MARCIN CIERNIAK, MARIA BARTCZAK, ELŻBIETA BALCERZYK-BARZDO, KAROLINA BURSKA, KATARZYNA STAROSTA-GŁOWIŃSKA

Wpływ szkolenia z zakresu pierwszej pomocy na wiedzę gimnazjalistów w tym zakresie

The influence of the first aid training on the knowledge of middle school students

Streszczenie

Wstęp. Nagłe zatrzymanie krążenia (NZK) jest główną przyczyną zgonów w Europie. NZK rozpoznaje się u 350 000–700 000 osób w skali roku. Szybka reakcja oraz podjęcie resuscytacji krążeniowo-oddechowej (RKO) przez świadków zdarzenia, wpływa na zwiększenie skuteczności zaawansowanych czynności resuscytacyjnych i znacząco zwiększa szanse na przeżycie poszkodowanego. Tylko u 30% pacjentów z NZK świadek zdarzenia prowadzi RKO w trakcie oczekiwania na przybycie służb medycznych. Główną przyczyną niepodejmowania RKO przez świadków zdarzenia jest nieumiejętność udzielania pierwszej pomocy. Uczestnictwo w szkoleniach z zakresu pierwszej pomocy zwiększa nie tylko wiedzę na ten temat, ale również zwiększa gotowość i chęć do jej udzielania.

Cel. Celem badania była ocena wpływu szkolenia z zakresu pierwszej pomocy na wiedzę uczniów przed i po szkoleniu.

Materiał i metody. Badaniu poddano 119 uczniów. Uczniowie przed i po kursie otrzymali do wypełnienia kwestionariusz zawierający pytania dotyczące niesienia pomocy zarówno w zatrzymaniu krążenia jak i w obrażeniach ciała. Autorzy badali nie tylko ogólny progres wiedzy gimnazjalistów, ale także progres w poszczególnych zakresach tematycznych kursu (podstawowe zabiegi resuscytacyjne oraz udzielanie pierwszej pomocy osobom, które doznały urazów).

Wyniki. Szkolenie zwiększyło wiedzę uczestników na temat udzielania pierwszej pomocy o 39,5%. Zdecydowana większość osób prawidłowo wskazywała miejsce uciskania klatki piersiowej, podawała prawidłowy stosunek oddechów do ucisków oraz podawała prawidłowy numer telefonu alarmowego.

Wnioski. Szkolenie z udzielania pierwszej pomocy zwiększyło wiedzę gimnazjalistów. Konieczne są dalsze szkolenia oraz kursy udzielania pierwszej pomocy.

Słowa kluczowe: szkolenia, gimnazjum, pierwsza pomoc.

Abstract

Introduction. Sudden arrest of circulation (SAC) is the main reason for deaths in Europe. SAC is diagnosed in 350,000–700,000 people per year. Quick reaction and cardiopulmonary resuscitation (CPR) performed by lay observers increase the efficiency of advanced resuscitation procedures and the chances of survival in injured patients. Unfortunately, CPR is undertaken by lay observers only in 30% of patients with SAC while they are waiting for an ambulance to come. Inability to provide first aid is one of the most common reasons for not initiating CPR. By attending first aid courses people can improve their knowledge and be ready and willing to provide emergency actions.

Aim. The main aim of the study was to estimate the students' knowledge of resuscitation before and after attending such a course.

Material and methods. The study included 199 pupils. The students before and after the training filled in the questionnaires on their knowledge of providing first aid in the case of SAC and body injuries. Not only general progress of the students but also their improved knowledge of various topics covered in the course (basic resuscitation or first aid procedures to the injured), were evaluated.

Results. The course increased the students' knowledge of first aid procedures by 39.5%. The majority of them property identified the place of chest compression, gave a correct ventilation/compression ratio and the right emergency telephone number.

Conclusions. The course increased the students' knowledge. Further first aid courses and trainings are necessary to improve social awareness and knowledge how to provide first aid.

Keywords: training, junior high school, first aid.

Department of Medicine of Emergency and Disasters, Chair of Anaesthesiology and Intensive Therapy Medical University of Lodz

INTRODUCTION

Sudden arrest of circulation (SAC) is a main cause of deaths in Europe. It is diagnosed in 350,000-700,000 people in a year [1]. Basic Life Support – BLS include maintaining patency of the respiratory tract without the use of any equipment as well as keeping the respiratory and cardiovascular systems active [2]. The Act of 8 September 2006 on State Emergency Medical Services defines first aid as "a set of activities performed in a state of health hazard by a person being on the spot" (...) [3]. The survival rate in the patients in which cardiopulmonary resuscitation (CPR) was carried out is much higher than in the patients who have not undergone such a procedure [4,5]. Both in the case of SAC and injuries a more extensive knowledge of first aid acquired by lay observers might decrease a number of deaths as well as minimise the effects of potential injuries [6]. To make people be ready and willing to provide first aid it is advisable to organize such trainings systematically and periodically [7].

