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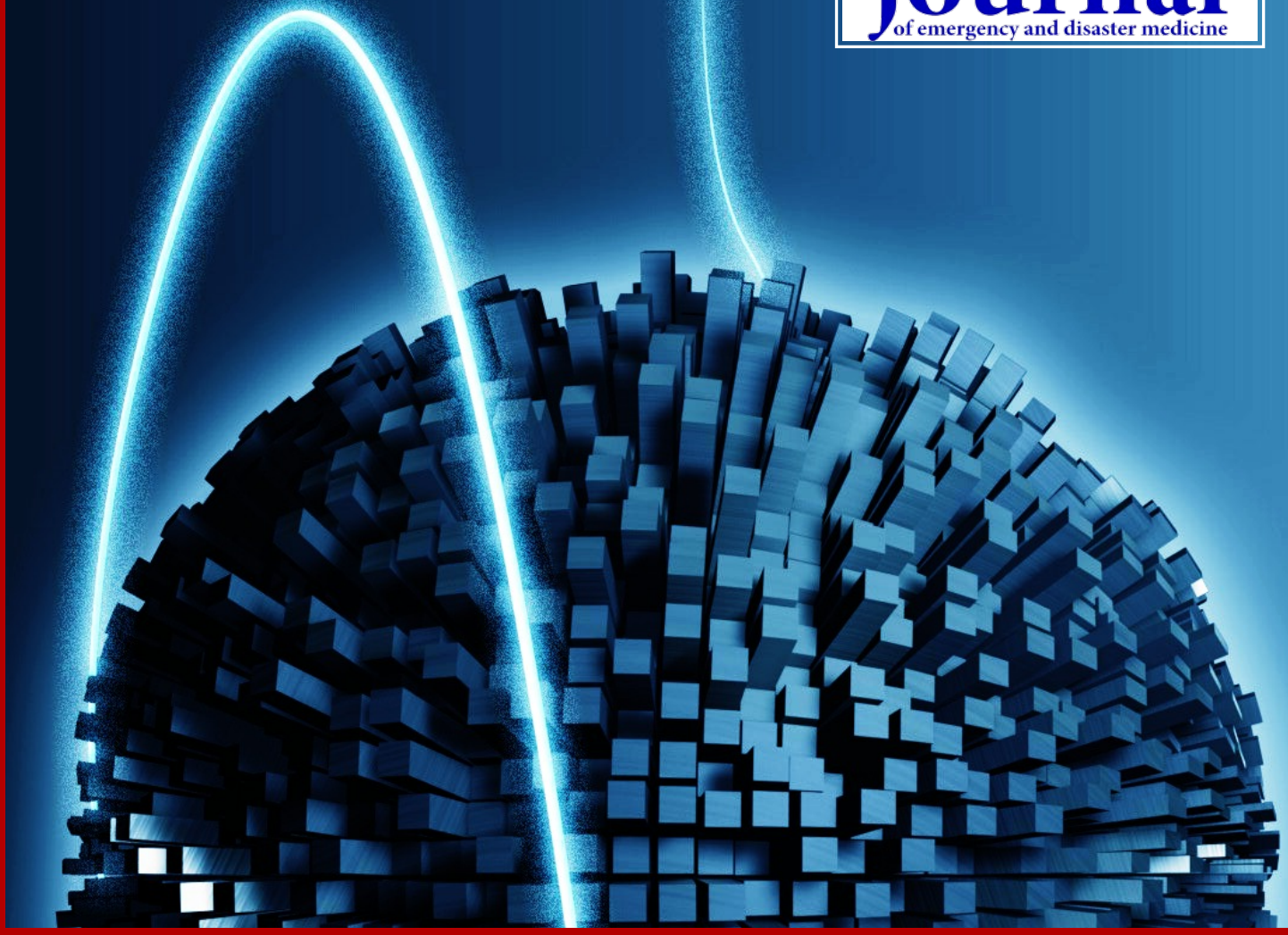

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DIJAGNOSTIČKE DILEME KOD PACIJENTA SA POREMEĆAJEM SVESTI KOD HIPOGLIKEMIJE - PRIKAZ SLUČAJA

DIAGNOSTIC DILEMMAS IN A PATIENT WITH A CONSCIOUSNESS DISORDER - A CASE REPORT

Radica Krstić, Biljana Radisavljević, Snežana Mitrović, Tatjana Mićić, Ivana Ilić, Goran Živković
Zavod za hitnu medicinsku pomoć Niš

Sažetak. UVOD: Hipoglikemijska koma je najčešća akutna komplikacija dijabetes melitusa, sa kojom se lekari hitne pomoći često sreću na terenu. Nakon supstitucione terapije uglavnom dolazi do potpunog oporavka svesti.
CILJ RADA: Prikazom slučaja smo želeli da ukažemo na značaj obazrivog pristupa pacijentu koji ima poremećaj svesti i hipoglikemiju a kod koga hipertonim rastvorom glukoze ne dolazi do potpunog oporavka.
MATERIJAL I METODE: Analiziran je protokol terenske intervencije, lekarski poziv Zavoda za hitnu medicinsku pomoć, otpusna lista klinike za Neurologiju KC Niš.
Prikaz slučaja: U radu je prikazan šezdesetjednogodišnji pacijent koji boluje od diabetes mellitusa u komi sa hipoglikemijom kod koga nakon primenjenog rastvora hipertone glukoze i povratka nivoa glikemije u krvi ne dolazi do potpunog oporavka. Izmena kvaliteta svesti i pogoršanje u kratkom periodu navode lekara na pomisao da postoji ozbiljnije oštećenje moždanih ćelija dugotrajnom hipoglikemijom, elektrolitnim i acidobaznim poremećajem ili da je u pitanju neki drugi uzrok za pogoršanje stanja svesti kod pacijenta. Pacijent je hospitalizovan gde je dijagnostikovana subarahnoidalna hemoragija.
DISKUSIJA: Pacijenti sa poremećajem stanja svesti mogu retko ali ipak moguće, imati istovremeno dva različita etiopatogenetska faktora kao u slučaju našeg pacijenta gde se pod kliničkom slikom hipoglikemijske kome maskirala slika subarahnoidalne hemoragije. Mi duboko verujemo da se lekari specijalisti urgentne medicine upravo u svom pristupu prema pacijentima u okviru kliničke procene stanja pacijenta razlikuju od drugih specijalnosti koji uobičajeno razmatraju samo stanja iz svog domena. Procena i diferencijalna dijagnostika u prijemno trijažnim odeljenjima i u prehospitalnim uslovima predstavlja veliki izazov i zahteva i veliko znanje i iskustvo svakog lekara koji se bavi urgentnom medicinom.
ZAKLJUČAK: Postavljanje radne dijagnoze u prehospitalnim uslovima se zasniva na dobrim anamnestičkim podacima i kliničkom pregledu uz oskudne dijagnostičke metode. Lekar na terenu mora postaviti više radnih dijagnoza i posumnjati na sva patološka stanja koja mogu da se prezentuju sličnom kliničkom slikom.
Ključne reči: hipoglikemija, koma, subarahnoidalna hemoragija, poremećaj svesti.

