

Knowledge of first aid in road traffic accidents among drivers from the Staszów County

Jolanta Karyś¹_{ABCDEF}, Dorota Rębak²_{ABCDEF}, Tomasz Karyś³_{ABCDEF}, Bogumiła Kowalczyk-Sroka¹_{ABCDEF},
Mariusz Maćkowski³_{ABCDEF}

¹Higher School of Economics, Law and Medical Sciences in Kielce, Poland

²Faculty of Health Sciences, Jan Kochanowski University in Kielce, Poland

³Marschal's Office, Świętokrzyskie Province, Kielce, Poland

Abstract

Introduction. Considering the extent and consequences of road traffic accidents, drivers should know the principles of first aid.

Aim. The aim of the study was to determine the scope of knowledge concerning principles of first aid provided in road traffic accidents among drivers of the Staszów County.

Material and methods. The study encompassed 80 respondents, active drivers, mainly workers of state institutions. A diagnostic survey was carried out based on the author's questionnaire.

Results. The number of individuals capable of taking proper action aimed at protecting basic vital functions was found to be too low; 1/10th respondent would not administer any life- or health- saving first aid. The lack of knowledge regarding the ratio of chest compressions to rescue breaths was observed in 43.75% of respondents while the proper depth of compressions during cardiac massage was known to 11.25% of respondents. Additionally, not all participants of road traffic knew alarm phone numbers and were aware of a legal obligation to administer first aid to accident victims.

First aid courses expand the knowledge of pre-professional medical rescue activities.

Conclusions.

1. Only a few drivers are prepared to administer first aid on the scene. A large proportion does not know the current guidelines of the European Resuscitation Council.

2. Effectiveness of first aid courses is low; therefore, the number of practical classes should be increased, so that each participant who completed the course could deliver proper first aid at the scene of a road traffic accident. Cyclic participation of drivers in first aid courses should be considered.

3. Besides driving tests, future drivers should take exams concerning rescue procedures at the scene of accident.

Key words: first aid, road traffic accidents, resuscitation

Introduction

Road traffic accidents are a serious social problem. In Poland, traffic fatalities constitute about 20% of all deaths, which ranks us among the worst countries in Europe. Participants of road traffic are at risk of accidents; therefore, each driver should know how to administer first aid to minimize health consequences of road traffic accidents, if need be. The extent of this phenomenon necessitates mastering the principles of first aid, particularly among drivers.

In road traffic accidents, it is necessary to undertake prompt rescue activities to restore basic vital parameters of victims. The time to take action restoring basic vital functions is extremely short,

i.e. 4-5 minutes. After this period, irreversible brain changes caused by hypoxia develop [1]. In such a short time, professional medical assistance is unlikely to get to the scene. The studies performed in the European countries reveal that only 10% of victims have a chance to receive professional medical help within 10 minutes after cardiac arrest [1,2]. Therefore, it is essential that witnesses or those involved in accidents know how to administer first aid.

First aid involves simple rescue procedures aimed at maintaining basic vital parameters until paramedics arrive. According to the statutory definition, the activities in question are a set of interventions to rescue individuals in emergency cases, performed by those present at the scene, inc-

cluding the use of medical and therapeutic products available on the market [3]. An emergency is any case in which symptoms of health deterioration develop suddenly or in a predictable short time and are likely to result in severe impairment of body functions, damage to the body or loss of life; therefore, immediate rescue activities and treatment are required [3].

Proper first aid activities administered by accident witnesses and calling for paramedics are decisive for the future of a victim. The system of life-saving services worldwide is based on the concept of „a rescue chain” [1]. It should be strongly emphasized that the first chain links determine the fate of victims.



Fig. 1. A chain of survival [4]

Na rycinie – Early diagnosis and calling for help to prevent sudden circulatory arrest, Early initiation of CPR to prolong time, Early defibrillation to restore the cardiac function, Post-resuscitation care to restore the quality of life

The factor directly determining the survival of patients is a time period between sustaining injuries and provision of specialist care (most commonly at the surgical ward), called “a golden hour” [1].

The administration of first aid is a moral and legal obligation of a witness, participant or perpetrator of an incident once life or health of a victim is threatened and until the moment of death or abatement of danger [1,5,6]. The driver witnessing the road traffic accident or involved in it is obliged to provide victims with first aid and to call for paramedics and Police. If calling for the services mentioned above requires walking away from the accident scene, the driver is obliged to return to the scene immediately after [7,8]. In cases where first aid is not administered, the law provides criminal sanctions [9,10].

