



ISSN 2466-2623

UDK 614.2

JOURNAL RESUSCITATIO BALCANICA

OFFICAL JOURNAL OF SERBIAN RESUSCITATION COUNCIL

GODINA 5, BROJ 14, DECEMABAR 2019.

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Violetta Raffay, Serbian Resuscitation Council

Dr. Violetta Raffay is a medical doctor, specialist in emergency medicine, doctor of medical sciences. She completed her basic and specialty studies in Novi Sad, and academic doctoral degree studies in Kragujevac. She spent most of her career working in the Resuscitation Council of Serbia, and in the European Resuscitation Council in Belgium, by implementing the standard of care for critically ill people through the implementation of educational courses in resuscitation, she is engaged in experimental researches, which has become her primary professional affiliation. Her publications are available on the COBISS, PubMed, Medline, and citations are also available at Google Scholar.



Zlatko Fišer, Municipality Institute of Emergency Medicine Novi Sad

Dr. Zlatko Fišer is a doctor of medicine, specialist in emergency medicine. He spent a large part of his career working in the Resuscitation Council of Serbia, which became almost a basic affiliation by implementing the standards for the care of critically ill persons through the organization of educational seminars and conduction of educational courses in field of resuscitation. During his work he organized a large number of research programs and projects. The results of these programs are published in domestic and international journals, mostly in Journal Resuscitatio Balcanica. The papers are visible on Sci Index, COBISS, MedLine, and also, citations are available at Google Scholar.



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Dr. Mihaela Budimski is a doctor of medicine, an emergency resident at the Medical University in Novi Sad. She has been working in Resuscitation Council of Serbia, at educational courses in field of resuscitation for last five years. She is an author and a co-author of numerous publications that have been published in domestic and international journals, mainly in Journal Resuscitatio Balcanica. The publications are accessible on Sci Index, COBISS and also, citations are available at Google Scholar.

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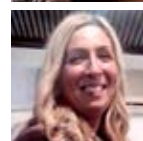
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UDK 614.2

ISSN 2466-2623



Journal Resuscitatio Balcanica

Stručni časopis

Novi Sad, 2019 Godina V broj 14



Uvodnik Editorial

Poštovani čitaoci,

Tokom 2019 godine radili smo na unapređenju kvaliteta časopisa i doneli potrebne odluke za razvoj istog. Jedna od ključnih odluka je da pređemo u 2020 godini na profesionalni sistem uređivanja časopisa uz korišćenje programa Assisstant, rečju već majski broj časopisa biće drugačije dizajniran.

Naravno promena načina uređivanja treba da dovede do promene u strukturi radova koji se objavljuju.

Mi smo načinili i činimo napore da zainteresujemo pojedince i nama srodne grupacije za saradnju. Prvi rezultati su tu, i autori iz Ruskog saveta izrazili su interes za saradnju. No uskoro očekujemo i nove grupacije da nam se priključe. Svim našim članovima i čitaocima želimo sretnu i uspešnu Novu 2020 godinu.

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INTRODUCING THE CRIMEAN OUT-OF-HOSPITAL CARDIAC ARREST AND RESUSCITATION REGISTRY (COHCARR): RATIONALE, DESIGN AND 6-MONTH BASELINE DATA

Alexei Birkun¹, Lesya Frolova²

Sažetak

Uvod:

Postoji potreba za uspostavljanjem registara za vanbolnički srčani zastoj (OHCA) u zemljama bivšeg Sovjetskog Saveza. Ovaj članak ima za cilj pružiti obrazloženje i opisati metodologiju krimskog registra vanbolničkog srčanog zastoja i oživljavanja (COHCARR), te izvijestiti osnovne podatke o epidemiologiji OHCA i hitnoj medicinskoj službi (EMS) u Republici Krim. Metode: COHCARR je zamišljen kao potencijalni populacijski registar svih slučajeva OHCA-e koji su prisustvovali EMS-u sa pokušajima oživljavanja koji se događaju u Republici Krim. Pokrivenost stanovništva je 1,91 miliona (100% stanovnika republike). Osnovna opisna analiza OHCA s pokušajem reanimacije (1. siječnja-30. lipnja 2018.) provedena je po Utstein metodologiji kako bi se dao sažetak problema OHCA u regiji.

Rezultati:

U tom periodu, EMS je prisustvovalo ukupno 6391 OHCA. S tim je reanimacija pokušana samo u 196 slučajeva (3,1%; srednja dob 65 godina, muškarci 56%, šokantna 16%). Većina (95%) svjedočila je EMS ili prolaznik. Od slučajeva svjedoka koji su prolazili (24%, n = 47), pokušaj reanimacije pokušao je u 19% (n = 9). Povratak spontane cirkulacije (ROSC) postignut je u 6,6% bolesnika, a 5,6% je preživelo prijem u bolnicu.

Zaključci:

Niske stope pokušaja oživljavanja, ROSC i preživljavanje do prijema u bolnicu nalažu priliku za poboljšanje ishoda OHCA na Krimu. Registar će pomoći ciljanju razumnih isplativih intervencija i procjeni njihove učinkovitosti u regiji. COHCARR može poslužiti kao osnovni model za izradu registra OHCA na drugim postsovjetskim teritorijama.

Abstract

Introduction:

There is an urgent unmet need for establishing out-of-hospital cardiac arrest (OHCA) registries in the former Soviet Union countries. This article aims to provide a rationale and describe methodology of the Crimean out-of-hospital cardiac arrest and resuscitation registry (COHCARR), and report baseline information on OHCA epidemiology and emergency medical service (EMS) performance in the Republic of Crimea.

Methods: COHCARR is designed to be a prospective population-based registry of all EMS-attended OHCA cases with resuscitation attempts, occurring in the Republic of Crimea. The population coverage is 1.91 million (100% inhabitants of the republic). The baseline descriptive analysis of OHCA with attempted resuscitation (January 01-June 30, 2018) has been performed following the Utstein methodology to provide a snapshot of OHCA problem in the region.

Results:

During the period, a total of 6,391 OHCA were attended by EMS. With that, resuscitation was attempted only in 196 cases (3.1%; median age 65 years, male 56%, shockable 16%). Most (95%) were witnessed by EMS or a bystander. Out of the bystander-witnessed cases (24%, n=47), bystander resuscitation was attempted in 19% (n=9). Return of spontaneous circulation (ROSC) was achieved in 6.6% patients, and 5.6% survived to hospital admission.

Conclusions:

The low rates of attempted resuscitation, ROSC and survival to hospital admission imply an opportunity to improve outcomes from OHCA in the Crimea. The registry will help to target reasonable cost-effective interventions and assess their effectiveness in the region. COHCARR may serve as a basic model for developing OHCA registries in other post-Soviet territories.

USTANOVA

¹ Medical Academy named after S. I. Georgievsky of V. I. Vernadsky Crimean Federal University; 295051, Simferopol, Russian Federation;

² Crimean Republican Center for Disaster Medicine and Emergency Medical Services; 295024, Simferopol, Russian Federation

AUTOR ZA

KORESPONDENCIJU:

Alexei Birkun
email: birkunalexei@gmail.com

KLJUČNE REČI:

Srčani zastoj, kardiopulmonalna reanimacija, Registar, Utstajni, Hitne medicinska pomoć

KEY WORDS:

Cardiac arrest; Cardiopulmonary resuscitation; Registry; Utstein, Emergency medical services.

DATUM PRIJEMA RADA

23.12.2019.

DATUM PRIHVATANJA RADA

26.12.2019.

DATUM OBJAVLJIVANJA

30.12.2019.

Introduction

Out-of-hospital cardiac arrest (OHCA) is currently recognized as a major health problem worldwide.[1-3] Being widely variable among communities, OHCA survival is known to be closely reflective of the performance of pre-hospital emergency care systems, and OHCA case was recommended to be a reportable event more than a decade ago.[4]

Cardiac arrest registry is universally acknowledged to be an essential tool for the public health surveillance with a final goal of improving quality of care and survival from cardiac arrest.[3,5] Numerous regional, national and international registries continuously collect data on incidence, management and outcomes of OHCA, supporting reasonable changes in pre-hospital care and potentiating resuscitation research.[1-3,5]

Very little is known about the epidemiology of OHCA in the post-Soviet states – the fifteen countries occupying the total area of 22.3 million square kilometers and about one-sixth of the Earth's land surface, covering 11 of the world's 24 time zones and populated with more than 290 million people.[6,7] Scarce studies in selected populations show increased incidence of OHCA together with low rate of cardiopulmonary resuscitation (CPR) efforts and poor outcomes.[8,9,10] With that, yet there is no organized system for continuous monitoring of epidemiology of OHCA and performance of emergency medical services (EMS) in the former USSR territories. Consequently, there are weak opportunities for clinical benchmarking, collation with international best practices and identification of potential solutions for improving survival.

This paper is aimed to provide rationale and describe methods for the OHCA and resuscitation registry in the Republic of Crimea, as well as to characterize regional EMS system and analyze baseline 6-month data on OHCA following the Utstein methodology.[11]

Methods

Aims and design of the registry

The Crimean out-of-hospital cardiac arrest and resuscitation registry (COHCARR) is designed as a prospective, population-based OHCA registry with the population coverage of 1.91 million, representing 100% of the population of the Republic of Crimea – inhabitants of 16 cities and 1,003 rural settlements in the Crimean peninsula, located in the Northern Black Sea.[12,13] The registry is not intended to cover the population of the city of Sevastopol, that is geographically located in the Crimean peninsula, but has its own administrative go-

vernance and individual EMS system.

The registry is proposed to be established with the following goals:

- to monitor the epidemiology and outcomes of OHCA, as well as performance of EMS system in the Crimea, and allow for inter-/intrasystem comparisons;
- to identify factors influencing outcomes of OHCA, investigate potential gaps and shortages of the system;
- to prioritize and evaluate the effects of new interventions on the outcome, potentiate and guide cost-effective quality improvement processes;
- to support and create new opportunities for resuscitation research.

The Utstein-style guidelines should be followed in order to standardize reporting of the process of care and outcomes for OHCA patients.[11] It is anticipated that the registry will be managed by the State Budgetary Healthcare Institution of the Republic of Crimea «Crimean Republican Center for Disaster Medicine and Emergency Medical Services» (Simferopol) – the central coordinating body of the unified EMS system, comprising seven district-level EMS divisions, covering both urban and rural areas of the region.