UVOD

Procenat poziva ekipi hitne medicinske pomoći (HMP) zbog pacijenata koji boluju od diabetes mellitus (DM) u odnosu na ukupan broj poziva je oko 3%, od čega se hipoglikemija kao akutna komplikacija bolesti javlja u 31,33%, od kojih 57,18% bude rešeno kod kuće bez daljeg upućivanja na bolničko lečenje [1]. Teška hipoglikemija je čest metabolički događaj u prijemno trijažnim odeljenjima. Može prouzrokovati nepovratne promene nivoe svesti, kognitivni deficit pa i smrt [2]. Nakon supstitucione terapije uglavnom dolazi do potpunog oporavka svesti. Hipoglikemijska encefalopatija (HE) je kritično stanje sa lošim kliničkim ishodom [3]. Studije pokazuju da hipoglikemija izaziva neuronsku smrt zbog mitohondrijske disfunkcije i oksidativnog stresa [4,5]. Neadekvatan odgovor na terapiju uvek mora da pobudi sumnju na druge uzroke kome. Etiologija poremećaja stanja svesti je raznovrsna i brojna. Obuhvata: vaskularnu, infektivnu, toksičnu, metaboličku, onkološku i traumatsku etiologiju. Pacijenti sa DM tipa 2 imaju povećan rizik od kardiovaskularnih bolesti i pridruženih kliničkih komplikacija [6]. Prethodne studije nisu upoređivale odnos između DM tipa 2 i širokog spektra kardiovaskularnih ishoda kao što su srčana insuficijencija, periferna arterijska bolest, aneurizma abdominalne aorte i ventrikularne aritmije u istoj studiji, ali jesu umesto toga bile usredsređene na uži krug ishoda bolesti, i to obično na samo jedan ili dva ishoda [7]. Nijedna prethodna kohortna studija nije bila dovoljno velika, niti je istraživala povezanost DM tipa 2 sa subarahnoidalnim krvarenjem [8]. Netraumatska subarahnoidalna hemoragija (NSAH) podrazumeva krvarenje unutar subarahnoidalnog prostora. SAH je uzrokovana rupturom aneurizme intrakranijalnog krvnog suda ili arteriovenskih malformacija u subarahnoidalni prostor.

CILJ RADA

Prikazom slučaja smo želeli da ukažemo na značaj obazrivog pristupa pacijentu koji ima poremećaj svesti i hipoglikemiju.

MATERIJALI I METODE

Analiziran je protokol terenske intervencije, lekarski poziv Zavoda za hitnu medicinsku pomoć i otpusna lista klinike za Neurologiju KC Niš.

PRIKAZ SLUČAJA

U radu je prezentovan pacijent u komi sa hipoglikemijom. Pacijent je šezdesetjednogodišnji muškarac iz Niša. Poziv je primljen kao drugi red hitnosti: osoba bez svesti, boluje od dijabetesa. Pacijenta zatičemo u krevetu bez svesti, spontanog disanja i prisutnog pulsa nad karotiodnom arterijom koji je dobro punjen. Koža je normalno kolorisana, hladna i vlažna. Zenice su srednje dilatirane, sporo reaktivne. Od supruge dobijamo podatak da je pacijent dijabetičar na oralnim antidijabeticima, sa lošom glikoregulacijom usled neredovnog uzimanja terapije, dugogodišnji pušač. Fizikalnim pregledom nalazimo da je glikemija 2,0mmol/l, krvni pritisak 180/90mmHg, respiratorna frekvencija 16/min, saturacija kiseonika merena pulsnim oksimetrom je 99% a telesna temperatura 36,8 C. Otvaramo intravenski put braunilom 18G i dajemo bolusno sol. Glucosae 50% 20 ml + 20 ml+ 20 ml. Pacijent vraća svest, odgovara na postavljena pitanja ali je usporen i konfuzan. Ubrzo postaje somnolentan. Ponavljamo glikemiju koja je 6,0 mmol/l i radimo elektrokardiografiju (EKG) koji pokazuje sinusni ritam sa srčanom frekvencijom od 100/minuti, bez ST i T promena i bez poremećaja srčanog ritma. Neurološki pregled ukazuje da je pacijent somnolentan, zenice su srednje dilatirane, tromo reaguju na svetlost, bez spontanog nistagmusa. Vrat je eutoničan, meningealni znaci negativni. Nema lateralizacije i deficita motornih funkcija. Zbog neadekvatnog odgovora hipoglikemije na terapiju, pacijenta prevozimo u KC Niš, uz kontuinirani monitoring vitalnih funkcija pod dg: Status post coma hypoglicemica; Somnolentio; Diabetes mellitus tip 2. Na prijemu pacijent je somnolentan, a glikemija je 11,0 mmol/l. Govor postaje dizartričan po tipu motorne disfazije i počinje da se žali na glavobolju zbog čega se prima na

