

Assessment of knowledge of firefighters in the field of qualified first aid as part of affecting the national security

Łukasz Szarpak¹, Andrzej Kurowski², Marcin Madziała³

¹ Department of Cardiosurgery and Transplantology, Institute of Cardiology, Warsaw, Poland

² Department of Anesthesiology, Institute of Cardiology, Warsaw, Poland

³ EMS Coordinator of Municipal Headquarters, State Fire Brigade, Skierniewice, Poland

Author's address:

Łukasz Szarpak, ul. Modlińska 201A/11, 03-122 Warszawa, phone: +48 500 186 225, Poland;
e-mail: lukasz.szarpak@gmail.com

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Summary:

Background. Firemen as the person has an obligation which is to save the life and health of individuals located in a position to the – risk of life must have knowledge from the scope of qualified first aid. The aim of this study was to assess the knowledge of the principles of cardiopulmonary resuscitation – respiratory firefighters – rescuers.

Methods. The test using the questionnaire surveys were 300 firefighters.

Results. Firefighters PSP assessed their level of knowledge on 4.02 points in the group OSP_KSRG – 4.87 points, while in the group of OSP 4.5 points. All analysed aspects of resuscitation knowledge showed differences in the responses in each group.

Conclusion. In a research service best prepared in the field of qualified first aid is state-owned fire fighters. There is a need to continue training from the scope of qualified first aid

Key words: cardiopulmonary resuscitation, knowledge, firemen.

Introduction

Ensuring safety is one of the fundamental tasks of each state organization, so too is the case Poland [1]. To this end, over the last decades has created a number of departments and entities dealing with emergencies. The main ministry responsible for the security of the population (including for saving life and health, property and the environment) is formed in 1992, the State Fire Service.

Often it is the host of firefighters arrive at the scene before emergency medical teams – why firefighters need to be aware of the proceedings in life-threatening conditions . Currently, every

firefighter PSP must take training in first aid qualified , the successful completion of associated with obtaining the title rescuer – firefighter [2]. This course is standardized by the Regulation of the Minister of Internal Affairs and Administration and the Minister of National Defence on training qualified first health [3]. Any treatments to enhance the understanding of firefighters in particular in the field of emergency medical services almost certainly favour the public safety [4,5].

The scientific literature does not meet scientific reports dealing with the level of knowledge fire-

fighters – rescuers in the field of qualified first aid. The author decided to change the situation, leading survey among firefighters of the State Fire Service as well as the Volunteer Fire Brigade firefighters. Therefore, The aim of this study adopted an attempt to assess the knowledge of the principles of cardiopulmonary resuscitation – respiratory firefighters – rescuers.

Materials and methods

The study was conducted among 300 firefighters. Taking into account the place of work of the respondents were divided into three study groups. The first group (group PSP) consisted of 100 firefighters – working in the State Fire Service. The second group (group OSP_KSRG) consisted of 120 firefighters Internships Volunteer Brigades cooperating with the National Emergency and Fire System [6]. Last third group of firefighters are operating under the Volunteer Fire Brigades not cooperating with KSRG (group TSO) .

The study was conducted in the province of Mazovia and Łódź. The study was voluntary and those involved have agreed to participate in them. Proprietary research tool was a questionnaire that tests knowledge of first aid qualified.

The research material was coded in Excel and developed using the statistical package STATISTICA 8.0. Normality distribution of the variables was tested by the significance level p for the Kolmogorov – Smirnov test. In the case of normal distribution of mean differences were tested by Student's t – par test. In the assessment of the differences between the groups using a non-parametric test. Statistically significant differences between groups was calculated for a number of non-parametric test of independent groups Kruskal – Willis (H). Results were considered statistically significant at $\alpha < 0.05$.

Results and Discussion

Survey respondents were asked about the degree of knowledge of the principles of providing qualified first aid. Respondents could make a self-assessment of knowledge in the five-point scale (where “1” – meant a lack of knowledge , and “5” – very good knowledge) . In the case of a PSP level of knowledge was 4.02 points in the group OSP_KSRG average obtained to assess the

level of knowledge was 4.87 points, while in the group of OSP 4.5 points .

A key element influencing the level of knowledge of first aid , whether it's a firefighter or an outsider who is not every day dealing with emergencies generally understood – are expanding training and systematize knowledge of this zakresul . Firefighters operating within KSRG event are required courses in first aid qualified (CPP) and every three years recertification such kursu2 . In the group of PSP 100% declared that there was any, training in cases OSP_KSRG group this percentage was 54%. The group TSO (ie, persons cooperating with KSRG) only 14% of people captured the training in the CPP . Despite such large discrepancies in the training, all firefighters, regardless of the research group indicate a need for training in first aid qualified.