Inclusion criteria

All OHCA cases attended by EMS with CPR attempted should be included into the registry, regardless of cardiac arrest aetiology, initial arrest rhythm, patient gender or age. An OHCA is defined as cessation of cardiac mechanical activity that occurs outside of the hospital setting and is confirmed by the absence of signs of circulation.[11,14]

Data capture process and data elements

Data on OHCA cases should be collected centrally from the paper source documents of EMS (ambulance callout records and CPR logs) and in-hospital medical records of hospitalized patients, using the standardized electronic OHCA data collection form, and transferred to a Microsoft Access database (Microsoft® Access 2016, Microsoft Corporation, USA). Managers of the district-level EMS divisions are responsible for sending source EMS documents to the data coordinating center in batches, ensuring full coverage of OHCA cases. The hospital-level data should be collected by reviewing patient records from hospital archives with official permission from the hospital administration.

The data should be collected in accordance with the 2014 Utstein consensus definitions, aiming at both core and supplemental Utstein data elements throughout the five data element domains (Table 1).[11] While being included in the data collection form, so far, so-

me Utstein data elements are expected to be specified as “not applicable” or “not registered”, since respective interventions are currently not routinely performed by the EMS or bystanders (e.g. automated external defibrillation). In addition to the Utstein data elements, the following data should be collected for every OHCA case: EMS subdivision identifier, OHCA date and address, time of EMS-witnessed arrest (Table 1).

The EMS response time is defined as a time interval in minutes from incoming call to the time the first EMS vehicle arrives on scene, excepting OHCA cases witnessed by EMS. For EMS-witnessed cardiac arrest, response time should be calculated as a time interval from OHCA recognition by EMS to the start of the resuscitation attempt (usually 0 minutes), while defibrillation and drug timings should be calculated as time intervals

Table 1. A list of data elements to be collected by the Crimean out-of-hospital cardiac arrest and resuscitation registry

Data element domains	Data elements		
	<i>Utstein core</i>	<i>Utstein supplemental</i>	<i>Additional</i>
System	Population served CA attended Resuscitation attempted Resuscitation not attempted System description	System description (supplemental)	EMS subdivision identifier
Dispatcher	Dispatcher-identified CA Dispatcher CPR instructions	—	—
Patient	Age Gender Witnessed arrest CA location Bystander CPR/AED First monitored rhythm Aetiology	Presence of STEMI Ventricular assist devices Cardioverter-defibrillator	CA date CA address
Process	Response time Defibrillation time Target temperature management Drugs Reperfusion attempted	Airway control type Number of shocks Drug timings CPR quality Vascular access type Mechanical CPR Targeted oxygenation, ventilation, blood pressure 12-lead ECG Hospital type and volume	Time of EMS-witnessed CA
Outcome	Survived event Any ROSC 30-day survival Survival to discharge Neurological outcome	Transport to hospital	

Abbreviations: AED – automated external defibrillator, CA – cardiac arrest, CPR – cardiopulmonary resuscitation, ECG – electrocardiography, EMS – emergency medical service, ROSC – return of spontaneous circulation, STEMI – ST-segment-elevation myocardial infarction.

from OHCA recognition by EMS to the first shock and first drug given, respectively.

Data analysis and reporting

Collected data should be first analyzed descriptively. Chi-square test should be used to reveal differences between categorical variables, and logistic regression analysis – to elicit factors associated with outcomes of OHCA and EMS performance. P-values < 0.05 are to

be considered statistically significant. Official up-to-date population statistics from the Federal State Statistics Service of the Republic of Crimea should be used for calculating the incidence rates. Data on OHCA location must be collected for Geographic Information System (GIS) mapping and analyses.

Results of the data analysis are planned to be provided to the EMS as internal periodical reports for pre-hospital care quality control and quality improvement pur-

poses, and should also be published in peer-reviewed periodicals.

Ethics

The registry received an approval from the local Ethical Committee. All data must be depersonalized and no identifiers are to be collected, so there is no risk of compromising patient's confidentiality. A unique identifier should be assigned to each OHCA case after checking for completeness and accuracy of data. As soon as the registry will contain only depersonalized data, no informed consent is deemed to be necessary for data collection. No outside parties may have any access to OHCA case-specific or EMS-specific registry data.

Quality control and assurance

To ensure there are no missing cases, the official total number of resuscitations attempted are proposed to be periodically compared with the actual number of cases included in the registry. Routine audits of random electronic case records should be performed to check for accuracy and completeness. When incomplete data are identified, EMS personnel in charge of the patient must be contacted in order to clarify the missing data before depersonalizing the OHCA case. EMS providers should undergo initial training and continuous education in data collection.

Limitations

So far, the official ambulance callout form doesn't contain a mandatory field for a bystander CPR reporting, and this information is currently recorded by EMS teams voluntarily as a written comment. Consequently, real bystander CPR rates may be underestimated.

The quality of collected data may be influenced by inappropriate recall and inaccurate registration of data in the primary records by EMS providers. Further, some of the collected data (e.g. OHCA aetiology) are based on a subjective clinical judgement of EMS provider, potentially leading to bias.

Currently, there is no data to be collected for the dispatcher data element domain, since the EMS dispatch service has no established telephone CPR procedures thus far.

We cannot exclude potential administrative difficulties, related with planned access and retrieval of the hospital-level data.

Complete depersonalization of data prevents contacting survivors or their relatives to retrieve information on outcomes and long-term survival.

System description

The EMS system of the Republic of Crimea is a part of the public health system with government control and

budgetary funding. It is a two-tier emergency response system serving the entire population of the republic. Private ambulances are not involved in emergency dispatch process, nor in the management of OHCA. Ambulance crews (n=144, as of July 01, 2018) are composed of emergency medical care physicians and/or feldshers (midlevel medical practitioners), and drivers (non-medical personnel). Both emergency physicians and feldshers are advanced life support (ALS) providers, and all ambulance vehicles are equipped for ALS. With that, ALS provision is dependent on the number of medical professionals on board: one provider – basic life support only, two providers – ALS. Advanced resuscitation skills of the EMS personnel are variable, but mostly limited to cardiac monitoring, manual defibrillation, bag-mask ventilation with oropharyngeal airways, and intravenous drugs. To date, advanced airways and intraosseous access are provided in a minority of OHCA cases. Targeted temperature management is not routinely practiced by the EMS.

The EMS dispatch service is not using standardized protocols of cardiac arrest recognition or telephone CPR. Based on a short questioning of the caller (emergency numbers are 103 and 112), the call is prioritized as urgency or emergency and an ambulance team is dispatched to the relevant address.

CPR attempt is mandatory in all cases of OHCA, excepting when primary assessment reveals clear evidence of biological death (such as rigor mortis or livor mortis) or in obviously futile cases (e.g. decapitation or incineration).[15] Do-not-resuscitate orders are not considered by the EMS. CPR is performed following the effective guidelines of the European resuscitation council. [16,17] CPR effort lasts till return of spontaneous circulation (ROSC) or further resuscitation is considered to be futile (when CPR is ineffective over a period of 30 min).[15]

Results

We hereby report the results of retrospective analysis of OHCA data collected during the period from January 01 to June 30, 2018. Considering the low volume of data, only a descriptive analysis was performed at this stage. Investigation of relationships between the variables and identification of factors, potentially influencing the outcomes of OHCA, will be done in future studies. Incidence rates for the 6-month period were extrapolated to incidence rates per 100,000 population per year. During the period, a total of 6,391 OHCA were attended by EMS in the Republic of Crimea (unpublished data of the Crimean Republican Center for Disaster Me-

dicine and Emergency Medical Services). Resuscitation was commenced in 196 (3.1%) OHCA cases. Assuming the population of the republic is 1,913,731,[12] the incidence of OHCA with CPR attempted by EMS was found to be 20.5 per 100,000 population per year.

The mean age of OHCA patients was 65 years (standard deviation 16), median age – 65 years (range: 22–94), and 56% (n=109) were male. Cardiac arrest mostly occurred at home (80%; n=156), less frequently in a street or highway (13%; n=25), in healthcare facilities (5%; n=10), public places or at workplace (2%; n=5).

Aetiology of OHCA was most commonly (n=181; 92%) presumed to be medical (combining cardiac, other medical causes and cases with no obvious cause). Distribution of the cases by aetiology is shown on Figure 1. The majority of OHCA was witnessed by either the EMS or a bystander (95%; n=186). Bystanders witnessed 24% (n=47) cases of cardiac arrest, and of these, bystander CPR was given in 19% (n=9): compression-only CPR – five cases, chest compressions with rescue breathing – three, CPR volume unknown – one. There were no cases of automated external defibrillator (AED) use (public access defibrillation is not legally permitted and AEDs are not deployed in the Crimea).

The mean EMS response time was 4 min for all OHCA cases, and 11 min when excluding EMS-witnessed cardiac arrests. 71% (n=139) cases were witnessed by EMS team. The first registered rhythm was asystole in 81% (n=158) and was shockable (ventricular fibrillation/pulseless ventricular tachycardia) in 16% (n=31). A shock was given in 94% (n=29) of shockable OHCA. The mean time to first defibrillation was 8 min (12 min, when exc-

cluding EMS-witnessed cases; n=15). The median number of shocks given was four (range: 1–11).

Airway devices were used in 91% (n=179) cases of CPR: oropharyngeal airways – 74% (n=145), supraglottic airways (laryngeal mask) – 10% (n=19), endotracheal tube – 8% (n=15). Adrenaline and amiodarone were administered in 87% (n=170) and 12% (n=24) OHCA cases, respectively. The mean time to the first dose was 7 min (16 min, when excluding EMS-witnessed OHCA; n=48). The vascular access was most commonly peripheral intravenous (85%; n=167). In two cases (1%) drugs were given intraosseously, in one case (0.5%) – intratracheally. Thirteen of 196 patients (6.6%) had ROSC, and 5.6% (11/196) survived the event (i.e. had sustained ROSC until arrival at the hospital). Of them, seven (64%) had shockable initial rhythm. Out of 11 cases of bystander-witnessed OHCA with initial shockable rhythm, two patients (18%) gained ROSC and both survived the event (one of them received bystander compression-only CPR). Coronary reperfusion was attempted in two patients (1%; thrombolysis before OHCA), and one of them achieved ROSC and survived the event.

