

СОВЕРШЕНСТВОВАНИЕ ОБУЧЕНИЯ ОКАЗАНИЮ ПЕРВОЙ ПОМОЩИ ПОСТРАДАВШИМ В ДОРОЖНО-ТРАНСПОРТНЫХ ПРОИСШЕСТВИЯХ НА ФЕДЕРАЛЬНОЙ АВТОДОРОГЕ В РЕГИОНЕ РОССИИ С НИЗКОЙ ПЛОТНОСТЬЮ НАСЕЛЕНИЯ

А.В.Баранов^{1,2}, Э.А.Мордовский², Ю.Е.Барачевский², И.А.Баранова^{1,2}, Р.Н.Сулейманова¹

¹ ФГБОУ ВО «Сыктывкарский государственный университет им. Питирима Сорокина», Сыктывкар, Россия

² ФГБОУ ВО «Северный государственный медицинский университет» Минздрава России, Архангельск, Россия

Резюме. Цель исследования – научно обосновать и разработать комплекс мероприятий по совершенствованию обучения оказанию первой помощи пострадавшим в дорожно-транспортных происшествиях (ДТП) на федеральных автодорогах (ФАД) в регионах России с низкой плотностью населения.

Материалы и методы исследования. Материалы исследования – журналы регистрации курсантов, обучавшихся приемам и способам оказания первой помощи в территориальном центре медицины катастроф (ТЦМК) Архангельской области в период с 1 января 2012 по 31 декабря 2018 гг. Для статистического анализа использовались категориальные переменные, представленные в виде процентных долей; для определения наличия взаимосвязи между категориальными переменными – тест Хи-квадрат Пирсона.

Результаты исследования и их анализ. Анализ результатов исследования показал увеличение абсолютного числа обучавшихся, в том числе сотрудников МЧС и МВД России, приемам и способам оказания первой помощи. Разработаны и внедрены в образовательный процесс дополнительная профессиональная программа повышения квалификации медицинских специалистов «Оказание первичной медико-санитарной помощи в экстренной форме в условиях Арктики» и дополнительная профессиональная программа повышения квалификации «Оказание первой помощи пострадавшим в условиях Севера и Арктики», раскрывающие особенности оказания медицинской и первой помощи в специфических условиях регионов с низкой плотностью населения. Внедрена программа проведения регулярных тактико-специальных учений сотрудников служб и ведомств, имеющих отношение к ликвидации медико-санитарных последствий ДТП.

Ключевые слова: дорожно-транспортные происшествия с медико-санитарными последствиями, обучение оказанию первой помощи, первая помощь, первичная медико-санитарная помощь, пострадавшие, регионы России с низкой плотностью населения, федеральные автодороги

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IMPROVEMENT OF TRAININGS OF FIRST AID PROVISION FOR VICTIMS IN TRAFFIC ACCIDENTS ON THE FEDERAL HIGHWAY IN RUSSIAN REGIONS WITH LOW POPULATION DENSITY

A.V.Baranov^{1,2}, E.A.Mordovskiy², Yu.E. Barachevskiy², I.A.Baranova^{1,2}, R.N.Suleymanova¹

¹ Syktyvkar State University named after I.I. Pitirim Sorokin, Syktyvkar, Russian Federation

² Northern State Medical University of the Ministry of Health of the Russian Federation, Arkhangelsk, Russian Federation

Summary. Investigation purpose – to make science reasonable and to develop a complex of measures for improvement of first aid provision for traffic accidents (TA) victims on the federal highways in Russian regions with low population density.