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odeljenje neurologije. Neurolog nalazi da je pacijent somnolentan, dizartričan sa diskretnom desnostranom hemiparezom. Vrat je slobodan, a meningealni znaci negativni. Nakon pregleda, neurolog indikuje kompjuterizovanu tomografiju mozga koja pokazuje prisustvo rupture aneurizme sa hematomom dimenzija 70mm x 30mm x 30mm i prisutnim perifokalnim edemom temporalno levo. Kontrastna angiografija mozga vizuelizuje sakularnu aneurizmu dimenzija 8,0 mm x 7,0 mm sa vratom širine 3,5 mm, koja je lokalizovana na račvi arterije cerebri mediae. Nakon neurološke dijagnostike, pacijent se prevodi na kliniku za neurohirurgiju pod dg: Haemorrhagio subrachnoidailis spontanea, Aneurysma MCA l. sin. radi definitivnog zbrinjavanja, gde je uspešno operisan i otpušten kući posle 10 dana u dobrom opštem stanju i bez neuroloških sekvela.

DISKUSIJA

Termin: "poremećaj stanja svesti" podrazumeva mnoštvo simptoma uključujući snižen nivo svesti (somnolencija, sopor, koma) i/ili kompromitovan sadržaj svesti (konfuzija, delirijum, gubitak pamćenja). Etiologija je raznovrsna i brojna. Za postavljanje dijagnoze od ključnog značaja je organizovan i sistemski pristup ovim pacijentima u fokusiranju široke etiološke diferencijacije. Glavni faktori rizika pojavu SAH su upotreba duvana, alkohol i arterijska hipertenzija (AHT) [9]; rizik je dvostruko veći ako sistolni krvni pritisak (SKP) prelazi 130 mmHg i tri puta veći ako SKP prelazi 170 mm Hg. S druge strane, dijabetes melitus je povezan samo sa perimezencefalnim SAH podtipom [10]. U zdravih ljudi je zabeleženo da arterije postaju elastičnije tokom hipoglikemije sa smanjenjem krutosti zidova [11]. Međutim, kod ljudi sa dužom istorijom dijabetesa, zbog povećane krutosti arterijskog zida, hipoglikemiju prati manje izražen pad centralnog arterijskog pritiska i kao posledica toga nastaje znatno povećanje opterećenja srca [11,12]. U vezi sa hipoglikemijom, primećeni su različiti abnormalni srčani ritmovi, uključujući ventrikularnu tahikardiju i atrijalnu fibrilaciju. Utvrđeno da hipoglikemija potencijalno izaziva abnormalnu električnu aktivnost u srcu i pretpostavlja se da izaziva iznenadnu smrt [11]. Ostaje jasna činjenica da je kod pacijenta sa DM najverovatnija komplikacija i ishod (zbog promena na krvnim sudovima), veliki kardiovaskularni događaj u koji spada i SAH. Dugotrajna hiperglikemija, i kod dijabetesa tipa 1 i tipa 2, dovodi do mikrovaskularnih i makrovaskularnih komplikacija [13]. Poznato je da u hipoglikemiji postoji adrenergički nadražaj i lučenje stresnih hormona (pre svega adrenalina) a koji uzrokuju skok krvnog pritiska i ubrzanje srčanog rada. Možemo konstatovati da je naš pacijent kao faktore rizika za veliki kardiovaskularni događaj imao, pre svega neregulisani DM, neregulisanu arterijsku hipertenziju i bio je dugogodišnji pušač. U toku hipoglikemije došlo je do skoka krvnog pritiska i ubrzanog srčanog rada bez promena na EKG-u (posebno onih tipičnih za SAH). U medicinskoj literaturi nismo našli direktnu povezanost između hipoglikemije i SAH-a. Hipoglikemija može da izazove pogoršanje komorbidita. Postavlja se sumnja da li je kod našeg pacijenta ovaj proces ubrzao i/ili doveo do rupture postojeće aneurizme. Prehospitalna terapija treba da bude u skladu sa anamnezom i fizikalnim nalazom tj rešavanje hipoglikemije upotrebom koncentrovane glukoze ili glukagona. Međutim, veoma je važno ispratiti oporavak pacijenta posebno kada se ne zna dužina trajanja hipoglikemije. Pojedinačno kliničko iskustvo vodi lekara do početne dijagnoze kome, jer postoji samo nekoliko studija koje opisuju spektar etiologije [14]. Pošto je znanje o verovatnoći bolesti presudno u smislu diferencijalne dijagnoze, [15,16] stvarne učestalosti različitih uzroka kome treba istražiti u kohorti. Takođe, treba misliti i o tome da pacijenti sa poremećajem stanja svesti mogu imati istovremeno dva ili više različita etiopatogenetska faktora kao u slučaju našeg pacijenta gde se pod kliničkom slikom hipoglikemijske kome maskirala slika subarahnoidalne hemoragije. Adekvatna procena i brza dijagnostika doprinele su dobrom ishodu.