We could not obtain the hospital-level data because of the lack of established administrative means to access in-hospital medical records at the moment of data collection. The proportions of missing core data variables were as follows: witnessed arrest – 1.0% (n = 2), first monitored rhythm – 1.5% (n = 3), drugs – 2.6% (n = 5), defibrillation time – 4.1% (n = 8), any ROSC – 4.6% (n = 9), bystander CPR – 8.2% (n = 16).

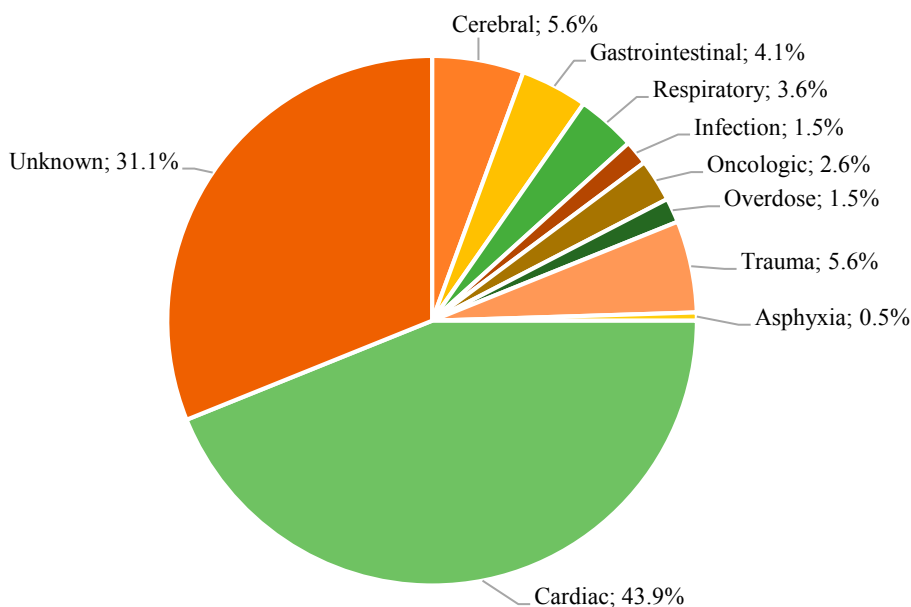


Figure 1. Distribution of the most likely primary causes of cardiac arrest

Discussion

Few data are currently available on the OHCA epidemiology and EMS performance in the post-Soviet states. Extrapolation of the incidence of EMS-assessed OHCA in Europe (84 per 100,000 population),^[3] suggests that about 243,600 residents of the former USSR countries may experience EMS-attended OHCA each year. With that, most post-Soviet countries have considerably lower population health and higher premature mortality than seen in Western Europe, so the real incidence of OHCA is supposed to be higher.^[18] The lack of a true epidemiological picture conceals the problem, and there is a critical need for collecting and analyzing reliable data in order to improve patient care and survival from OHCA in the former Soviet states.

Cardiac arrest registries can be successfully used to perform OHCA surveillance, monitor EMS performance, prioritize cost-effective interventions focused at improving outcomes following an OHCA event and evaluate effects of these interventions.^[5] Further, registries allow for comparing data within the region and with other EMS systems to identify best opportunities for enhancing pre-hospital care.^[19] The comparability of the OHCA data is supported by the internationally recognized

Utstein guidelines on OHCA data collection and reporting.^[11,14]

To our best knowledge, within the former Soviet Union territories, COHCARR represent the first effort to establish a regional registry for continuous systematic collection and analysis of OHCA data following the Utstein style methodology. Covering the whole 1.9-million population of the Republic of Crimea, it would enable to monitor trends in OHCA incidence and EMS performance in the region, identify factors influencing the outcomes, set up reasonable interventions to improve survival and evaluate their effectiveness on implementation. The registry would also promote resuscitation research. Based on the results of the 6-month data, we estimate that COHCARR will cover about 400 OHCA cases with CPR attempted by EMS annually.

In the overwhelming majority of OHCA cases (97%) in the Republic of Crimea EMS doesn't attempt any CPR, because the patients show signs of biological death at the time of EMS arrival. Low actual number of CPR efforts may account for relatively low incidence of OHCA with CPR attempted by EMS in the region (Table 2). We suggest the low rates of CPR attempts may be associated with the prevailing inability of the bystanders to

Table 2. Key characteristics of OHCA with attempted CPR in the Republic of Crimea compared to the international data

OHCA characteristics	Republic of Crimea (current study)	27 European countries ^[3]	Ireland ^[21]	USA and Canada ^[1]	Japan ^[2]
Incidence of OHCA with attempted CPR (per 100,000 population-year)	21	49	39	n/d	n/d
Age, median (years)	65	70	67	66	76
Male (%)	56	66	67	63	58
Presumed medical aetiology (%)	92	91	86	95	85
Initial shockable rhythm (%)	16	22	24	22	8
EMS-witnessed OHCA (%)	71	12	6	12	7
Bystander-witnessed OHCA (%)	24	54	54	38	34
Bystander CPR (% of bystander-witnessed OHCA)	19	n/d	70	40	40
Any ROSC (%)	7	29	23	n/d	9
Survival on arrival at hospital (%)	6	25	17	n/d	n/d
Survival to hospital discharge/30 days (%)	n/d	10	6	10	5

Abbreviations: CPR – cardiopulmonary resuscitation, EMS – emergency medical service, OHCA – out-of-hospital cardiac arrest, ROSC – return of spontaneous circulation, n/d = no data.

promptly recognize the problem, activate the EMS and provide early basic CPR. When 24% of OHCA cases with attempted CPR were witnessed by a bystander, only one fifth of bystanders who witnessed cardiac arrest commenced the CPR. The low involvement of lay public in real-life CPR efforts together with limited training opportunities and poor CPR knowledge were recently shown in a survey of the Crimean population. The respondents reported lack of CPR knowledge and skills to be the main barrier to perform CPR in real life.[20] Our preliminary analysis revealed very low rates of ROSC and survival to hospital admission when CPR was attempted by EMS or a bystander (Table 2). Supposedly, this may be attributable to the delayed recognition and suboptimal management of the critically ill patient, as well as late start and poor performance of resuscitation. The relatively low rate of shockable initial rhythm may argue for the assumption of a delay in the provision of appropriate care.

Alongside proving weaknesses of the pre-hospital care system, significantly lower rates of ROSC and survival to hospital arrival when compared to the international data (Table 2), suggest there is room for improvement of the outcomes from OHCA in the Crimea. In order to reduce deaths in the region, it is essential to implement a multi-level programmatic strategy following the global best practices.[22] The biggest impact on survival in spite of fewer resources can be achieved through promoting bystander CPR by increasing public awareness and community CPR training and implementing regional dispatcher-assisted CPR program.[22] Further, high-performance CPR training for EMS personnel and rapid dispatch with ongoing quality improvement processes should be considered. In turn, implementation and evaluation of effectiveness of these interventions is impossible without a reliable tool for measurement, namely the COHCARR.

Conclusions

OHCA is a major public health problem in the Crimea with high threshold for CPR commencement and very low rates of survival. The proposed Crimean out-of-hospital cardiac arrest and resuscitation registry (COHCARR) may serve as a key tool for quality improvement of pre-hospital care with the final goal of increasing survival from OHCA in the Republic of Crimea. The concept and methodology of the registry may help to establish other regional and national OHCA registries and develop resuscitation research network in the former USSR area.

Acknowledgements

The authors would like to thank Dantanarayana Visith Risira for editing the text in English language.

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EUReCa_SRBIA: ŠTA SMO NAUČILI? EUReCa_SERBIA: WHAT HAVE WE LEARNED?

Nela Djordjević Vujović¹, Aleksandra Lazić², Suzana Randjelović³

Sažetak

Cilj:

Cilj ovog rada je da poređenjem podataka prikupljenih tokom odvijanja programa EuReCa utvrdi uticaj istog na kvalitet zbrinjavanja vanbolničkog srčanog zastoja te da se analiziraju rezultati i ishod na početku i na kraju programa EuReCa u Srbiji.

Metodologija:

Studija je sprovedena kao prospektivna i opservaciona i multicentrična studija prikupljanja podataka koji se odnose na izvanbolnički srčani zastoj u periodu od 01.10.2014-1.09.2017.god. Podaci o ISS su unošeni u jedinstveni upitnik po „Utstein“ metodologiji praćenja ISS i upitniku i metodologiji studije Evropskog Resuscitacionog Saveta (ERC) i studije EuReCa. Program EuReCa je zaveden pod kliničkim tijalom pod brojem Clinical Trials ID: NCT03130088. U studiju su uključeni svi oni pacijenti koji su doživeli izvanbolnički srčani zastoj i kod kojih je u bilo kom delu intervenisala hitna služba bez obzira na pol, godine ili lične karakteristike.

Rezultati:

U periodu koje istraživanje obuhvata registrovano je 4172 EuReCa događaja. Mere kardiopulmonalne resuscitacije (KPR) primenjene su kod 1618/4172 ili 37,78%. Svedok je učestvovao u resuscitaciji 220 puta (13,6%). Povratak spontane cirkulacije (ROSC) je postignut je ukupno u 19,96%. Povratak spontane cirkulacije (ROSC) je postignut u 2014. godini kod 16,12% pacijenata 75/465 a 2017. kod 23,70% pacijenata odn. kod 50/211. Do otpusta iz bolnice ukupno je u posmatranom periodu preživelo 63/1618 (3,89%). Preživljavanje do 30 dana beležimo kod 2,97% pacijenata.

Zaključak:

EuReCa ONE Srbija je prva studija ove vrste u Srbiji koja je u četvorogodišnjem praćenju pokazala značaj prikupljanja i analize podataka radi unapređenja zbrinjavanja vanbolničkog srčanog zastoja. Iako je studija EuReCa Srbija opservaciona ona je pokazala značajne promene u preživljavanju i povećanju preživljavanja pacijenata tokom samog procesa prikupljanja podataka. Neophodna je dalja analiza i dalja istraživanja da bi se objasnili svi činioci koji su uticali

Abstract:

Aim:

The aim of this paper was to compare the collected data's during uReCa project and to appoint the influence of it to the quality management of the cardiac arrest in participating areas and to analyse results and outcome on the beginning and on the end of the EuReCa program in Serbia.

Methodology:

The study is conduct as prospective, multicentric and opservational study from 01.10.2014 – 01.09.2017. Data about SCD are collected in uniform questionnaire by "Utstein" methodology and methodology and questionnaire European Resuscitation Council study and EuReCa study. EuReCa program is registered Clinical Trial NCT02236819. The study included all victims of cardiac arrest which were managed by emergency medical service, regardless of age, gender or personal characteristics.