Materials and methods of the investigation. Materials of investigation – a register of cadets who learned the skills of first aid provision in territorial centre of disaster medicine (TCDM) of Arkhangelsk region in a period from 1st January of 2012 till 31st December of 2018. For statistic analysis a categorial variables were used which were presented as percentages; Chi-square Peterson test was used for determination of presence of links between categorial variables. **Investigation results and their analysis.** Investigation results analysis showed an increasing of absolute number of learners, including EMERCOM of Russia and Russian Interior Ministry staff, of first aid provision skills; additional professional education program of qualification improvement for medical specialists “Provision of primary medical-

sanitary help in extremal form in Arctic conditions" and additional professional education program "Provision of first aid for victims in conditions of North and Arctic" were developed and added to the study process. These programs show an aspects of medical treatment provision and first aid provision in specific conditions of Russian North and Arctic; the program of regular tactic-specialized exercises conducting for stuff of services which are attracted to elimination of traffic accidents medical-sanitary consequences was developed.

Key words: *first aid, first aid provision learning, primary medical-sanitary treatment, Russian regions with low population density, traffic accidents with medical-sanitary consequences, victims*

Conflict of interest. The authors declare no conflict of interest

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Контактная информация:

Баранов Александр Васильевич – канд. мед. наук; директор мед. института – врач травматолог-ортопед Сыктывкарского гос. университета им. Питирима Сорокина
Адрес: Россия, 167001, Республика Коми, г.Сыктывкар, ул.Старовского, д. 55
Тел.: +7 (960) 000-52-27
E-mail: Baranov.av1985@mail.ru

Contact information:

Aleksandr V. Baranov – Cand. Sc. (Med.); Director of the Medical Institute - Traumatologist-Orthopedist of the Syktyvkar State University after I.I. Pitirim Sorokin
Address: 55, Starovskiy str., Syktyvkar, 167001, Russia
Phone: +7 (960) 000-52-27
E-mail: Baranov.av1985@mail.ru

Introduction. At the beginning of the XXI century road traffic accidents (RTA) remain one of the main causes of potentially preventable demographic losses among the population of most countries of the world. According to the World Health Organization (WHO), every year up to 50 million people are injured or disabled as a result of road traffic accidents. In the analytical review "Road traffic accident rate in the Russian Federation in 2021", prepared by the staff of the Scientific Centre for Road Safety of the Ministry of Internal Affairs of Russia, it was indicated that in 2021 in Russia there were 133 331 road traffic accidents, in which 14 874 people died and 167 856 people were injured. [2].

The volume of medical and sanitary consequences of traffic accidents is determined by many factors, the most important of which are climatic and geophysical features of the territory, as well as accessibility to first aid and medical care for the victims [3, 4]. In the northern regions of our country, including its Arctic zone, the degree of influence of these factors on the risk of road accidents, as well as on the severity of their medical and sanitary consequences, is particularly high; in addition, the situation is complicated by low population density living in these territories [5].

Victims of traffic accidents usually get nonlethal injuries, but untimely first aid can significantly worsen their condition and increase the risk of serious complications, up to and including death [6, 7]. Failure to provide first aid to victims with polytrauma, including respiratory and circulatory arrest or ongoing massive bleeding, inevitably leads to death [8, 9]. The above circumstances make it necessary and expedient to improve the existing system of first aid to the victims of traffic accidents.

The aim of the study is to scientifically substantiate and develop a set of measures to improve the provision of first aid to victims of road accidents on federal highways in the regions of Russia with low population density.

Materials and methods of the study. The materials of the study are the registers of the cadets who were trained in the techniques and methods of first aid in the territorial center for disaster medicine (TCDM) of the Arkhangelsk region during the period from January 1, 2012 to December 31, 2018. Categorical variables presented as percentages were used for statistical analysis. Pearson Chi-square test was used to determine the presence of correlation between categorical variables. Statistical processing of the data was performed using the SPSS 22 statistical software package.

Results of the study and their analysis. The complex of measures to improve first aid rendering to victims of traffic accidents at federal highways in the Russian regions with low population density was scientifically substantiated and elaborated. The measures include: training of population in methods and techniques of first aid rendering to victims with the focus on the specific cold features of the North and the Arctic and taking into account the vast distances in the considered Russian regions with low population density; development and implementation of the program of regular tactical and special trainings of the service personnel in the regions with low population density.