AIM

The aim of the study was to determine the scope of knowledge concerning first aid administration in road traffic accidents by active drivers of the Staszów County (Świętokrzyskie Province).

MATERIAL AND METHODS

A diagnostic survey was carried out using the authors' questionnaire. The questionnaire contained 24 closed questions with disjunctive cafeteria. The answers included the register of necessary independent variables (including socio-demographic data) and factual questions regarding the respondents' knowledge of first aid administration in road traffic accidents.

The questionnaire study was conducted in December 2012 and January 2014 among 80 professional and non-professional drivers, mainly employed in the state institutions of the Staszów County (Świętokrzyskie Province).

The study encompassed 45 women (56%) and 35 men (44%). Individuals aged 26-36 years constituted the largest group (35%), followed by the group of respondents above the age of 45 years (31%). The remaining respondents were in the age ranges of 18-25 years (20%) and 36-45 years (14%). The majority of respondents lived in towns – 52 (65%), the remaining ones were from the country – 28 (35%). The largest group had higher education – 47 (58.75%); 21 (26.25%) had secondary education while the remaining 12 individuals (15%) had vocational education. Professional drivers constituted 12.5% (10 individuals) whereas non-professional drivers – 87.5% (70) of the study group.

The knowledge of first aid principles was analysed in all drivers in total (see tables) and according to participation in first aid courses, length of possessing driving license, age of drivers and whether they are professionals

RESULTS

Table. 1. Legal obligation to provide first aid in Poland assessed by respondents

Legal obligation to provide first aid	Number of responses	Percentage of respondents
Only qualified medical personnel	0	0
Individuals after first aid courses	10	12.5
Any witness of an incident	68	85
It is not legally regulated	2	2.5
Total	80	100

The majority of respondents (85%) were aware of a legal obligation to administer first aid by any accident fitness; 12.5% stated that first aid should be delivered only by individuals who completed appropriate courses and 2.5% believed that those issues are not legally regulated.

Of the entire group of drivers, 78.75% knew the emergency phone number.

Table 2. The witness reaction to the accident

Witness reaction	Number of answers	Percentage of respondents
I will try to help victims at all costs as their health and life are essential	19	23.75
I will pretend that I have not seen anything and will driver further	2	2.5
I will check whether the accident scene is safe; if so, I will administer first aid to victims	53	66.25
I will not touch the victims as my interventions can deteriorate their health	6	7.5
Total	80	100

In the study population, 66.2% of drivers would react appropriately (as witnesses) to the road traffic accident by checking whether the place of accident is safe and subsequently administering first aid to victims. Nineteen individuals (23.75%) declared they would provide casualties with first aid while the remaining 7.5% would not administer any help in fear of worsening their health and 2.5% would ignore the accident, i.e. one/tenth of individuals would not deliver any life-or health-saving assistance.

The analysis of results demonstrates that 62 respondents (77.5%) know that the victim should be taken out of the car when cardio-pulmonary resuscitation is necessary or the victim is in vehicle-associated danger. According to the remaining 18 respondents (22.5%), victims should always be removed from vehicles.

Among 80 respondents, 44 drivers (55%) would be able to assess properly the victim's condition, i.e. by approaching the victim from the front, grip-

ping them by the shoulders and gently shaking the body, loudly and clearly ask the questions such as "Do you hear me?", "How do you feel?", "Do you know what happened?". Two respondents would check whether the victim has the eyes open, 13.75% - the reaction to slapping the face; almost every third (28.7%) stated that none of the suggested answers was proper.

Half of respondents (50%) aptly indicated that to restore airways, the victim's head should be tilted backwards and the maxilla elevated; 31.25% said that a safe position should be provided, 10% would place the folded blanket under the neck and 8.75% would attempt to open the victim's mouth.

According to the findings, 36.25% of respondents knew that in order to check the victim's respiration, the patency of airway should be restored; the rescuers should observe whether the chest elevates (for 10 seconds), feeling the victim's breath on our cheek and hearing his breathing. A slightly lower percentage (40%) stated that it would be proper to put a mirror against the victim's mouth and observe any signs of breathing; 12.5% would observe the chest movements for one minute and 11.25% for half a minute.

Moreover, every third respondent (33.75%) knew the proper number of breaths a minute for adults, about 1/3 underestimated and over 1.3 overestimated this number.