Anybody, irrespective of their age and sex, might become a witness to an accident, therefore a person who will potentially provide the first aid. Because of a great number of accidents which happen in schools, students should be taught how to provide first aid to people who have sustained injuries. Thus, it seems highly important for primary, middle and high school students to learn first aid. Some studies confirmed that 4 or 5-year-old children who were instructed how to provide medical help can cope with the task. Children above the age of 13 are able to compress a chest effectively and younger children can use their knowledge on first aid to educate their parents [8].

Injuries sustained by school students have always happened. The problem has been presented in many research studies. According to the statistics of the Central Institute for Labour Protection in Warsaw injuries which happen in schools are classified as "minor". They include: fractures, dislocations, distortions, bruises. In the academic year 2000/2001 in middle schools only 47 188 accidents were noted [9]. It is worth introducing some training on dressing minor injuries to a curriculum of school children.

AIM

The aim of the study was to evaluate the effectiveness of training on the first aid knowledge

of school students. The training was carried out in Middle School no.31 in Łódź by Dr Adam Rasmus from Student Society of Medicine of Emergency and Disaster. The training was a part of pro-health initiative "Health Station" coordinated by two Physical Education teachers (Marzena Karolak and Ewa Kujawa, Master's degrees in PE).

The researchers evaluated the students' knowledge before and after the training; not only the overall knowledge but also in particular aspects (basic resuscitation procedures and providing medical help to people who have sustained injuries). They also tried to check whether there is a correlation between the sex and a general progress of knowledge as well as the knowledge of each particular thematic aspect of the training.

MATERIAL AND METHODS

One hundred and nineteen students of Middle School no.31in Łódź participated in the study. They were students of the 2nd and 3rd forms, aged 15 and 16. Before the training the students the curriculum basics had included a subject called "Civil Defence Training". However, it did not include any classes on first aid. Thus, the classes conducted during the training session were their first opportunity to provide first aid. While analysing the results the researchers decided not to make any division into students of the 2nd and 3rd forms.

The course was held for five days, on 29-31 March 2011 and on 7th and 28th of April 2011. On the first day 29 volunteers (17 men and 12 women) were trained; on the second – 21 (9 men and 12 women); on the third – 25 (10 men and 15 women); on the fourth – 24 (11 men and 13 women) and on the fifth – 23 (7 men and 16 women).

One day prior to the course the students had been asked to fill out a survey on the topics of the course. The survey consisted of ten questions randomly selected out of thirty. It aimed at evaluating the students' background knowledge and their experience in first aid. About one week before taking a pre-test the students were given brochures on the thematic material which was to be taught during the course. To conceal the students' identity each person was given a confidential code number bearing information on the day of the course, the sex and the reference number. After the course each person entered the same code number on their survey. The programme of the course was standardized. It lasted three and a half hours. It started with a 20-minute lecture and then there was a practical class. To reduce stress both the participants and lecturers addressed each other by their first names. The course included two thematic parts: BLS with a safe position and providing first aid in body injuries. The students were taught with a four-stage method, which is an effective method in teaching first aid recommended by European Resuscitation Council (ERC) [10]. In both the modules of practical classes the lecturers applied a particular system: real-time demonstration, demonstration with the instructor's commentaries, demonstration with the student's commentaries and practical classed for the students, in a form of situational scenarios. Situational scenarios are useful as thanks to them it is possible to analyse various theoretical issues. They are extra materials which help to improve the theoretical knowledge introduced during the lectures as well as to combine the knowledge with practical skills. The first and second parts were always held in a lecture hall; the third and fourth parts – in rooms for practising skills, in groups consisting of up to six people. Before performing each skill each student was asked to play a different scenario. After finishing each scenario the participant received a feedback. While doing the practical exercises the students used phantoms and medical equipment for dressing injuries (triangular sling, bandages, gauzes, Kramer's splint, emergency blankets etc). The equipment belongs to Student Society of Medicine of Emergency and Disasters. To evaluate particular practical skills the instructors awarded continuous assessment. Just after the training the instructors summed up the course and once again asked the participants to fill out the survey (post-test – 10 randomly selected questions out of 30). Each student was given a sort of a certificate of Student Society of Emergency Medicine and Disaster Medicine.

For the purposes of statistical evaluation of the results the researchers used a two-sample test of means and a difference test. The calculations were made in MS Excel 2010 program.