One of the key skills required of firefighters to conduct cardiopulmonary resuscitation in a patient with cardiac arrest [3,4,5,6]. This ability is so important, because often it is the firefighters have a first contact with a victim and take responsibility for them first aid and lifesaving actions continue until the arrival of emergency medical team . Among the questions asked respondents found the question of what to begin CPR – breathing in an adult during the observed cardiac arrest. All subjects in the PSP responded correctly, indicating that CPR should begin with such a person from 30 chest compressions [7,8]. The group OSP_KSRG percentage of correct answers was 80%, while in the group of TSO only 50%. The differences in their responses correctly in each group were statistically significant ($H=66.19809$; $p=0.0000$). A detailed breakdown of answers by respondents illustrates the Fig. 1.

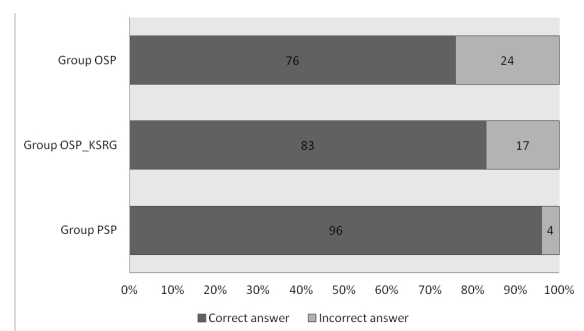


Figure 1: Answers to the question “Where should begin cardiopulmonary resuscitation – respiratory arrest observed?”

The next question asked about the most common complication of cardiac massage indirect. Firefighters National Fire Brigade correctly in 98% pointed to as the most common complication – breaking ribs [15]. The group indicated that response OSP_KSRG 96%, whereas in group OSP – 84%. Analysis using the Kruskal – Wallis test also indicated in this case, statistically significant differences between the groups ($H=16.45835$; $p=0.0003$).

Firefighters as a person acting in the danger zone (where emergency medical services may not be located) must be able to anticipate threats to persons who are in danger of life and health. One of these activities is to protect the respiratory tract victim in a situation where the person has difficulty breathing due to the smoke room. The question concerning the procedure for the victim breathing difficulty staying in the zone of smoke, the respondents had a choice of four answers: “administering oxygen and planting injured in semi-sitting position”, “call for help to the victim and the accession to assess the state of the victim at the scene of an accident”, “arrangement the victim in the recovery position and wait for the emergency medical team “and” as far as possible to isolate the upper respiratory tract victim of a toxic atmosphere and evacuate him from the danger zone”. The correct answer, ie, upper respiratory isolation and evacuation of the injured to the safe zone indicated 96% of the PSP group, 78% of the group OSP_KSRG. Weakest in this question came out of a group of people TSO yielding only 62% of correct answers ($H=31.41576$; $p=0.0000$).

The situation may be faced with the firefighters is also the need for replacement by mouth-mouth breath [16,17]. However, this method of ventilation victim requires particular security rules by firefighters, because there are times when the use of mouth-to – mouth ventilation is not recommended. Firefighters were asked the question, therefore, should not be performed when the breath substitute mouth-to-mouth. They could choose from the following answers: “injured under the influence of alcohol”, “victim diabetic”, “victim drank plant protection products”. Of course, the correct answer was the last answer, ie. drinking by the victim of plant protection products (pesticides). The correct answer was given by 93% of the PSP group

, 79% – OSP_KSRG and 56% of the group OSP ($H=34.74862$; $p=0.0000$).

Similarly as in the previous question firefighters PSP mostly because until the 96% gave answers that dizziness is one of the first signs węgla12 monoxide poisoning, 13 Firefighters working in the Voluntary fire brigades co-operating with KSRG to this question, 83% answered correctly, the TSO group only 76% of people marked the correct answer ($H=14.95541$; $p=0.0006$) (Fig. 2).

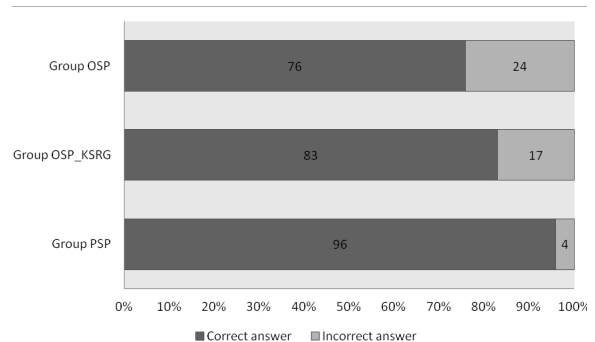


Figure 2: Answers to the question “What is one of the first symptoms of carbon monoxide poisoning?”