ZAKLJUČAK

U prehospitalnim uslovima u kojima su ograničene dijagnostičke mogućnosti, uzrok poremećaja stanja svesti mora biti što pre identifikovan jer može brzo dovesti do strukturalnih oštećenja mozga i smrti. Zato, procena i tretman ovih bolesnika mora biti brza, sistematska i multidisciplinarna da bi se izbegao nepovoljan ishod kao što su maligni poremećaji ritma, hipo i hiperglikemija, intrakranijalna i subarahnoidalna hemoragija kao i ostala po život opasna stanja. Ključne reči: hipoglikemija, koma, subarahnoidalna hemoragija, poremećaj svesti

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Summary: INTRODUCTION: Hypoglycemic coma is the most common acute complication of diabetes mellitus, which emergency physicians encounter in the field often. After substitution therapy, there is usually a complete recovery of consciousness.
AIM: By presenting the case, we wanted to point out the importance of a careful approach to a patient who has a disorder of consciousness, hypoglycemia, and when a hypertonic solution with glucose does not lead to complete recovery.
MATERIALS AND METHODS: The protocol of the field intervention, the medical documentation of the Emergency medical service, the discharge document of the Clinic for Neurology of the Clinical Center Nis.
CASE REPORT: The paper presents a sixty-one-year-old patient suffering from diabetes mellitus in a coma with hypoglycemia whose complete recovery does not occur after the application of hypertonic glucose solution and return to normal blood glycemic levels. Changes in the quality of consciousness and deterioration in a short period led the doctor think that there is more serious damage with long-term hypoglycemia of brain cells, electrolyte and acid-base disorder, or that it is some other cause of worsening consciousness in the patient. The patient was hospitalized and subarachnoid hemorrhage was diagnosed.
DISCUSSION: Patients with consciousness disorder rarely, but can still have two different etiopathogenetic factors at the same time as in the case of our patient where the picture of subarachnoid hemorrhage is masked with the clinical picture of hypoglycemic coma. Emergency medicine specialist during the clinical assessment of the patient's condition need to think widely which is different from other specialties that usually consider only conditions in their domain. Assessment and differential diagnosis in admission triage wards and in prehospital conditions is a great challenge and requires great knowledge and experience of every doctor who deals with emergency medicine.
CONCLUSION: Making a working diagnosis in prehospital conditions is based on good anamnestic data and clinical examination with help of limited diagnostic methods. The emergency physician must make multiple work diagnoses and suspect any pathological conditions that may present a similar clinical picture.
Key words: hypoglycemia, coma, subarachnoid hemorrhage, disturbance of consciousness.

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FALSE EMERGENCY MEDICAL CALLS IN THE EMERGENCY MEDICAL SERVICE NIS, SERBIA

LAŽNI HITNI POZIVI U ZAVODU ZA HITNU MEDICINSKU POMOĆ NIŠ

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Abstract: INTRODUCTION: In the medical literature, we could not find papers that dealt with the assessment and analysis of false calls made to emergency medical services. Little is known about how and why people disturb this part of the Medical System as well as the consequences which could happen.
OBJECTIVE: This study investigates how many such calls have been made in the four-month period and their 24h distribution, so as to show the prevalence of fake calls in the work of the emergency medical service.
MATERIAL AND METHOD: A retrospective analysis of the field protocol and audio transcripts for the period from October 1st, 2015 to January 31st 2016.
RESULTS: Total number of registered calls for this period was 11,976. We found that 39 calls could not be used for technical reasons. Of the 11853 calls, 123 were false. That is only 1.027 % of false calls. On average, there were 30.2 false calls each month, or 1 false call in 24 hours. While observing the calling time in relation to the period from 00.00 to 24.00h, it can be noticed that the frequency was higher during the afternoon and night hours. There were no false calls in the early morning hours.
CONCLUSION: False calls, due to their presence, are not very burdening for the work of the emergency medical service, but they can be very important for an individual who needs emergency medical care, which may be untimely and late, due to the team dealing with a false call. Therefore, it is necessary to influence on population through a public campaign in order to reduce the number of these calls and inform the public about the seriousness and severity of its consequences.
Key words: false emergency calls, emergency medical service

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INTRODUCTION

The emergency medical service (EMS) in Serbia functions so that everyone who needs medical help can call the number 194. The calls are taken by a doctor on duty. Based on the conversation, the doctor assesses whether there is a need to send a team, consisting of a doctor, a nurse/medical technician and a driver. In our country, except in few emergency services, there is no protocol and the assessment is exclusively based on the experience and skills of conducting conversation with the caller. The doctor can also give advice or redirect the patient to whom to contact further. In everyday work, there are calls which purpose is not to ask for help, but to disturb the Service, resulting with blocking that line and preventing others from receiving help. Under the term "False calls", we have classified calls that requested urgent medical help for some person, and upon arrival, the team had found some of the following situations: there was no such person on this address; this person exists but he/she denied the call; no one was present on the address or there was a non-existent house or an apartment number. Teams are most often called for false traffic accidents, injuries, deaths, childbirth. Improper use of EMS can have serious consequences. Unnecessary engagement of the team and its unavailability to another patient increases the reaction time, which in some cases can be crucial for that person's survival. According to our assessment, the callers are often children, teenagers, mentally ill people. The inappropriate use of EMS drains health system resources and undermines the paramedic's motivation.1,2,3

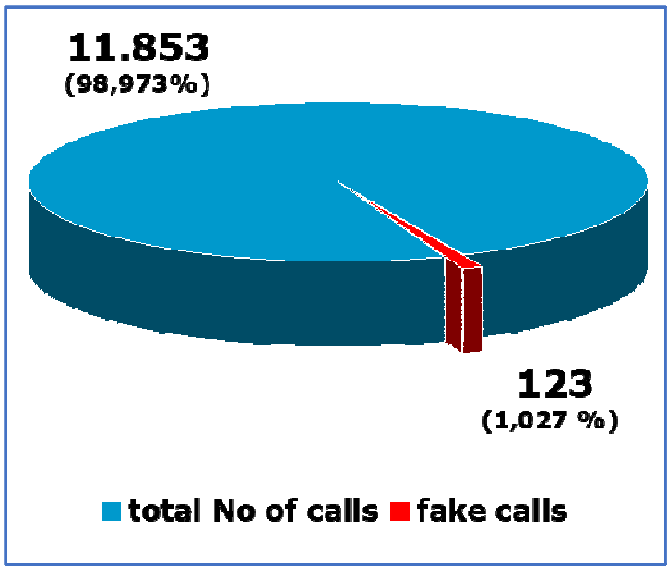
OBJECTIVE

This study investigates how many false calls have been received by the Emergency Medical Service Niš.