Results:

In the observed period, 4172 EuReCa events have been registered. Cardiopulmonary resuscitation (CPR) is performed in 1618/4172 or 37,78% of all cases. Bystander took part in resuscitation in 220 cases (13,6%). Return of spontaneous circulation was achieved in 19,96% of victims. Return of spontaneous circulation (ROSC) was achieved in 2014 at 75/465 (16,12%) and during 2017 in 50/211 (23,70%) patients. The hospital discharge in observed period was 63/1618 (3,89). The 30-days survival rate was 2,97%.

Conclusion:

EuReCa ONE Serbia is first study of this type in Serbia which is in four-years follow show the importance of analysing and collecting of data in purpose of improvement of cardiac arrest treatment. EuReCa Serbia is observational study but the presence of the study show significant changes in surviving and increased surviving during the process of the study. Further investigations are necessary to explain all factors which had influence.

USTANOVA

¹ Zdravstveni centar Aranđelovac
² KC Vojvodine
³ Urgentni centar – KC Kragujevac

AUTOR ZA

KORESPONDENCIJU:

Nela Djordjevic Vujovic
email: vujovicnela@gmail.com

KLJUČNE REČI:

vanbolnički srčani zastoj, EuReCa, služba hitne medicinske pomoći, resuscitacija

KEY WORDS:

out-of-hospital-cardiac arrest, EuReCa, emergency medical service, resuscitation

DATUM PRIJEMA RADA

6.11.2019.

DATUM PRIHVATANJA RADA

10.12.2019.

DATUM OBJAVLJIVANJA

30.12.2019.

UVOD

Učestalost vanbolničkog srčanog zastoja (OHCA) zbrinjavanog sistemom urgentne medicine (EMS) za sve ritmove srčanog zastoja, prema evropskim podacima, varira između 38 do 86 na 100.000 stanovnika na godišnjem periodu odnosno 3 do 7/100.000 prosečno u toku jednog meseca. Prema evropskim podacima iznenađujući srčani zastoj predstavlja vodeći uzrok smrtnosti u izvanbolničkim uslovima.

EuReCa_One Srbija je program je analiza praćenja incidence, procesa zbrinjavanja i ishoda pacijenata sa vanbolničkim srčanim zastojem kako među centrima učesnicima programa u našoj zemlji i u razvijenim zemljama širom Evrope. Programu EuReCa_One Srbija je pristupila 2014. godine, od tada je pomoću registra postavljenog od strane Resuscitacionog Saveta Srbije, upitnikom kreiranim metodologijom studije, omogućeno kontinuirano praćenje pojave vanbolničkog srčanog zastoja. Praćenje epidemiologije srčanog zastoja i pažnja posvećena ovoj pojavi u vremenskom periodu 1. oktobar 2014 – 01. avgust 2017. donela je brojna saznanja o srčanom zastoj u Srbiji i omogućila praćenje kvaliteta zbrinjavanja najurgentnijeg stanja, vanbolničkog srčanog zastoja.

CILJ

Cilj ovog rada je da poređenjem podataka prikupljenih tokom odvijanja programa EuReCa utvrdi uticaj istog na kvalitet zbrinjavanja vanbolničkog srčanog zastoja te da se analiziraju rezultati i ishod na početku i na kraju programa EuReCa u Srbiji.

METODOLOGIJA

Studija je sprovedena kao prospektivna i opservaciona i multicentrična studija prikupljanja podataka koji se odnose na izvanbolnički srčani zastoj u periodu od 01.10.2014- 1.09.2017.god. Podaci o ISS su unošeni u jedinstveni upitnik po „Utstein“ metodologiji praćenja ISS i upitniku i metodologiji studije Evropskog Resuscitacionog Saveta (ERC) i studije EuReCa. Program EuReCa je zaveden pod kliničkim tijalom pod brojem Clinical Trials ID: NCT03130088. U studiju su uključeni svi oni pacijenti koji su doživeli izvanbolnički srčani zastoj i kod kojih je u bilo kom delu intervenisala hitna služba bez obzira na pol, godine ili lične karakteristike. Studija uključuje sve pacijente kod kojih je postojao resuscitacioni pokušaj od strane: hitne službe, svedoka vanbolničkog srčanog zastoja (VBSZ) pre dolaska hitne službe uz nastavljanje resuscitacije od strane hitne službe, svedoka (VBSZ) pre dolaska hitne službe sa prekidom pokušaja resuscitacije od strane hitne službe iz

bilo kog razloga. svedoka (VBSZ) sa postizanjem povratka spontane cirkulacije pre dolaska hitne službe. Takođe studija uključuje i pacijente pronađene ili proglašene mrtvim iz bilo kog razloga. Studiju je sprovodilo više zavoda i službi hitnih medicinskih pomoći a prikupljanje podataka je koordinisao glavni istraživač.

Saglasnost za Učešće u ovoj studiji za R. Srbiju, dao je Etički odbor RSS i za svaku ustanovu posebno Etički odbori ustanova obuhvaćenih projektom.

REZULTATI

U periodu koje istraživanje obuhvata registrovano je 4172 EuReCa događaja. Mere kardiopulmonalne resuscitacije (KPR) primenjene su kod 1618/4172 ili 37,78% od svih zabeleženih događaja.

U tabeli 1. su prikazani procentualni rezultati po godinama u posmatranom periodu. Grafikon 1 prikazuje epidemiološke podatke srčanog zastoja. A grafikon 2 trend EuReCa parametar za period 2014–2017.

Mere KPR su tokom 2014 godine primenjene kod 465/1490 što iznosi 31,2%, tokom 2015 kod 469/1366 odn. 34,3%, 2016 kod 473/952 odn. 49,7% i 2017. godine 211/365 odn. 58%.

Telefonski vođen KPR od strane dispečera je u prvoj godini studije iznosio 41/465 (8,82%), 2015. godine 15/469 (3,20%), 2016. godine 46/473 (9,73%) a 2017. godine 22/364 (10,43%).

Svedok je učestvovao u resuscitaciji 220 puta (13,6%). Šokabilni inicijalni ritam (vetrikularna tahikardija bez puša VT/ventrikularna fibrilacija VF) je u 2014. godini zabeležen kod 80 pacijenata od 465 primenjenih resuscitacija (17,20%), u 2015. godini 88/469 ili 18,76%, tokom 2016. godine 111/473 ili (23,47%) a tokom 2017. zabeleženo je 60/211 šokabilnih inicijalnih ritmova (28,44%). Povratak spontane cirkulacije (ROSC) je postignut u 2014. godini kod 16,12 % pacijenata 75/465 a 2017. kod 23,70% pacijenata odn. kod 50/211. Do otpusta iz

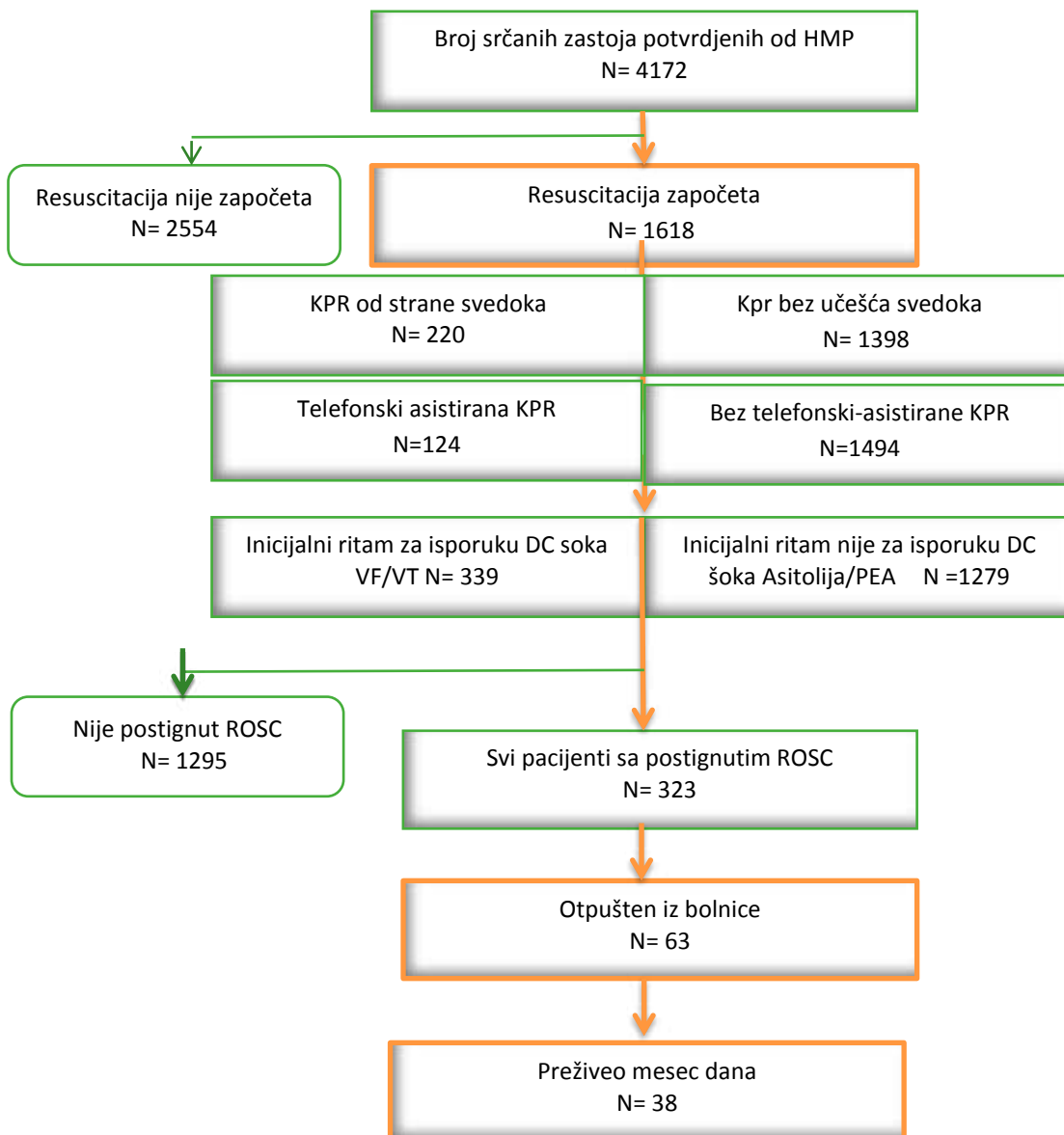
Tabela 1. Procentualni prikaz rezultata 2014–2017.

