысушылардың білім мәртебесі оқуға дейінгі және оқудан кейінгі қорытынды нәтижелермен корреляцияланды, ал жалпы баллдар жаттығуға дейін және жаттығудан кейін білім деңгейімен бірге артты.

Қорытынды: Бірінші медициналық көмек көрсету қоғамдық орындарда, сол сияқты келушілер жүрегінің тоқтауы болуы мүмкін сауда орталықтарындағы өте маңызды шара болып табылады. Сонымен, бірінші көмек көрсету бойынша қызметкерлерді оқыту шұғыл жағдайларда дұрыс шешім қабылдауды қамтамасыз етуі мүмкін.

Түйінді сөздер: Бірінші медициналық көмек көрсетуге оқыту, сауда орталығы, жүрек қызметінің тоқтауы, тренинг, оқыту.

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Introduction

First aid is defined as non-medication applications with the existing tools and equipments without seeking medical equipment in order to save life or to prevent worsening of the conditions until healthcare personnel come to the scene in a case of accidents of life threatening conditions. Many people lose their lives or have to live with disability because of the troubles in first aid services or insufficient public first aid awareness in our country [1].

Cardiopulmonary arrest is one of the most important causes requiring first aid in big metropolis. Cardiac arrest may be often seen in airports, shopping centers (SC), prisons, sports facilities, industrial zones, public transport stations and nursing homes [4, 5, 11].

Sudden cardiac arrest (SCA) is among the leading causes of death in Europe. According to the data of last 20 years, the incidence of SCA in 55 to 113 / 100.000 annually (350,000-700,000 persons a year). Again according to these data, when rhythm records were taken with automatic external defibrillator immediately after SCA, VF rhythm ratio raises up to 76%, but since the first ECG record is taken by the emergency staff in the emergency room, asystole heart rhythm is more commonly seen, and success of resuscitation is lower in these patients [13].

Shopping centers have become leisure time places of urban life for many different people groups [9, 16]. Although some shopping centers have healthcare units to meet first aid requirement, and although there are healthcare units in shopping centers established in a wide area, arrival of first aid to people who develop sudden health problem may take time and first aid may be needed in this time interval. Regression of skills after personnel training is a commonly encountered problem where needed, because CPR may be forgotten if it is not applied over time. Repeat training at least once a year is important, but it has been reported that, only 20% of the trained persons in the USA receive yearly regular training [10].

In this study, we aimed to evaluate effectiveness of training by measuring knowledge level of SC employees before and after first aid training, and to create awareness for the presence and use of automatic external defibrillator.

Material and Methods

The study was conducted in Sisli Hamidiye Etfal Training and Research Hospital, Emergency Medicine after receiving the approval from the local ethics committee (09/12/2014 - 799). First aid training was given to employees of shopping centers that accepted to participate in the first aid training program and pre- and post-test application on a voluntary basis. A total of 332 volunteer shopping center employees were included in the study. Pretest and posttest questions and first aid training were organized based on AHA 2010 guidelines. Groups of 30 persons were created among employees of the shopping centers that accepted to participate in the first aid training program and pre- and post-test application. Pre-test was applied to the shopping center employees with 25 questions for 25 minutes. Demographic data

including age, gender, duration of working, position, and educational status were recorded during the pre-test. One hour of theoretic and one hour of practice first aid training were given by an emergency medicine specialist. Within the scope of the training; basic life support, automatic external defibrillator, basic first aid knowledge, and basic medical knowledge were presented. After the training, again a post-test of 25 questions was applied for 25 minutes. Our test questions consisted of 13 practice and 12 theoretic questions. The test included nine questions about basic life support, 12 about non-BLS first aid, three about basic knowledge and two about automatic external defibrillator. Of the questions regarding basic life support; eight were related to circulation, five related to airway, five related to respiration and two related to after basic life support. Non-BLS questions consisted of six questions about general information, two about bleeding, four about trauma, and two about burn.

Statistical analysis

Data were analyzed with SPSS for Windows version 22.0 software. Descriptive statistics of continuous variables were expressed as mean \pm standard deviation, while categorical variables were given as number and percentage. Parametric tests were used in the analysis of normally distributed data, and non-parametric tests in non-normally distributed data. Mann Whitney U test was used for the comparison of two groups, and Kruskal Wallis test for comparisons between more than two groups. Correlations of the continuous variables was evaluated with Spearman's correlation test with a correlation coefficient between 0-0.3 was considered as a weak, between 0.3-0.7 as a moderate, and >0.7 as a strong correlation. $p < 0.05$ values were considered statistically significant.

Results

Mean age of the participants was 33.8 ± 8.0 years and 233 (70.2%) of them were male. Of participants 74.4% were working for less than one year, 83.1% were cleaning staff and security guard, and 42.8% were high school graduated (Table 1).

It was found that post-training correct answer rate was found to be statistically significantly increased in all test questions (Table 2).

There was a weak negative correlation before the training, and a strong negative correlation after the training between total test score and age (pre-training: $p = 0.006$, $r = -0.151$; post-training: $p < 0.001$, $r = -0.307$).

Total test scores were increased in all participants after the training. Pre- and post-training total test scores did not differ according to duration of working (Table 1). Both pre and post-training total test scores were correlated with position of the participants with the highest mean score was found in technical personnel and the lowest mean score in cleaning staff ($p < 0.001$). In addition, educational status of the participants was correlated with both pre- and post-training total test score with both pre- and post-training total scores were increased with educational level ($p < 0.001$).