MATERIAL AND METHOD

A retrospective analysis of the field protocol and audio transcripts for the period from October 1st, 2015 to January 31st, 2016. This research was approved by the Ethics Committee of the EMS Nis.

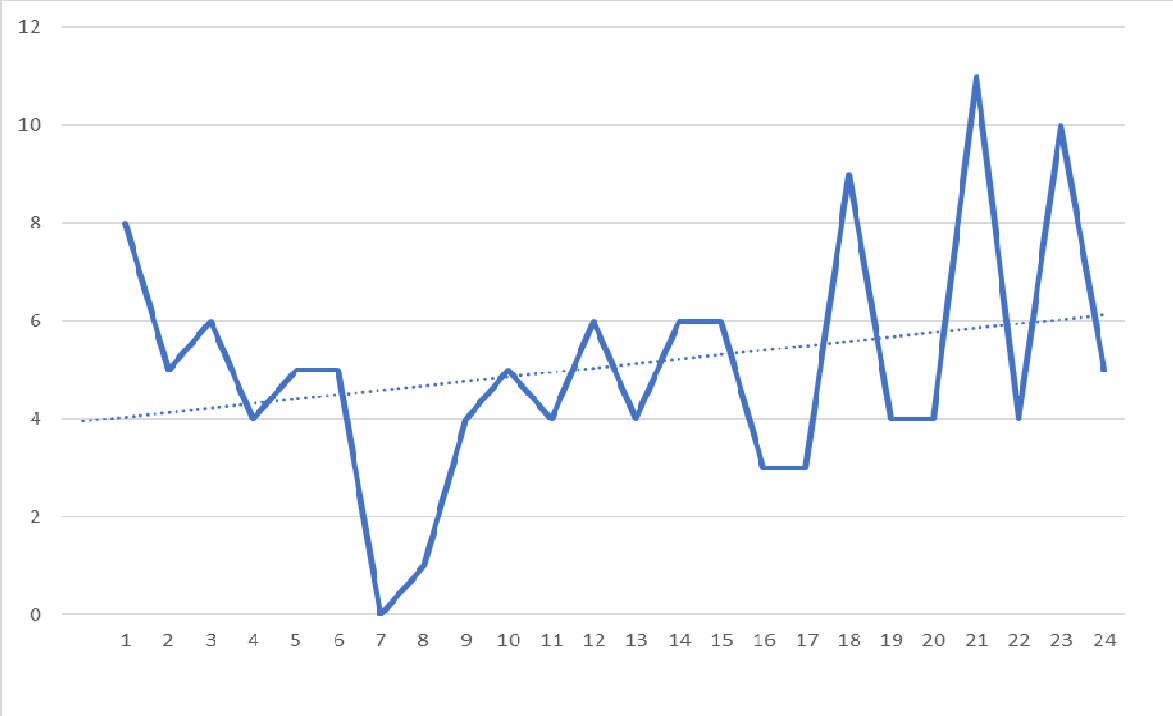
Results: The total number of the registered calls was 11,976. Of that number, 39 calls could not be used because of the technical problems. Of the remaining number of calls, 123 were false calls. While observing the calling time in relation to the period from 00.00 to 24.00h, it can be noticed that the frequency was higher during the afternoon and night hours. There were no false calls in the early morning hours. All results are presented in graphics 1 and 2, and table 1.



Graph 1: Display of the number and percentage of false calls in relation to the total number of calls.

Month	Total calls	False calls	Percentage
October	2813	28	0.955
November	2955	27	0,914
December	3069	28	0,912
January	3100	40	1,3

Table 1: Total number of calls and number of fake calls by months:



Graphic 2: Call distribution in relation to 24h.

DISCUSSION

For the assessment of the efficiency of the health system and the improvement of its quality and reduction of the misuse of the EMS, we require a clear assessment and definition of the existing problems as well as to determine measures that can provide a certain professional level in the work of the emergency medical care. Misuse of the emergency services is difficult to define, and often occurs in unclear circumstances or possible misunderstandings. By listening to the tapes and inspecting the call protocols based on the data we received directly or indirectly, certain characteristics of the caller stand out: age, not knowing EMS work principles, health care system deficiencies and the low level of health education of the population.

Age: We have noticed that children and teenagers often do not understand the nature and seriousness of the call made to EMS. The use of alcohol and stimulants additionally leads to the misunderstanding of the situation, making a call to the EMS perceived as a joke.

Not knowing EMS work principles: Passers-by, neighbors and other people sometimes abuse the emergency system because they do not know how to assess the situation, primarily because they do not know who to call, so they call the EMS. Very often, they call because of a homeless person, a beggar, worried about his condition or upset by their presence in their environment, even though there are no real health problems with the patient himself. Also,

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people call for people with dementia who do not have to be hospitalized, but the ones who take care of them are worried and are not sure what is happening to them and what the further procedures are.

Health care system deficiencies: It lies precisely in the fact that there is no possibility of tracking the call and obtaining information about the owner of the phone. Moreover, in Serbia, there is no legislation that allows the punishment of people who falsely report the call. Some countries have enabled the EMS to get the correct geo-positioning location when the patient is calling, which reduces the time of the call, more precisely, there is no need to further clarify the location of the event. We believe this is a problem that solves the issue of false calls and by passing the effective regulations, the easiest way to solve and improve the functioning of the EMS.

Low level of health education of the population: Unfortunately, we have to conclude that in our country there is no health education as a subject in both primary and secondary schools. Knowledge and understanding of the importance of caring for one's own and others' health is left to the family's personal interest. As the HMP EMS is only thought of when there is a need for the activation of this system, broad public campaigns are necessary in order to raise awareness of the importance and significance of the proper use of the EMS system.

This study is, to our knowledge, the first analysis of false calls and misuse of the EMS. Given that EMS teams are at the forefront of the health care system, assessing adequate use of EMS is focused on the best patient care. We must work on a daily assessment of inadequate use of the EMS as well as ways to prevent that misuse. The leading idea is to provide important data to health service administrators and create adequate standards and procedures with the legal basis.