Table 1. Results for 2014–2017 in percentage

%	2014	2015	2016	2017	ukupno
VBSZ	100	100	100	100	100
KPR započeo	31,21	34,33	49,68	57,97	38,78
tele KPR	8,82	3,20	9,73	10,43	7,66
ŠOKABILNI RITMOVI	17,20	18,76	23,47	28,44	20,95
ROSC	16,13	16,20	25,79	23,70	19,96
otpušten iz bolnice	3,23	3,84	4,23	4,74	3,89
Preživljavanje 30 dana	1,51	3,84	3,38	3,32	2,97

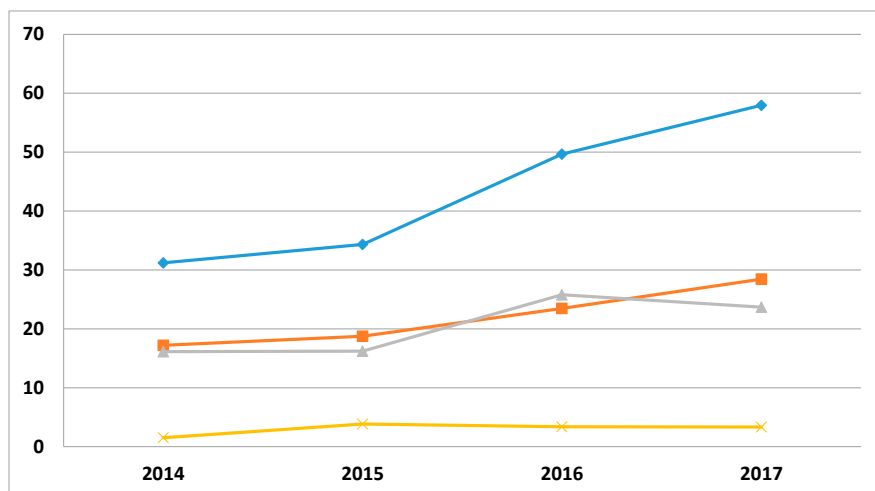
Grafikon 1. EuReCa izveštaj o srčanom zastoju – Eureka Srbija 2014. – 2017

Chart 1. EuReCa report of cardiac arrest-EuReCa_Serbia 2014-2017.



Grafikon 2. Trend EuReCa parametara u periodu 2014-2017.

Chart 2. EuReCa trend results for the period between 2014-2017.



bolnice ukupno je u posmatranom periodu preživelo 63/1618 (3,89%). Posmatrano po godinama 2014. je otpušteno iz bolnice 15/465 (3,23%) pacijenata, 2015. godine 18/469 (3,84), 2016. je otpušteno 20/473 pacijenata (4,23), a poslednje posmatrane godine 10/211 odn. (4,74%). Preživljavanje do 30 dana beležimo kod 7/465 odn. (1,15%) pacijenata tokom 2014. a 2017. kod 7/211 što je 3,32% pacijenata.

DISKUSIJA

Rezultati do kojih smo došli i koje smo analizirali pokazuju raznolikost u odnosu na sredine u kojima su prikupljeni, posmatrano i u odnosu na EuReCa One studiju u Evropi, između zemalja koje su bile deo projekta, između gradova i mesta u Srbiji i u vremenu posmatranja vanbolničkog srčanog zastoja.

Podatak o velikom broju resuscitacija koji nije rađen u odnosu na druge države poredeći se sa EuReCa_ONE² možemo da pripišemo tome da u Srbiji službe i zavodi hitnih pomoći rade mrtvozornički posao. U odnosu na većinu zemalja, u Srbiji je evidentirano znatno manje učešće svedoka u resuscitaciji³, 13,6% u Srbiji u odnosu npr na Holandiju (59%) i Švedsku (47%). Istovremeno prema podacima iz EuReCa programa u Srbiji postoji dilemma da li su svedoci koji su radili resuscitaciju doprineli povećanju preživljavanja kao što je to činjenica u svetu^{4,5,6}. Dobijene rezultate možemo da objasnimo da nedovoljnom utreniranosti svedoka koji rade resuscitaciju i sa nedovoljnom opšte društvenom promocijom započinjanja resuscitacija dok ne stignu medicinski profesionalci. Uočena je potreba podizanja svesti građana o aktivnom učešću u KPR i započinjanju KPR-a pre pristizanja stručne pomoći jer dosadašnje analize ukazuju na njihovo zanemarljivo angažovanje^{7,8}.

Evropski proseki telefonski vođenog KPR je 30%² a kreće se u veoma širokom rasponu, dok je kod nas 7,66% ukupno, sa trendom porasta od 2014. te do 2017. te godine te 2017. -te dostiže 11,37%. Iz navedenih podataka jasno vidimo da je broj dispečersko vođenih značajno manji nego evropski proseki, ali sa trendom porasta. U mnogim zemljama se sprovode edukacije dispečera o načinu komunikacije, prepoznavanju srčanog zastoja ako i navođenju laika ka primeni mera KPR^{9,10}. U mnogim zemljama se sprovode edukacije dispečera, jer od instrukcija koje dispečer daje preko telefona zavisi i sam kvalitet pruženih mera resuscitacije. Na ovaj način, treninzima dispečera uz edukaciju građana dodatno utiče na bolju saradnju a samim tim i ishod resuscitacije¹¹. U pojedinim sredinama iz naše zemlje uz primenu edukacije kako dispečera tako i građana beležile su promene koje su dovele do vidljivih rezultata¹².

Naša studija zabeležila postizanje ROSC-a od 19,96% i 2,96% preživelih posle 30 dana. Poredeći sa rezultatima EuReCa One studije u Evropi nalazimo se u donjoj polovini evropskih zemalja, dok prednjače Nemačka i Holandija sa ROSC više od 40%³. Navedeni podatak bi mogli u dobroj meri objasniti činjenicom da se u dve navedene zemlje sprovodi sistematski i planirana edukacija laika merama resuscitacije, dispečerima koji su obučeni za prepoznavanje i davanje saveta za resuscitaciju kao i organizaciji raznih službi. I u evropskim zemljama i kod nas su prisutne značajne razlike u preživljavanju od vanbolničkog srčanog zastoja. Tako npr. u Kragujevcu je dostizanje ROSC u studiji bilo 2,9%¹³, u Somboru 60%¹⁴ dok je u Vojvodini dostizanje ROSC-a bilo 30%¹⁵. Navedene razlike su posledica mnogih činilaca koje ovo istraživanje ne obuhvata, slično kao i u evropskim zemljama ali je činjenica da ne postoji adekvatna standardizacija i uniformnost svih karika u organizaciji i zbrinjavanju izvanbolničkog srčanog zastoja iako se kroz preporuke za zbrinjavanje vanbolničkog srčanog zastoja i edukaciju pokušava doći do standardizacije.

Uočljiv je porast trenda postizanja spontane cirkulacije (ROSC) sa 16% na 24% odn. u četvorogodišnjem periodu porast ROSC-a iznosi 7%. Niz faktora utiče na postizanje spontane cirkulacije¹⁶, kao na primer veći udeo šokabilnih ritmova, edukacija urgentnih timova, edukacija laika itd¹⁷. U posmatranom periodu praćenja EuReCa događaja u R. Srbiji uočavamo gotovo udvostručen porast započelih mera kardiopulmonalne resuscitacije kod pacijenata sa VBSZ sa 31% u 2014. godini na 58% tokom 2017. godine, što smatramo kao važan činilac jer iz većeg broja rađenih resuscitacija dobijeni su i bolji rezultati i veće preživljanje. Analizom naše studije, primećujemo i srazmerno povećanje trenda otpusta pacijenata iz bolnice kao i preživljavanje nakon 30 dana od otpusta koje je udvostručeno u poređenju 2014-2017. godine. Činjenica je da se samo postojanje EuReCa studije, koja je bila opservaciona u manjoj ili većoj meri povezuje i sa boljim preživljavanjem te da u značajnoj meri motiviše i ohrabljuje zaposlene u urgentnim službama.

ZAKLJUČAK

EuReCa ONE Srbija je prva studija ove vrste u Srbiji koja je u četvorogodišnjem praćenju pokazala značaj prikupljanja i analize podataka radi unapređenja zbrinjavanja vanbolničkog srčanog zastoja. Iako je studija EuReCa Srbija opservaciona ona je pokazala značajne promene u preživljavanju i povećanju preživljavanja pacijenata tokom samog procesa prikupljanja podataka. Neophodna je dalja analiza i dalja istraživanja da bi se objasnili svi činioci koji su uticali.

Lista skraćenica**Abbreviation list**

EuReCa	registar vanbolničkog srčanog zastoja
VBSZ	vanbolnički srčani zastoj
KPR	kardiopulmonalna resuscitacija
tele KPR	telefonski asistirana kardiopulmonalna resuscitacija
SHMP	Služba hitne medicinske pomoći
pVT	ventrikularna tahikardija bez pulsa
VF	ventrikularna fibrilacija
ROSC	povratak spontane cirkulacije
vs	versus - naspram

Konflikt interesa:

Autor i koautori izjavljuju da nemaju konflikt interesa.

Zahvalnost:

Autori se zahvaljuju svim učesnicima na pomoći u prikupljanju podataka kao i Resuscitacionom Savetu Srbije.

Finansijska podrška:

Istraživanje je finansirano od strane Resuscitacionog Saveta Srbije iz sredstava članarine. Autori i koautori nemaju naknadu za učešće u studiji, obradu i saopštavanje rezultata.

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STAVOVI ZDRAVSTVENIH RADNIKA O PRISUSTVU PORODICE PACIJENTA TOKOM RESUSCITACIJE – PRELIMINARNI REZULTATI ISTRAŽIVANJA

ATTITUDES OF HEALTH CARE WORKERS ON THE PRESENCE OF THE PATIENT'S FAMILY DURING RESUSCITATION -PRELIMINARY RESEARCH RESULTS

Zoran Fiser¹, Ivana Obradovic², Suzana Randjelovic³

SAŽETAK

Cilj:

Cilj ovog istraživanja je da ispituju kakve stavove imaju zdravstveni radnici o kontaktu i prisustvu porodici tokom resuscitacije.