Table 1. Relationship of pre- and post-training test scores with gender, duration of work, position and educational status of personnel.

	n(%)	Total test Scores		p
		Pre-training <i>mean±SD</i>	Post-training <i>mean±SD</i>	
Gender				
Female	233 (70.2%)	11.3±4.1	18.2±3.5	<0.001
Male	99 (29.8%)	10.9±4.3	17.5±4.1	<0.001
Duration of working				
0-6 months	122 (36.7%)	11.3±4.2	17.7±3.9	<0.001
7-12 months	125 (37.7%)	11.3±4.0	18.1±3.8	<0.001
13-24 months	32 (9.6%)	9.0±4.6	16.4±4.7	<0.001
>25 months	53 (16.0%)	11.1±4.4	17.8±3.8	<0.001
Position				
Cleaning staff	120 (36.1%)	9.0±3.7	15.0±4.0	<0.001
Security guard	150 (45.2%)	12.3±4.0	19.3±2.9	<0.001
Sales staff	26 (7.8%)	10.8±3.6	17.8±3.2	<0.001
Technical staff	22 (6.6%)	13.0±4.1	20.4±2.2	<0.001
Manager	14 (4.2%)	12.4±4.9	20.4±1.9	<0.001
Educational status				
Primary school	89 (26.8%)	8.7±3.5	15.0±3.9	<0.001
Middle School	69 (20.8%)	10.7±4.1	17.0±3.8	<0.001
High school	142 (42.8%)	12.1±4.1	19.3±3.1	<0.001
University	32 (9.6%)	13.5±3.8	20.2±2.2	<0.001

Table 2. Evaluation of pre- and post-training test scores.

	Pre-training		Post-training		p
	<i>mean±SD</i>	<i>Median (min-max)</i>	<i>mean±SD</i>	<i>Median (min-max)</i>	
Total test score	11.0±4.2	11 (0-25)	17.7±3.9	19 (3-25)	<0.001
Practice	5.7±2.7	6 (0-13)	9.0±2.3	10 (0-13)	<0.001
Theoric	5.4±2.0	5 (0,12)	8.6±2.2	9 (0-12)	<0.001
Basic life support	3.0±1.8	3 (0-9)	5.9±1.9	6 (0-9)	<0.001
Non-BLS first aid	6.6±2.7	7 (0-12)	9.2±2.2	10 (0-12)	<0.001
Basic knowledge	1.4±0.8	1 (0-3)	2.3±0.8	2 (0-3)	<0.001
Automatic external defibrillator	0.5±0.7	0 (0-2)	1.3±0.7	1 (0-2)	<0.001
Circulation	2.2±1.5	2 (0-8)	5.0±1.7	5 (0-8)	<0.001
Airway	2.0±1.3	2 (0-5)	3.2±1.3	3 (0-5)	<0.001
Respiration	1.5±1.1	1 (0-5)	2.8±1.2	3 (0-5)	<0.001
After BLS	0.9±0.7	1 (0-2)	1.2±0.7	1 (0-2)	<0.001
General Information	3.3±1.3	3 (0-6)	4.4±1.3	5 (0-7)	<0.001
Bleeding	1.3±0.7	1 (0-2)	1.7±0.5	2 (0-2)	<0.001
Trauma	2.1±1.2	2 (0-4)	2.8±1.0	3 (0-5)	<0.001
Burn	1.2±0.8	1 (0-2)	1.8±0.5	2 (0-2)	<0.001

Discussion

In our study, rate of male participants was 70.2%. Higher number of male participants may be explained from the professions such as security and technical service are more commonly preferred by men in our country. Pre- and post-training total test scores were similar between female and male participants, and the total scores were increased after the training in both sexes. In a similar study by Özkan H with policemen, no significant difference was found between the two sexes [12]. In similar studies with healthcare personnel, it was found that gender did not affect knowledge level about basic life support [6, 8].

In our study, pre- and post-training total test scores

were decreased with age, and this was thought to be explained by the decreased cognitive functions by ageing. In the study by Özkan H, when knowledge level of policemen was evaluated according to age groups, the increase in post-training scores compared to pre-training scores in ≥ 40 years age group was statistically significantly higher than the other age groups and this age-proportional increase was attributed to that high professional experience of policemen positively affected first aid training [12]. In a study by Aygin A with nurses, increases in correct rates proportional duration of working were statistically significant, and it was reported that this might be caused by increasing experience with age [3]. On the other hand, duration of working was not correlated

with pre- and post-training total scores. Similar to our study, Kimaz S et al. reported that duration of working had no effect on knowledge level about first aid, but the knowledge level was increased after the training [8].

In our study, besides total test scores knowledge levels about practice, theoretic, basic life support, first aid, basic knowledge, automatic external defibrillator, circulation, airway, respiration, bleeding, trauma and burn were significantly increased after the training compared to before the training. All similar studies have reported increased knowledge levels after training [12, 15, 2, 7].

In our study, both pre- and post-training total test scores were increased by educational level. Similarly, in a study by Saruhan et al knowledge level about first aid was increased as educational level increased [14]. Educational level is an effective factor in first aid knowledge. Results of these studies were consistent with our results.

In conclusion, emergency, life threatening conditions and cardiac arrest may be seen any moment in crowded places such as shopping centers. Training shopping center employees on this subject can increase chance of survival with life saving intervention when first aid is needed, and thus, patients can be protected against permanent damage.

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