Our findings on false calls in the daily work of the EMS complement several studies that examined the decision to call the EMS. The callers describe their experience in these situations as "unbearable" and experience feelings of anxiety before the call.4 The study by Booker et al. on the patients who called an ambulance, revealed a lack of understanding of the health system options and previous negative experiences asking for help influencing the decision to call again.5

Limitations: The examiners were not able to obtain data on persons who called the EMS as well as to discuss the reasons for making such calls to the EMS.

Conclusion: False calls, due to their presence, are not very burdensome for the work of the EMS, but they can be very important for an individual who needs emergency medical care, and which may be untimely and late, due to the team dealing with a false call. Therefore, it is necessary to influence on the population through a public campaign in order to reduce the number of these calls and inform the public about the seriousness and severity of its consequences. The most important thing is the adoption of legal regulations for calling of the EMS, and the creation of clear guidelines for receiving the emergency medical calls.

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LAŽNI HITNI POZIVI U ZAVODU ZA HITNU MEDICINSKU POMOĆ NIŠ

Tatjana Mićić[1], Tatjana Nikolić[1], Saša Ignjatijević[1], Dušica Janković[1], Ivana Ilić[1], Milan Elenkov[2]
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Sažetak: Uvod: U medicinskoj literaturi nismo mogli da nađemo radove koji su se bavili procenom i analizom lažnih poziva koji se upućuju službama hitne medicinske pomoći (HMP). Malo se zna o tome kako i zašto ljudi uznemiravaju ovaj deo medicinskog sistema kao i posledicama koje zbog toga mogu nastati.
Cilj rada: Ovaj rad istražuje koliko je lažnih poziva upućeno u četvoromesečnom periodu kao i njihovu distribuciju u toku 24h, kako bi se pokazala učestalost lažnih poziva u radu službe hitne medicinske pomoći.
Materijal i metode: Retrospektivna analiza terenskog protokola i audio transkripata za period od 1. oktobra 2015. do 31. januara 2016. godine.
Rezultati: Ukupan broj registrovanih poziva za ovaj period bio je 11976. Pregledom je utvrđeno da se 39 poziva ne može koristiti iz tehničkih razloga. Od 11853 poziva, 123 su bila lažna. To je 1.027 % lažnih poziva. U proseku je bilo 30,2 lažna poziva svakog meseca ili 1 lažni poziv za 24 sata. Posmatrajući vreme poziva u odnosu na period 00.00 do 24.00, primećuje se tendencija da je učestalost veća tokom popodnevnih i noćnih sati. U ranim jutarnjim satima nije bilo lažnih poziva.
Zaključak: Lažni pozivi zbog svog prisustva nisu previše opterećujući za rad službe hitne medicinske pomoći. Pretpostavka je da mogu biti veoma važni za pojedinca kome je potrebna hitna medicinska pomoć i koja može biti neblagovremena i kasniće zbog odlaska ekipe na lažni poziv. Zbog toga je neophodno uticati na stanovništvo putem javne kampanje kako bi se smanjio broj ovih poziva i javnost obavestila o ozbiljnosti i težini posledica takvih poziva.
Ključne reči: lažni pozivi, hitna medicinska pomoć.

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CILJ RADA: Ovaj rad istražuje koliko je lažnih poziva upućeno u četvoromesečnom periodu kao i njihovu distribuciju u toku 24h, kako bi se pokazala učestalost lažnih poziva u radu službe hitne medicinske pomoći.
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Ključne reči: lažni pozivi, hitna medicinska pomoć.

UVOD

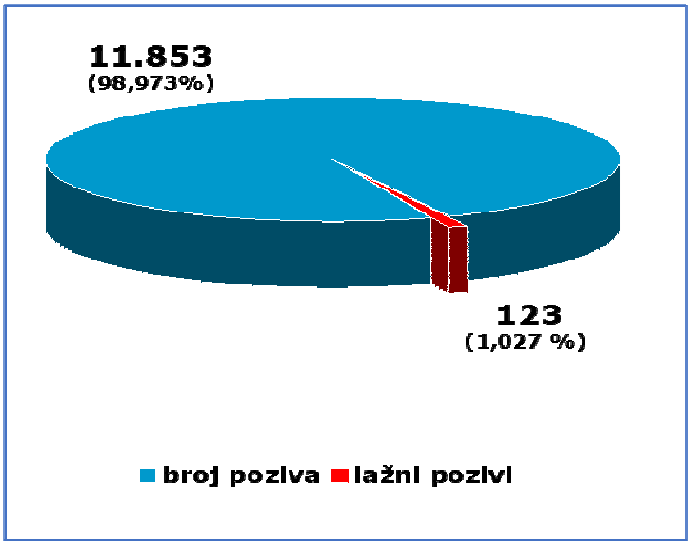
Služba hitne medicinske pomoći (HMP) u Republici Srbiji funkcioniše tako da svi kojima je potrebna medicinska pomoć pozivaju broj 194. Na telefon se javlja dežurni lekar koji na osnovu razgovora procenjuje da li je potrebno poslati ekipu koju čine lekar, medicinska sestra/tehničar i vozač. U našoj zemlji, osim u nekoliko hitnih službi, ne postoji protokol pozivanja, te se procena zasniva isključivo na iskustvu i veštinama vođenja razgovora sa pozivaocem. Lekar, takođe, može dati savet ili uputiti pacijenta kome treba da se dalje obrati. U svakodnevnom radu postoje pozivi čija svrha nije traženje pomoći, već uznemiravanje službe HMP, što rezultira blokiranjem te linije. Pod terminom „Lažni poziv" klasifikovali smo pozive da je nekoj osobi potrebna hitna medicinska pomoć u slučaju da je po dolasku ekipa zatekla neku od sledećih situacija: na navedenoj adresi nema takve osobe; osoba postoji ali negira pozivanje službe hitne pomoći, na navedenoj adresi niko nije prisutan; broj kuće ili stana je nepostojeći. Služba HMP je najčešće pozivana zbog lažnih saobraćajnih nezgoda, povreda, smrti i porođaja. Lažni pozivi upućeni službi HMP mogu imati ozbiljne posledice. Nepotrebno angažovanje ekipe i njena nedostupnost drugom pacijentu produžava reakciono vreme, što u nekim slučajevima može biti presudno za život te osobe. Prema našoj proceni, pozivaoci su često deca, tinejdžeri, psihički izmenjene osobe. Neadekvatno angažovanje službe HMP smanjuje resurse zdravstvenog sistema i utiče na motivaciju medicinskih ekipa. [1-3] U postojećoj medicinskoj literaturi nismo mogli da nađemo radove koji su se bavili procenom i analizom lažnih poziva koji se upućuju službama hitne medicinske pomoći, kako bi uporedili naša iskustva sa iskustvima drugih službi HMP.