Metod:

Rezultati su prikupljeni putem ankete koju je organizovao Resuscitacioni Savet Srbije (RSS). Anketa se odnosi na stavove medicinskog osoblja (svih zdravstvenih radnika, zaposlenim u različitim službama) o prisustvu porodice u procesu resuscitacije. Anketa je puštena putem Googla na 7000 adresa zdravstvenih radnika iz Srbije, koji su članovi RSS od 01.09.2019. do 15.09.2019. Do tog datuma je anketu popunilo 306 ispitanika. U istraživanju je korišćen upitnik koji se standardizovano koristi u visokorazvijenim zemljama. Statistička obrada podataka je urađena pomoću statističkog programa IBM SPSS Statistics 22.

Rezultati:

Najveći procenat ispitanika (41,8%) smatra da je pružanje psiho-socijalne- duhovne podrške članovima porodice deo njihovog posla/ prakse a više od polovine (53,6%) ispitanika se oseća dobro kada pruži i pruža psihološku i socijalno-duhovnu podršku članovima porodice. Oko polovine ispitanika uopšte se ne slaže da članovi porodice treba da imaju mogućnost da prisustvuju tokom pokušaja resuscitacije (46,4%) njihovih najbližih. Polovina ispitanika se potpuno slaže da bi prisustvo porodice tokom resuscitacionog pokušaja učinilo pokušaj resuscitacije stresnijim za resuscitacioni tim. Da podržava prisustvo porodice u hospitalnim uslovima izjasnilo se 81,7%.

Zaključak:

Stavovi zdravstvenih radnika o prisustvu porodice za vreme resuscitacije su veoma različiti u Srbiji a njihovo prikupljanje i analiza je veoma značajno obzirom na veliki zdravstveni značaj koji ima srčani zastoje. Najveći broj zdravstvenih radnika je spreman da pruži psihološku podršku porodicama žrtvi srčanog zastoja ali o prisustvu porodice procesu resuscitacije stavovi su podeljeni.

ABSTRACT

Aim:

The aim of this study is to investigate healthcare providers attitude about contact and family member during resuscitation.

Method:

Results were collected by survey which is organised by Serbian Resuscitation Council (RSS). The survey refer to healthcare providers (all healthcare providers in different services) about family presence in resuscitation process. The survey is distributed by Google on 7000 email address of RSS members from 01.09.2019. to 15.09.2019. Until that date survey is completed by 306 examined persons. Study used questionnaire which is standardised and used in high-developed countries. The statistical data processing is done by IBM SPSS Statistics 22.

Results:

Most number of examined persons (41,8%) have attitude that psycho-social support is part of their praxis/job and more than a half are feel good when give psychological and social support to members of family. About half of examined have attitude to disagree about presence of family members during resuscitation attempt (46,4%). Half of examined persons thinks that presence of family members during resuscitation is stressful for resuscitation team. In hospital condition, presence of family during resuscitation is supported by 81,7% examined.

Conclusion:

The attitude of healthcare providers about family presence during resuscitation are very different in Serbia and collection and data analysis is very important because of great public significance which cardiac arrest have. Most of healthcare providers are ready to give psychosocial and psychological support of victim's family but the attitude about presens of family is divided.

USTANOVA

¹Zavod za Hitnu medicinsku pomoć
Novi Sad

²Dom Zdravlja Ugljevik

³Klinički centar Kragujevac

AUTOR ZA

KORESPONDENCIJU:

Zoran Fišer, Zavod za hitnu medicinsku pomoć Novi Sad, Novi Sad, Srbija, Bul. Patrijarha Pavla 26A, 21000. email: zoranfiser@yahoo.co.uk; +381641617201

KLJUČNE REČI:

stavovi, članovi porodice, prisustvo porodice, resuscitacija, hitna medicinska pomoć

KEY WORDS:

Attitudes, Family members, Family presence, Resuscitation, Emergency medical service

DATUM PRIJEMA RADA

23.10.2019.

DATUM PRIHVATANJA RADA

15.11.2019.

DATUM OBJAVLJIVANJA

30.12.2019.

Uvod

Srčani zastoj je vodeći uzrok smrti kako u Evropi tako i u Srbiji¹. Statistika kaže da oko 1000 ljudi dnevno umire od VBSZ, a da mere KPR nisu započete, ili su bile neupešno primenjene². Obzirom na visoku incidencu srčanog zastoja postoji ozbiljna verovatnoća da će značajan broj ljudi doći u kontakt sa unesrećenim, žrtvom vanbolničkog srčanog zastoja. Pored toga što je važno da on bude prepoznat od strane prisutnog svedoka, ukoliko srčani zastoj nastupi izvan bolnice, koji bi trebao mere KPR započeti, što pre³, važno je i kakav će odnos imati svedoci i medicinsko osoblje. Svedoci su nekada osobe koji ne poznaju žrtvu a nekada su članovi porodica. Prema sadašnjim preporukama sve veći broj svedoka se obučava za standardizovanim načinima obuke izvođenja mera osnovne životne potpore veoma uspešno, a nekada su to i porodice obolelih^{4,5}. te su urgentni timovi često u kontaktu i interakciji, nekada i saradnji sa svedocima. Uloga laika koji svedoče srčanom zastoju, rano započinjanje osnovnih mera životne podrške (BLS) kao i rana defibrilacija upotrebom spoljašnjih automatskih defibrilatora (AED), povećava stopu preživljavanja srčanog zastoja za 40–75%⁶.

Uprkos važnosti teme i učestalost vanbolničkog srčanog zastoja u Srbiji ne postoje podaci o odnosu zdravstvenih radnika i porodica unesrećenih, kao što se ne zna ni kakve stavove zdravstveni radnici koji dolaze u dodir sa navedenom problematikom imaju o prisustvu porodice i sa porodicom prilikom vanbolničkog srčanog zastoja i resuscitacije.

Cilj

Cilj ovog istraživanja je da ispituju kakve stavove imaju zdravstveni radnici o kontaktu i prisustvu porodici tokom resuscitacije.

Metod

Rezultati su prikupljeni putem ankete koju je organizovao Resuscitacioni Savet Srbije (RSS). Anketa se odnosi na stavove medicinskog osoblja (svih zdravstvenih radnika, zaposlenim u različitim službama) o prisustvu porodice procesu resuscitacije.

Anketa je puštena putem Googla na 7000 adresa zdravstvenih radnika iz Srbije, koji su članovi RSS od 01.09.2019. Obradivani su podaci koji su pristigli do 15.09.2020. Do tog datuma je anketu popunilo 306 ispitanika (148 muškaraca i 158 žena).

U istraživanju je korišćen upitnik koji se standardizovano koristi u visokorazvijenim zemljama. Upitnik je standardizovan u odnosu na druge upitnike. Pomoću Likertove skale (1–potpuno se slažem, 2–uglavnom se slažem,

3– neodlučan/na, 4– uglavnom se slažem i 5– uopšte se ne slažem) je izmeren intenzitet stava u 10 pitanja. Devet pitanja je bilo tipa DA/NE, tri su bila otvorenog tipa i četiri pitanja vezana za demografske podatke (pol, zanimanje, starost i radni staž).

Statistička obrada podataka je urađena pomoću statističkog programa IBM SPSS Statistics 22. Rezultati su predstavljeni pomoću broja (n) i pripadajućeg procenta (%). Statistički značajne razlike su određene pomoću Hi- kvadrat testa. Statistička značajnost je određena na nivou $p < 0,05$.

Rezultati

Demografski podaci ispitanika predstavljeni u Tabeli 1 ukazuju da nema polne razlika ali da je statistički značajno ($p < 0,001$) najviše lekara specijalista (46,4%), a najmanje (22,2%) ostalih (medicinske sestre, medicinski tehničari). Najveći procenat ispitanika (47,7%) je starosti 35–45 godina i sa radnim stažom 10–20 godina (50,3%), što je statistički značajno u odnosu na ostale kategorije ($p < 0,001$).

Tabela 1. Demografski podaci ispitanika (N=302)

Table 1. Demographics data (N=302)

		Broj	Procenat	Značajnost [‡]
Pol	Muško ^a	148	48,4	a/b ^{ns}
	Žensko ^b	158	51,6	
Zanimanje	Lekarspecijalista ^a	142	46,4	a/b,c***
	Lekar ^b	96	31,4	b/c***
	Ostalo ^c	68	22,2	
Starost (godine)	25–35 ^a	48	15,7	
	35–45 ^b	146	47,7	b/a,c,d***
	45–55 ^c	80	26,1	c/a,d***
	>55 ^d	32	10,5	
Radništvo (godine)	0–5 ^a	14	4,6	
	5–10 ^b	58	19,0	b/a***
	10–20 ^c	154	50,3	c/a,b,d***
	>20 ^d	80	26,1	d/a,b***

‡ Hi- kvadrat test; *** $p < 0,001$; ns–nemastatističkeznačajnosti

Najveći procenat ispitanika (41,8%) smatra da je pružanje psiho-socijalne- duhovne podrške članovima porodice deo njihovog posla/ prakse. Više od polovine (53,6%) ispitanika se oseća dobro kada pruži i pruži psihološku i socijalno- duhovnu podršku članovima porodice tokom tretmana pacijenta. Oko polovine ispitanika uopšte se ne slaže da članovi porodice treba da imaju mogućnost da prisustvuju tokom invazivnih procedura (54,2%) i tokom pokušaja resuscitacije (46,4%) njihovih najbližih. Interesantno je napomenuti da se 35,9% ispitanika potpuno slaže da bi prisustvo porodice tokom re-

suscitacionog pokušaja uticalo na kvalitet zbrinjavanja pacijenta, dok se 29,4% uopšte ne slaže. Polovina ispitanika se potpuno slaže da bi prisustvo porodice tokom resuscitacionog pokušaja učinilo pokušaj resuscitacije stresnijim za resuscitacioni tim (zdravstvene profesionalce). Trećina ispitanika se uopšte ne slaže da isključivanje porodice tokom resuscitacionog pokušaja izlaže zdravstvene profesionalce (one koji vrše resuscitaciju) većoj mogućnosti tužbe i zakonskih konsekvenci, dok se trećina potpuno ili uglavnom slaže sa tom tvrdnjom. Postoji statistički značajna razlika u stavovima koje ispitanici imaju po pitanju dobrog osećaja kada pruže i pružaju psihološku i socijalno-duhovnu podršku članovima porodice tokom tretmana pacijenta i pružanja odgovarajuće psihološka i socijalno – duhovna podrška pacijentu ili članovima porodice kada pacijenti denu odgovarajuće invazivne, rizične i bolne procedure u njihovoj ustanovi ($\chi^2 = 206,120$; $df = 16$; $p = 0,000$), odnosno prilikom i nakon primene mera resuscitacije, reanimacije članovima porodice pacijenta ($\chi^2 = 200,544$; $df = 16$; $p = 0,000$). Oko polovine ispitanika uopšte se ne slaže da članovi porodice treba da imaju mogućnost da prisustvuju tokom invazivnih procedura (54,2%) i tokom pokušaja resuscitacije (46,4%) njihovih najbližih. Interesantno je napomenuti da se 35,9% ispitanika potpuno slaže da bi prisustvo porodice tokom resuscitacionog pokušaja uticalo na kvalitet zbrinjavanja pacijenta, dok se 29,4% uopšte ne slaže. Polovina ispitanika se potpuno slaže da bi prisustvo porodice tokom resuscitacionog pokušaja učinilo pokušaj resuscitacije stresnijim