Fires, failures of chemical installations are just some of the examples of situations where a higher risk of scalding persons in the immediate vicinity. Firefighters must be able to protect these victims and be able to describe their condition. In order to describe burns apply the rule “9” which allows a quick way lifeguard is able to assess the extent of body burns [20,21]. Survey respondents were asked to assess the percentage of surface area burns, which includes both the lower limbs victim. Analysis of studies have shown differences in the knowledge of the rules “9”. The highest percentage of correct responses was recorded in PSP (84%), followed OSP_KSRG group (60%) and OSP group (46%) ($H=29.14204$; $p=0.0000$).

100% of the PSP group had the knowledge that the adult human hand area is 1% of its total area. The group OSP_KSRG know that boasted a 87%, while in the OSP group, this percentage was 74% ($H=28.41437$; $p=0.0000$).

Determination of areas affected by the burn is only one determinant describing a burn victim. The second, however, it is important first degree bourn. Respondents were asked to characterize burn Io based on these answers: “blisters with serous fluid”, “burning, itchy rash on the skin,

sore to the touch”, “lack of sensation”. First degree burn at the mildest burn, characterized by stinging, itching of the skin erythema and pain palpable. Distribution of correct answers given by individual research groups are shown in Figure 3 ($H=18.73613$; $p=0.0001$).

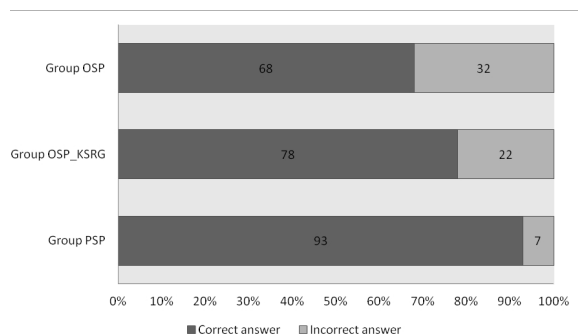


Figure 3: Answers to the question “degree burn is characterized by”.

Body burns can be caused by various factors, including temperature or chemicals. Respondents were asked whether there is a difference in dealing with the person injured acid or base. The correct answer, that the proceedings in both cases is the same [23], granted 87% of the PSP group, the worst person in the group corresponded to the OSP, in which the percentage of correct answers was only 41%. People with the group OSP_KSRG responded correctly in 54% ($H=43.96459$; $p=0.0000$).

A key element of the assessment is to predict the victim of traumatic injuries that may have occurred on the basis of the observed symptoms. An example of such a case may be fracture of the skull base, which in addition to pain manifested by leakage of cerebrospinal fluid – spinal and / or bleeding of ears [24]. The correct diagnosis based on the symptoms has placed 96% of the PSP group, 88% in the OSP_KSRG and 63% of group OSP ($H=39.77273$; $p=0.0000$).

Dealing with trauma victims regulate the rules ITLS (International Trauma Life Support) [25]. According to these rules the same assumption

collar cervical spine immobilization is not cervical spine [26] – unfortunately this many people forget, confirmation of this may be present a study in which only 37% of the TSO group had knowledge that, despite the assumption of the cervical collar should stabilize the head manually – immobilization until the victim to board orthopedic stabilizers head. In the group OSP_KSRG percentage of correct responses was 79%, and PSP in the group – 92% ($H=70.39640$; $p=0.0000$).

Respondents were asked the last question of indication of what to start testing a patient with traumatic injuries. According to the guidelines ITLS first elements of procedure should be to perform preliminary survey and make the necessary interventions (eg damming hemorrhage). The order of proceedings in relation to the victim’s injury was known for 88% of the PSP group, 64% of the group OSP_KSRG, and only 31% with the OSP.

Fire brigade whether it is state or voluntary – is to rescue the health and lives of people in a state of sudden health threat. Raising the qualifications of the officers of the largest rescue company in Poland is a key factor contributing to the safety of individuals. However, you must at the same time that the safety of the individual remember translates to public safety and thus the internal security of the state.

Carried out by the author of research in knowledge of the rules of qualified first aid do not cover the whole subject, however, constitute a contribution to the further discussion on the necessity of spreading education in the field of first aid among firefighters – rescuers as well as all Polish citizens.

Conclusions

- 1) The best test material prepared service in the field of qualified first aid is State Fire Service.
- 2) There is a need to continue training in first aid qualified.

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