To train the population in rendering first aid to victims of road accidents the program "Software module for training in rendering first aid to victims of road accidents" (Certificate of state registration on the useful model №2018611482) was developed and introduced in the educational process in the Northern State Medical University of the Russian Ministry of Health (hereinafter – medical university) and TCDM of the Arkhangelsk region. Students at all faculties of the university work with the software module at the medical university, a regular control of their knowledge is carried out.

In 2012-2018, 22,878 trainees were trained in the Arkhangelsk region TCDM; among them: cadets of regional driving schools (mainly in Arkhangelsk); employees of the Ministry of Internal Affairs and EMERCOM of Russia; rescue workers; personnel of law enforcement agencies and other organizations and departments of the Arkhangelsk region.

The growth dynamics of the total number of trainees is as follows: in 2016 – 2803 people, in 2018 – 3455 people; $p=0,002$, χ^2 criterion.

Analyzing the training of employees of the Ministry of Emergency Situations and the Ministry of Internal Affairs of Russia, it should be noted that their maximum number was trained in TCDM in 2017 and 2018, with a statistically significant increase in their share among all trainees – 21.5% (603 people) vs 38% (1313 people), $p<0.001$, χ^2 criterion, as compared to 2016.

Mid-level medical personnel, mostly paramedics from paramedic-midwife stations, central district hospitals (CDH) and district hospitals in the region, are also trained in TCDM and receive more profound knowledge and skills in first aid. Their training takes into account the peculiarities of their work in rural settlements and the low transport accessibility of the nearest medical treatment organization (LMOs). This is especially important for the region under study, where the population is extremely unevenly distributed over its territory.

There is considerable interest on the part of the management of a number of state and commercial organizations in the region to train their employees in first aid in emergencies. Among them, the TCDM trains on a permanent basis employees of road service, stewardesses, train conductors of railway cars, representatives of security agencies, rescuers of various departments and other professionals related to working with people. In our opinion, the increase in the number of all categories of trainees in first aid techniques and methods is associated with the awareness of both trainees and heads of institutions of the need to master these competencies.

Based on the results of the study the additional professional training program for medical specialists "Providing Emergency Primary Health Care in Arctic Conditions" (36 hours) and additional professional training program "Providing First Aid to Victims in the North and Arctic Conditions" (36 hours) were developed and introduced into the educational process.

In the Arkhangelsk region a program of regular training of representatives of services and departments involved in the liquidation of medical and sanitary consequences of road accidents is implemented. The exercises are accompanied by practical training in first aid in all-weather conditions; more than 100 people participate in them every year. Tactical and special exercises are conducted in conditions that are as close as possible to those of a real accident on the federal highways.

At present the development of the methodical recommendations with the list of tips for the dispatchers of the ambulance service and the TCDM for consulting the witnesses of

accidents on medical and sanitary consequences on the rendering of the first aid to the victims with the special climatic and geophysical conditions of the studied region and the possible delays of the arrival of the ambulance team to the accident place is being completed.

Conclusion

The results of the study showed:

1. In the region under study the training of the population in the techniques and methods of the first aid to the victims of traffic accidents is permanently conducted which is characterized by the constant growth of the number of TCDM training in the Arkhangelsk region ($p < 0,001$), including the employees of the EMERCOM and the Russian MIA ($p < 0,001$) as well as the number of the Northern State Medical University students studying this subject.

2. Additional professional advanced training program for medical specialists "Providing Emergency Primary Health Care in Arctic Conditions" (36 hours) and additional professional advanced training program "Providing First Aid to Victims in the North and Arctic Conditions" (36 hours) were developed and introduced into the educational process which consider features of first aid and medical assistance rendering in the specific conditions of the Russian North and the Arctic.

3. In the studied subject of the Russian Federation, a program of regular tactical and special exercises of the employees of services and departments involved in the elimination of medical and sanitary consequences of road accidents, with training in practical skills of first aid in all-weather conditions, as close to the conditions of real road accidents as possible, was introduced.

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