Cilj rada: Prikazati zastupljenost lažnih poziva u radu Zavoda za HMP Niš.

Materijal i metode: Retrospektivna analiza terenskih protokola i audio transkripata za period od 1. oktobra 2015. do 31. januara 2016. godine. Istraživači su za ovaj rad dobili odobrenje od strane Etičkog odbora Zavoda za HMP Niš.

REZULTATI

Ukupan broj evidentiranih poziva je 11.976, dok se 39 poziva ne mogu se koristiti iz tehničkih razloga. Od 11853 poziva bilo je 123 lažna. To iznosi svega 1,027 procenat. (Grafikon1) Prosečno, svakog meseca bilo je 30,2 lažnih poziva, ili 1 lažni poziv za 24 h. Svi rezultati prikazani su u grafikonima 1 i 2 i tabeli broj 1.



Grafikon 1: Prikaz broja i procenata lažnih poziva u odnosu na ukupan broj poziva

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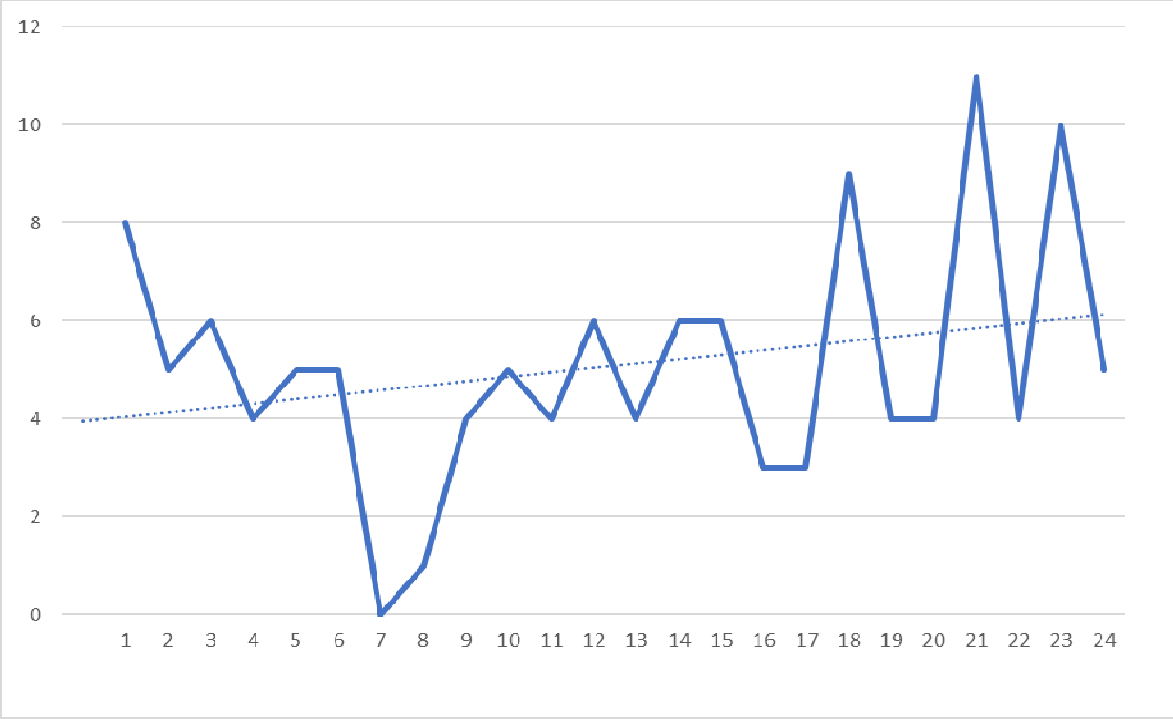
Mesec	Ukupan broj poziva	Lažni pozivi	Procenat
Oktobar	2813	28	0.955
Novembar	2955	27	0,914
Decembar	3069	28	0,912
Januar	3100	40	1,3

Tabela 1: Ukupan broj poziva, lažnih poziva po mesecima:



Grafikon 2: Distribucija poziva u odnosu na 24h.

DISKUSIJA

Za procenu efikasnosti zdravstvenog sistema i poboljšanje kvaliteta rada kao i smanjenje zloupotrebe hitne medicinske službe potrebna je jasna procena i definisanje postojećih problema. Potrebno je odrediti mere koje mogu da obezbede određen profesionalni nivo u radu hitne medicinske pomoći. Zloupotrebu usluga hitne pomoći je teško definisati, a često nastaje u nejasnim okolnostima ili mogućim nesporazumom. Preslušavanjem traka i uvidom u protokole poziva na osnovu podataka koje smo direktno ili posredno dobili izdvajaju se određene karakteristike pozivaoca: godine, nepoznavanje principa rada službe HMP, greške sistema kao i nizak nivo zdravstvenog obrazovanja populacije.