RESULTS

The course significantly expanded the knowledge on providing first aid (difference test: Tα= 23.5 for critical values -3.373 to 3.373 for α=0.001). In the survey conducted before the training the percentage of correct answers was 51.8 and after the course the percentage increased up to 91.3%, therefore by 39.5%. An increase in the knowledge was also observed in particular thematic modules. With regard to basic life support procedures the percentage of correct answers before the training was 51 and after the training – 90.9 (an increase by 39.8%; difference test: Tα=21.4 for critical values -3.373 to 3.373 for α=0.001). In the module on providing first aid to people who have sustained body injuries the percentage of correct answers was at first 53.6 and later – 94 (an increase by 40.4%; difference test: Tα=9.87 for critical values -3.373 to 3.373 for α=0.001) (Figure 1).

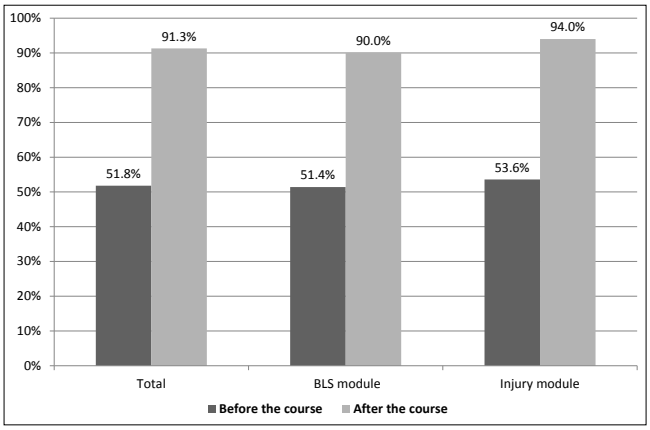

FIGURE 1. Students' knowledge before and after the course.

An increase in the knowledge can be observed in every single question. Far more students, after the course, gave more correct answers to almost each question (Table 1).

Male students demonstrated a more profound knowledge both before and after the course. A small difference (a few percent age points) between the knowledge and the sex of the participants turned out to be statistically significant (two-sample test of means: U=4.02 for critical values -3.291 to 3.291 for α=0.001 in pre-test and U=6.07 for critical values -3.291 to 3.291 for α=0.001). Before the course the percentage of correct answers given by male students was 52.5 whereas by female students – 51. After the course the percentage was 92 and 91 respectively.

With regard to BLS module the percentage of the correct answers was the following: before the course – male students: 49.7 and female students: 52.7; after the course – male students: 90.5, female students: 89.5. In this module no statistically significant difference between the sexes was observed (two-sample test of means: U=-6.15 for critical values -3.291 to 3.291 for α=0.001 in pre-test and U=-2.49 for critical values -2.358 to 2.358 for α=0.02).

The results of pre- and post-test on providing first aid to people with body injuries were the following: male students: 60% and 95%, female students: 50% and 93% of correct answers. In this module a statistically significant difference between the sexes was observed (two-sample test of means: U=14.33 for critical values -3.291 to 3.291 for α=0.001 in pre-test and U=22.10 for critical values -3.291 to 3.291 for α=0.001) (Figure 2).

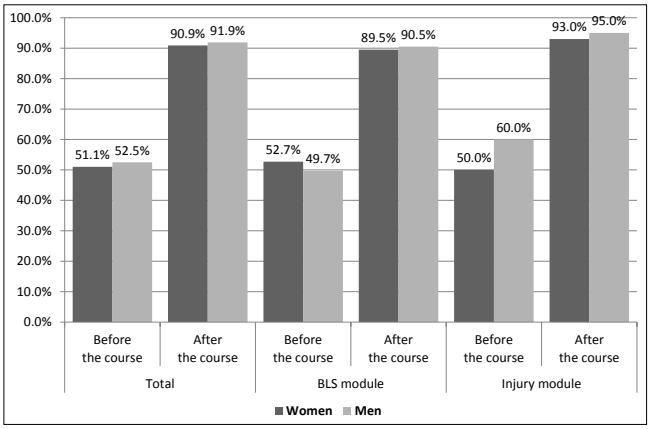

FIGURE 2. Students' knowledge before and after the course versus sex.

TABLE 1. Correct answers to particular questions.