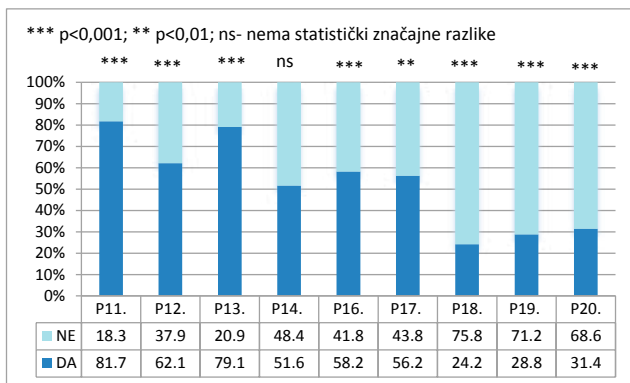
(zdravstvene profesionalce). Trećina ispitanika se uopšte ne slaže da isključivanje porodice tokom resuscitacionog pokušaja izlaže zdravstvene profesionalce (one koji vrše resuscitaciju) većoj mogućnosti tužbe i zakonskih konsekvenci, dok se trećina potpuno ili uglavnom slaže sa tom tvrdnjom (Tabela 2).

Da podržava prisustvo porodice u hospitalnim uslovima kada je situacija odgovarajuća i kada zato postoji i prisutna prethodno određena osoba izjasnilo se 81,7% ispitanika što je statistički značajno više ($\chi^2 = 122,993$; $df = 1$; $p = 0,000$) od onih koji ne podržavaju. Statistički značajno više ispitanika ($p < 0,001$) je bilo učesnik u situaciji u kojoj je član porodice bio prisutan tokom izvođenja invazivne procedure (62,1%) i primene mera resuscitacije (79,1%). Kod 51,6% ispitanika prisustvom pacijentove porodice rad je bio ometan, ali ta razlika nije statistički značajna ($p > 0,05$). Ispitanici bi statistički značajno češće ($p < 0,001$) želeli da imaju mogućnost da prisustvuju tokom primene mera invazivnih procedura (58,2%) i mera Resuscitacije (56,2%) ako bi njihov član porodice bio bolestan ili povređen. Međutim ispitanici su statistički značajno češće ($p < 0,001$) protiv prisustva člana njihove porodice (kao laik) tokom invazivne procedure (75,8%) i primene mera resuscitacije (71,2%) u slučaju da je član njihove porodice bio bolestan ili povređen. U slučaju da su ispitanici kritično oboleli ili povređeni značajno više njih ($p < 0,001$) ne bi volelo da članovi porodice budu pored njih tokom intervencija (68,6%) (Grafikon 1). Kod ispitanika čiji rad je ometen zbog neprimerenog ponašanja, nestručnih sugestija, verbalnog dobacivanja

Tabela 2. Intenzitet stavova ispitanika Likertove skale 1-5 (1-potpuno se slažem, 2-uglavno se slažem, 3- neodlučan/na sam, 4- uglavnom se ne slažem i 5- uopšte se ne slažem)

Table 2. The intensity of attitude/ Likert scale 1-5 (1-strongly agree, 2-agree, 3-neither agree nor disagree, 4-disagree, 5-strongly disagree)

R.b.	Pitanja	1	2	3	4	5
1	Pružanje psiho-socijalne- duhovne podrške članovima porodice u svakom mogućem poslu/ prakse:	41,8%	27,5%	17,6%	9,8%	3,3%
2	Osećanje dobrokad pružim pružam psihološku i socijalno- duhovnu podršku članovima porodice tokom tretmana pacijenta:	53,6%	15,7%	17,6%	6,5%	6,5%
3	Mislim da se u mojoj ustanovi pružaju odgovarajuće psihološke i socijalno - duhovne podrške pacijentu ili članovima porodice kad pacijent denu odgovarajuće invazivne, rizične i bolne procedure	15%	11,8%	27,5%	37,3%	8,5%
4	Mislim da se prilikom i nakon primene mera Resuscitacije, reanimacije pružaju odgovarajuće psiho-socijalno- duhovne podrške članovima porodice pacijenta:	12,4%	13,7%	39,2%	26,8%	7,8%
5	Mislim da članovi porodice treba da imaju mogućnost da prisustvuju tokom invazivnih procedura njihovih najbližih:	1,3%	11,8%	19,6%	13,1%	54,2%
6	Mislim da članovi porodice treba da imaju mogućnost da prisustvuju tokom pokušaja resuscitacije njihovih najbližih:	15,7%	5,9%	12,4%	19,6%	46,4%
7	Mogućnost prisustva porodice tokom resuscitacionog pokušaja je pravopacijenta/ porodice:	18,3%	18,3%	18,3%	15%	30%
8	Prisustvo porodice tokom resuscitacionog pokušaja uticalo na kvalitet zbrinjavanja pacijenta:	35,9%	12,4%	13,7%	8,5%	29,4%
9	Prisustvo porodice tokom resuscitacionog pokušaja učinilo pokušaj resuscitacije stresnijim za resuscitacioni tim (zdravstvene profesionalce):	49,7%	14,4%	11,1%	6,5%	18,3%
10	Isključivanje porodice tokom resuscitacionog pokušaja izlaže zdravstvene profesionalce (one koji vrše resuscitaciju) većoj mogućnosti tužbe i zakonskih konsekvenci:	11,8%	22,2%	19,6%	13,1%	33,3%



Grafikon 1. Procenti i značajnost binarnog odgovora na pitanja P11-P14 i P16-P20

Chart 1. Percentages and significance of the binary answer to the questions P11-P14 and P16-P20.

i neprihvatanje saveta, vike, panike, hvatanje za ruku, hysterije i čak pretnje da će pobiti stručni tim, ako ne spasu njihove bližnje, a bilo je i slučajeva kada je ekipa HMP morala zvati policiju.

Sistemske barijere prisustvu porodice su: stresna situacija za porodicu, pravilnik ustanove i zakonski normativi, nedovoljno prostora u ambulancama, nepostojanje zakonske zaštite medicinskih radnika, nedostatak kadrova koji bi u kritičnim situacijama bili uz članove porodice, dodatni bol i šok i stres za njih, emotivno reagovanje, nedovoljna edukacija porodice i lekara, nedovoljna zaštita stručnih lica. Ispitanici naglašavaju da je potrebno definisati jasne uslove za prisustvo i pravno definisanje, ali i da prisustvo porodice uglavnom otežava preduzimanje potrebnih mera i da emotivni ispadi često mogu da ometaju rad profesionalaca.

Lični stavovi koji prema mišljenju ispitanika ograničavaju prisustvo porodice tokom invazivnih procedura i resuscitacije se uglavnom odnose na psihološku nespremnost porodice (laika) za stresnu situaciju, neminovno negativan uticaj na članove tima, emotivne reakcije, stres i mogućnost ometanja procedure, a iskustvo pokazuje da prisustvo porodice samo donosi probleme i ometa rad, panična reakcija, pretnja članova porodice.

Diskusija

U našem ispitivanju i analizi prikazani su prvi rezultati koje smo dobili o stavovima medicinskih radnika o prisustvu porodice tokom resuscitacije, i to su ujedno i prvi rezultati koji obuhvataju ovu problematiku koji se objavljuju u Srbiji. U visokorazvijenim zemljama je ova problematika prepoznata ranije, te su rađena istraživanja i studije vezano za ovu temu, te je npr. Američko udruženje medicinskih tehničara donelo preporuke u vidu vodiča kako bi medicinski radnici trebalo da se ponašaju u navedenim situacijama⁷. Da bi se došlo do preporuka kod nas, kako bi se najbolje uredila ova tematika, neophod-

no je prvo utvrditi kakvi su stavovi medicinskih radnika što smo ovim istraživanjem i započeli.

Kao osnovno pitanje koje se nameće našim istraživanjem jeste kakav je stav prema prisustvu porodice tokom resuscitacije. Naše istraživanje je pokazalo da su stavovi izuzetno podeljeni po ovom pitanju te da polovina ispitanika decidno smatra da porodica ne treba da prisustvuje a oko trećina ispitanih izričito podržava prisustvo. Obe grupe smatraju da je prisustvo porodice otežavajući faktor i da se vrši pritisak na resuscitacioni tim. Prema preporukama⁷, porodici treba omogućiti da prisustvuju resuscitaciji i invazivnim procedurama ukoliko žele, a takođe treba ih i ohrabriti. Prema studiji de Stefano et. al⁸, prema kojoj su anketirane porodice koje su prisustvovala resuscitaciji, porodice su imale pozitivan stav prema prisustvu te im je na taj način olakšana bol. Uprkos preporukama, značajan broj zdravstvenih radnika ima negativni stav prema prisustvu porodice tokom resuscitacije⁹, uprkos tome što je dokazano da nema uticaja na ishod resuscitacije¹⁰.

Naše istraživanje je pokazalo da postoji razlika u stavovima zdravstvenih radnika koji rade u bolnicama te da oni u većini slučajeva (81%) podržavaju prisustvo porodice tokom invazivnih procedura i resuscitacije u uslovima koji su uređeni i kontrolisani. Navedeni podatak bi mogao da se objasni većom mogućnosti da se uredi prisustvo porodice i osećajem sigurnosti zdravstvenih radnika, obzirom da rade u timu i u poznatim okolnostima za razliku od vanbolničkih uslova gde je nesigurnost i nepoznanica veća.