The proper ratio of chest compressions to rescue breaths (30:2) was known by 45 respondents (56.25%); 20% chose 15:1, 13.75% - 15:2, and 10% - 30:5.

The proper depth (at least 5, not exceeding 6 cm) of chest compressions during heart massage was given by 11.25% of respondents. All the remaining ones suggested more shallow compressions: 33.75% - 2 to 3cm, the same percentage - 4 to 5cm, the remaining 21.25% - 3 to 4cm.

The moment to start cardio-pulmonary resuscitation (when the victim does not breathe) was aptly defined by 22.5% of drivers. The majority of respondents (62.5%) wrongly stated that CPR should be initiated in victims without breathing and pulse on the radial artery. According to 8.75% of respondents, resuscitation should be started when the victim does not react to strong pain stimuli; 6.25% believe that when the victim is unconscious and does not react.

The vast majority (73.75%) of respondents rightly indicated that a foreign body should be left in the wound and immobilised. Moreover, 15% believed that the foreign body should be removed and a compression dressing placed over the wound;

10% would not take any actions; according to one individual (1.25%), the foreign body should be removed and the cotton wool dressing placed over the wound.

Knowledge of first aid principles according to the variables analysed

The majority of respondents who completed first aid courses has broader knowledge on pre-professional rescue procedures, compared to those without such trainings. The percentages of proper answers to individual questions were presented in tables 3 and 4.

Table 3. Knowledge of first aid versus completed courses

Issues	Individuals without courses	Individuals participating in courses
Legal obligation to administer first aid	73%	92%
Knowing the alarm number	60%	88%
Getting the victim out of the car	73.5%	80%
Checking consciousness	46.5%	60%
Checking breathing	26.5%	42%
Number of chest compressions to number of rescue breaths	46.5%	62%
Depth of chest compressions	7%	14%
Management of foreign bodies	63%	80%

As far as the way of restoring the airway is concerned, the percentage of proper answers was the same in both groups, i.e. 50%.

The moment of initiating cardiopulmonary resuscitation was more aptly defined by the individuals without first aid courses (27%) than by those with training (20%).

The analysis of correlations between the length of possessing driving license, age of drivers and knowledge of first aid did not show any significant differences allowing drawing explicit conclusions.

Further analysis regarding the number of professional and non-professional drivers demonstrated substantial differences in correct answers.

Table 4. Knowledge of first aid among professional and non-professional drivers

Issues	Professional drivers	Non-professional drivers
Getting the victim out of the car	20%	85.70%
Ratio of chest compressions to rescue breaths	20%	61.43%
Checking consciousness	40%	57.14%
Airway restoration	20%	54.29%

Considering the disproportions in sizes of both groups (10 professional and 70 non-professional drivers), drawing final conclusions is not justifiable. However, the differences observed imply further research in representative samples.

DISCUSSION

Analysis of the study material have demonstrated that the knowledge of drivers from the Staszów County concerning first aid is insufficient to minimize health and life-associated risks in road traffic accidents. Too few individuals can properly administer procedures to maintain basic vital functions. The time between the accident and arrival of paramedics cannot be stopped and lost minutes can result in extreme injuries to victims. It should be remembered that immediate initiation of resuscitation by witnesses increases the probability of victims' survival by three times [11]. Similar results were obtained in studies regarding drivers from Lublin [12]. Additionally, it is alarming that not all the respondents know the alarm phone numbers. Moreover, not everyone is aware that administration of first aid is a legal obligation.

First aid courses were found to broaden the knowledge of pre-professional first aid. According to the similar studies of 2012, participation in appropriate first aid trainings enables to limit the number of road traffic accident victims [13].

CONCLUSIONS

1. Only a few vehicle drivers are prepared to administer first aid at the accident scene. A large proportion of drivers do not know the current guidelines on the European Resuscitation Council.
2. The effectiveness of first aid courses is low; therefore, the number of practical classes should

be increased so that each driver who completed the course is capable of providing proper first aid at the accident scene. Cyclic courses to improve knowledge and skills should be considered.

3. Besides driving license tests, future drivers should take exams regarding rescue interventions at the accident scene.

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Correspondence address:

Jolanta Karyś
Świątokrzyskie Centrum Psychiatrii, Oddział XIII
Morawica ul. Spacerowa 5, 26 – 026 Morawica
Tel. 693 156 363
E-mail: j.a.karys@interia.pl