Question	Pre-test			Post-test		
	Number of respondents	Number of correct answers	Fraction	Number of respondents	Number of correct answers	Fraction
1	28	19	0.68	21	20	0.95
2	21	10	0.48	23	4	0.17
3	25	14	0.56	46	45	0.98
4	28	25	0.89	29	29	1.00
5	21	11	0.52	48	38	0.79
6	25	21	0.84	52	50	0.96
7	47	18	0.38	73	72	0.99
8	28	19	0.68	48	48	1.00
9	51	30	0.59	29	28	0.97
10	25	3	0.12	21	21	1.00
11	46	16	0.35	77	73	0.95
12	51	1	0.02	46	35	0.76
13	66	40	0.61	25	25	1.00
14	47	14	0.30	73	68	0.93
15	**0**	**0**	**0.00**	**0**	**0**	**0.00**
16	25	19	0.76	21	14	0.67
17	71	33	0.46	75	68	0.91
18	44	18	0.41	21	20	0.95
19	22	6	0.27	52	46	0.88
20	96	43	0.45	73	51	0.70
21	21	17	0.81	119	119	1.00
22	28	13	0.46	25	25	1.00
23	51	39	0.76	25	25	1.00
24	73	51	0.70	42	41	0.98
25	45	25	0.56	21	20	0.95
26	47	19	0.40	42	41	0.98
27	44	26	0.59	21	21	1.00
28	48	19	0.40	0	0	0.00
29	22	21	0.95	21	19	0.90
30	44	23	0.52	21	21	1.00

Question 15 was not selected in any survey.

Before the course more than half the respondents (f=0.65) gave a correct ventilation/compression ratio while performing CPR. After the course almost all the students answered the question correctly (f=0.95). Before the training over half the respondents (f=0.56) were able to put hands on the chest in a right position and after the training almost all the respondents (f=0.97) gave a correct answer. With regard to the emergency telephone number, almost all the respondents (f=0.93) gave a correct answer before the training. After that, everyone knew that telephone number (f=1). Before the course less than half the students (f=0.35) were able to make the respiratory tract patent and after the training, almost everyone (f=0.95) was able to implement this procedure in an unconscious person.

DISCUSSION

The authors of the study, similarly to Connoly and Toner, confirmed that by attending first aid courses students can considerably improve their knowledge. The percentage of correct answers before the training was almost 52 and after that it increased to almost 92 [11].

The general knowledge before the training was low (52%). The result corresponds to the one received by Skotnicka-Klonowicz, who confirmed the unsatisfactory knowledge of respondents of similar age as well as by Grześkowiak and Frydrysiak, who also observed a similar result 55% [12,13].

With regard to the emergency telephone number, almost all the respondents gave a correct answer before the training. After that, everyone was able to identify that telephone number. It corresponds to the study carried out by Skotnicka-Klonowicz, in which all the surveyed respondents answered the question correctly [12].

Before the training course, 53.6% of the respondents gave a correct answer to the question on the right method of dressing injuries. After the course the percentage was 94%. The result is slightly better than the one from the study of Skotnicka-Klonowicz, where 75.94% of the respondents knew the correct answer [12].

Before the course no more than half the students (f=0.56) were able to put hands on the chest in a right position and after the training almost all the respondents (f=0.97) correctly performed the task. The result is not satisfying, especially when we compare it to the results obtained by Public Opinion Research Centre, where 75% of the respondents were able to put hands on the chest in a right position while performing resuscitation, and the results of the study by Padlewski [14,15]. After the course almost all the students (f=0.97) gave a correct answer.

RESULTS

1. The knowledge of students of 2nd and 3rd forms of Middle School no. 31 on providing first aid is superficial. Before the training not more than half of the respondents gave a correct answer. It can thus be concluded that the curriculum in this issue in primary and middle schools is not broad enough.
2. The training on providing first aid has improved the students' knowledge of resuscitation – both general and of various topics (basic resuscitation and providing first aid procedures to people who have sustained injuries). After the course almost all the students gave a correct answer.
3. It is worth to continue programs like "Przystanek Zdrowie" in the others schools, in not only Middle Schools but High Schools too.
4. Program "Przystanek Zdrowie" has achieved its purpose. It is worth to introduce the solutions into other similar programs.
5. It is advisable to modify a school curriculum with regard to providing first aid procedures in middle schools and evaluate the effectiveness of such training courses in subsequent studies.
6. It can be concluded that the obtained results in the middle school, before and after the training, somehow correspond to the effectiveness of the methods used during the first aid course.

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Informacje o Autorach
Mgr Marcin Cierniak – doktorant; dr n. o zdr. Maria Bartczak – asystent; lek med. Elżbieta Balcerzyk-Bardzo – asystent; lek Karolina Burska – asystent; mgr Katarzyna Starosta-Głowińska – asystent, Zakład Medycyny Ratunkowej i Medycyny Katastrof, Uniwersytet Medyczny w Łodzi.

Adres do korespondencji
Karolina Burska
Zakład Medycyny Ratunkowej i Medycyny Katastrof
Katedra Anestezjologii i Intensywnej Terapii
Uniwersytet Medyczny w Łodzi
ul. Czechosłowacka 2B, 92-216 Łódź
tel. 608 625 001
E-mail: kburska@vp.pl