Okolo polovine ispitanika smatra da im je od strane porodice unesrećenih bio ometan rad, dok su podeljena mišljenja o tome da li prisustvo porodice utiče na kvalitet resuscitacije, trećina smatra da negativno utiče, a trećina smatra da ne utiče. Značajne studije koje su objavljene su pokazale da prisustvo porodice ne utiče na ishod^{11,12}, kao i da ne podižu nivo stresa kod zdravstvenih radnika te da pozitivno utiču na psihološko stanje porodica unesrećenih.

Najveći procenat ispitanika smatra da je pružanje psihosocijalne- duhovne podrške članovima porodice deo njihovog posla/ prakse a više od polovine ispitanika se oseća dobro kada pruži i pruža psihološku i socijalno-duhovnu podršku članovima porodice tokom tretmana pacijenta što smatramo da je značajna činjenica iz razloga ostvarivanje bolje interakcije i kontakta zdravstvenih radnika i porodica unesrećenih. Psihološka podrška koju zdravstveni radnici upute porodici unesrećenih je izuzetno značajna, te su psihološke posledice na porodicu manje, i ovo je ohrabrujući podatak¹³.

Uzevši u obzir incidencu i epidemiologiju srčanog zastoja

u Srbiji¹⁴, kao i da su porodica i svedoci u većini slučajeva prisutni ovim tekim događajima te da je izuzetna značajnost njihovog prisustva¹⁵ i iz gledišta ishoda resuscitacije smatramo da je izuzetno bitna stvar ispitivanje stavova onih koji zbrinjavaju te pacijente.

Zaključak

Stavovi zdravstvenih radnika o prisustvu porodice za vreme resuscitacije su veoma različiti u Srbiji a njihovo prikupljanje i analiza je veoma značajno obzirom na veliki zdravstveni značaj koji ima srčani zastoje. Najveći broj zdravstvenih radnika je spreman da pruži psihološku podršku porodicama žrtvi srčanog zastoja ali o prisustvu porodica procesu resuscitacije stavovi su podeljeni.

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Finansijska podrška:

Istraživanje je finansirano od strane Resuscitacionog Saveta Srbije iz sredstava članarine. Autori i koautori nemaju naknadu za učešće u studiji, obradu i saopštavanje rezultata.

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Literatura se navodi na sledeći način:

Članci u časopisima

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E- pošta: office@resuscitatio.org.rs

Instruction to the authors:

Journal Resuscitatio Balkanica is quartal interdisciplinary medical journal and is the official journal of the Serbian Resuscitation Council.

The papers published deal with the aetiology, pathophysiology and prevention of cardiac arrest, resuscitation training, clinical resuscitation, and rapid response systems.

Experimental resuscitation research papers (including animal studies) are published occasionally, but only if they are of exceptional interest and related directly to clinical cardiopulmonary resuscitation.

Papers relating to trauma are published occasionally but most of these concern specifically traumatic cardiac arrest.

Review articles and Letters to the Editor, particularly relating to articles previously published in Journal Resuscitatio Balkanica, are welcome. We do not publish case reports..

Types of articles published in this journal

1. Original Paper . Original scientific paper is the paper in which the results of their own research are first published.
2. Short Paper or prior announcement, which implies the original scientific work of a full-fledged, but smaller volume.
3. A review paper containing an original, detailed and critical view of a research problem or area in which the author has already made a certain contribution, presented in the form of autocities.
4. Commentary and Concepts, on a particular scientific subject based on scientific argumentation.
5. Letters to the editor

WORD LIMIT (excluding abstract and references)

Original Paper* 3000
Short Paper* 1500
Review* 4000
Commentary and Concepts* 2000
Editorial 1200
Letter to Editor 500

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Original Paper* 6
Short Paper* 3
Review* 8
Commentary and Concepts* 3
Editorial 1
Letter to Editor 1

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Original Paper* 40
Short Paper* 20
Review* 75
Commentary and Concepts* 20
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Letter to Editor 5

If the article is a part of a master's theses or a part of a dissertation, or it is made through a scientific project, it should be emphasized in a reference at the end of the text. Likewise, if an article has been presented at scientific convention, precise information of the time, place and title of the event should be noted. Manuscripts should be prepared according to the Vancouver Recommendations "UNIFORM REQUIREMENTS FOR MANUSCRIPTS SUBMITTED TO BIOMEDICAL JOURNALS" recommended by ICMJE (International Committee of Medical Journal Editors – Ann Intern Med. 1997;126:36-47.) With the manuscript a certificate of authorship should be attached. Editorial staff forwards all the articles to the expert peer reviewers. Publisher doesn't return manuscripts and doesn't provide fees.

TECHNICAL DEMANDS

Complete text, references, titles of the charts and picture legends should be in one document. Text files should be typed in Microsoft Office Word program (extension.doc), using font Times New Roman size 12, with left alignment and no indentation. The words should not be cut at the end of the row, and after punctuation one character spacing should be made. Every title and subtitle (introduction, methodology etc.) should be centered. If the text contains special characters (symbols), Symbol font should be used. Do not use commercial names of drugs and other medicaments. Instruments (equipment) should be referred to by their trade names, producer's name and address, typed in parenthesis. Abbreviations should not be used unless absolutely necessary. Full term should be given in first appearance in the text for each abbreviation used, except for standard units of measurement. Numbers should be rounded to one decimal whenever possible. For decimal numbers coma should be used as a decimal separator in Serbian text, but period in English text as well as in tables, graphs and other illustrations. Measure units should be given according to International System of Units SI, Temperature should be specified in degrees Celsius (°C), the amount of substance in moles (mole), and blood pressure in millimeters of mercury (mm Hg).

Charts, diagrams and pictures

Charts should be made in Microsoft Office Excel program, using font size 10, and attached to the original file, along with the table from which the chart is constructed (do not import and insert links from other programs). They should be marked with Arabic numerals in order of appearance and titled in both Serbian and English. All the data within charts should be typed with Times New Roman size 12 in both Serbian and English. Abbreviations used in graphs should be explained in a legend below it in both languages.

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Pictures and photographs should be marked with Arabic numerals in order of appearance with titles in both Serbian and in English. Photographs should be taken by digital camera formatted as .jpg file or scanned in resolution 300 dpi, sized adequately (at least 6-8cm) and submitted with manuscript as a separate file, with indication of their exact place in the text (e.g. Picture 1, Photo 2... written in red). If the photograph has already been published elsewhere, reference of the source should be documented.

Every chart or illustration should be self-explanatory, i.e. understandable even without reading the text of the article. Legends should be in the footnotes beneath, with explanation of all nonstandard abbreviations. Number of graphs and illustrations should be limited to 4 or 5 necessary. Note that all charts, schemes and pictures can be inserted directly onto their position in the text

fied documents are not accepted. References to papers accepted but not yet published are acceptable, but should be designated as „in press” and with the name of journal.

EXAMPLES OF CORRECT REFERENCE FORMS

The following are sample references:

Articles in Journals

[1] Ross P, Nolan J, Hill E, Dawson J, Whimster F. The use of AEDs by police officers in the City of London. *Resuscitation* 2001;50:141-6.

[2] Bernard SA, Gray TW, Buist MD, Jones BM, Silvester W, Gutteridge G, et al. Treatment of comatose survivors of out-of-hospital cardiac arrest with induced hypothermia. *N Engl J Med* 2002;346:557-63.

Books

[3] Armitage P. *Statistical methods in medical research*. London: Blackwell Scientific Publications; 1971.

Chapters

[4] Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. *Hypertension: Pathophysiology, diagnosis, and management*. 2nd ed. New York: Raven Press; 1995, p. 465-78.

References to electronic publications

[5] Working Group of the Resuscitation Council (UK). Emergency treatment of anaphylactic reactions. Guidelines for healthcare providers. London, Resuscitation Council (UK), 2008. (Accessed 11 August 2008, at <http://www.resus.org.uk/pages/reaction.pdf>)

[6] Oguro M, Imahiro S, Saito S, Nakashizuka T. Mortality data for Japanese oak wilt disease and surrounding forest compositions, *Mendeley Data*, v1; 2015. <http://dx.doi.org/10.17632/xwj98nb39r.1>

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The manuscript, together with all illustrations, could be sent by registered mail, by email or submitted in person in the Editorial office.

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Veselina Masleše 140/12 ■ 21000 Novi Sad.
E- posta – office@resuscitatio.org.rs

Radove slati na adresu:

Resuscitacioni Savet Srbije – za časopis
Poštanski pregradak 19, 21 113 Novi Sad, Srbija
TELEFON: 062 8030640
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MANUSCRIPT PREPARATIONS

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ACKNOWLEDGMENTS

All other persons who have made substantial contributions to the work reported in the manuscript (e.g. data collection, analysis, and writing or editing assistance) but who do not fulfill the authorship criteria should be named with their specific contributions, with written permission of course. Sources and funding, sponsorships, scholarships, gifts, equipment and medicines should also be listed.

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REFERENCES

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Lektor za srpski jezik:

Mirjana Popović

Lektor za engleski jezik:

Stevan Janković

Izdavanje časopisa finansira Resuscitacioni Savet Srbije iz članarine Časopis objavljuje stručne i naučne radove članova Resuscitacionog saveta i članova partnerskih organizacija.

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Adresa za slanje pošte i rukopisa:

Resuscitacioni Savet Srbije, Poštanski pregradak 19, 21213 Novi Sad

Kontakt telefoni:

faks +381216216641: mobilni +381628030640

Mejl: sekretarijat@resuscitatio.org.rs

Korice dizajn: Nenad Delibos

Impress Solution d.o.o. Novi Sad

Priprema za štampu i štampa:

Impress solution d.o.o. Novi Sad

Tiraž: 150 primeraka

Izrada CIP katalogizacije – Matica Srpska

CIP - Katalogizacija u publikaciji Biblioteka Matice srpske, Novi Sad

614.2

JOURNAL Resuscitatio Balcanica : stručni časopis / glavni i odgovorni urednik Zlatko Fišer. - God. 1, br. 1 (2015)- . - Novi Sad : Resuscitacioni Savet Srbije, 2015. - 29 cm
Tri puta godišnje.

ISSN 2466-2623

COBISS.SR-ID 299280391



JOURNAL RESUSCITATIO
BALCANICA

OFFICAL JOURNAL OF SERBIAN RESUSCITATION COUNCIL