Godine: Primetili smo da deca i tinejdžeri često ne shvataju prirodu i ozbiljnost poziva upućenog službi HMP. Korišenje alkohola i stimulativnih sredstava ih dodatno dovodi do nerazumevanja situacije pa upućivanje poziva službi HMP često shvataju kao dobru šalu.

Nepoznavanje principa rada službe HMP: Prolaznici, komšije i drugi građani ponekad zloupotrebljavaju sistem hitne pomoći zato što ne umeju da procene situaciju, ujedno ne znaju kome da se obrate pa pozivaju službu HMP. Veoma često pozivaoci zovu zbog beskućnika i prosjaka, zabrinuti zbog njihovog stanja ili uznemireni njihovim prisustvom u svom okruženju, iako ne postoji realan zdravstveni problem kod samog pacijenta. Takođe, često se poziva i zbog dementnih osoba, koje ne moraju da budu hospitalizovane, ali osobe koje

brinu o njima nisu sigurne šta se sa njima dešava i kakve su dalje procedure.

Nedostaci zdravstvenog sistema: Za sada za službe HMP u Srbiji ne postoji mogućnost praćenja poziva, dobijanja podataka o vlasniku telefona, takođe, ne postoji zakonska regulativa koja omogućava kažnjavanje osoba koje lažno prijave poziv. Jedan broj zemalja je omogućio sistemu hitne pomoći da prilikom pozivanja telefon šalje i tačnu geopoziciju čime se smanjuje vreme pozivanja, tačnije nema potrebe za dodatnim pojašnjavanjem lokacije događaja. Ovo je, verujemo, način kojim se rešava pitanje lažnog pozivanja. Donošenjem efikasne zakonske regulative može se rešiti problem lažnog pozivanja i poboljšati funkcionisanje rada HMP.

Nizak nivo zdravstvenog obrazovanja populacije: Nažalost, moramo da zaključimo da u našoj zemlji ne postoji zdravstveno obrazovanje kao predmet u školama, kako osnovnim tako i srednjim. Znanje i razumevanje važnosti brige za svoje i tuđe zdravlje prepušteno je porodici i ličnom interesovanju. Kako se o HMP razmišlja tek onda kada postoji potreba za aktivacijom ovog sistema, široke javne kampanje su neophodne kako bi se podigla svest o važnosti i značaju pravilne upotrebe sistema HMP.

Ova analiza je, prema našim saznanjima, prva analiza lažnih poziva i zloupotrebe službe HMP. S obzirom da su ekipe HMP na prvim linijama zdravstvenog sistema, procenu adekvatne upotrebe HMP u kontekstu usmerenom na najbolju brigu za pacijenta, moramo raditi na svakodnevnoj proceni neadekvatne upotrebe HMP kao i na pronalaženju načina za sprečavanje te zloupotrebe. Vodeća ideja je pružanje važnih podataka administratorima zdravstvenih usluga i kreiranje adekvatnih standarda i procedura sa zakonskom osnovom.

Naša otkrića o lažnim pozivima u radu HMP dopunjuju nekoliko studija koje su ispitivale donošenje odluke o pozivanju HMP. Pozivaoci opisuju svoje iskustvo u situaciji kao „nepodnošljivo“ i navode osećaj uznemirenosti pre poziva. [4] Studija Booker i saradnici, rađena sa pacijentima koji su pozvali hitnu pomoć otkrila je nerazumevanje načina rada u postojećem zdravstvenom sistemu kao ranija negativna iskustva u traženju pomoći kao faktora koji utiču na odluku o pozivu. [5]

Ograničenja: Ispitivači nisu bili u mogućnosti da dobiju podatke o osobama koji su lažno pozivali HMP kao i da razgovaraju o razlozima za upućivanje ovakvih poziva službi HMP.

ZAKLJUČAK

Lažni pozivi po svojoj zastupljenosti ne predstavljaju veliko opterećenje za rad službe HMP, ali mogu biti veoma značajni za pojedinca kome je HMP potrebna, a koja zbog odlaska ekipe na lažni poziv može biti neblagovremena i zakasnela. Zbog toga je potrebno širom javnom kampanjom uticati na stanovništvo kako bi se broj ovih poziva smanjio a javnost upoznala sa ozbiljnošću i težinom nastalih posledica. Najvažnije je donošenje zakonske regulative u načinu pozivanja službe HMP i stvaranje jasnih smernica za primanje hitnih medicinskih poziva.

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FALSE EMERGENCY MEDICAL CALLS IN THE EMERGENCY MEDICAL SERVICE NIS, SERBIA

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Abstract: INTRODUCTION: In the medical literature, we could not find papers that dealt with the assessment and analysis of false calls made to emergency medical services. Little is known about how and why people disturb this part of the Medical System as well as the consequences which could happen.
OBJECTIVE: This study investigates how many such calls have been made in the four-month period and their 24h distribution, so as to show the prevalence of fake calls in the work of the emergency medical service.
MATERIAL AND METHOD: A retrospective analysis of the field protocol and audio transcripts for the period from October 1st, 2015 to January 31st 2016.
RESULTS: Total number of registered calls for this period was 11,976. We found that 39 calls could not be used for technical reasons. Of the 11853 calls, 123 were false. That is only 1.027 % of false calls. On average, there were 30.2 false calls each month, or 1 false call in 24 hours. While observing the calling time in relation to the period from 00.00 to 24.00h, it can be noticed that the frequency was higher during the afternoon and night hours. There were no false calls in the early morning hours.
CONCLUSION: False calls, due to their presence, are not very burdening for the work of the emergency medical service, but they can be very important for an individual who needs emergency medical care, which may be untimely and late, due to the team dealing with a false call. Therefore, it is necessary to influence on population through a public campaign in order to reduce the number of these calls and inform the public about the seriousness and severity of its consequences.
Key words: false emergency calls, emergency medical service

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PREHOSPITAL CARDIAC ARREST AND CARDIOPULMONARY RESUSCITATION IN EMS JAGODINA, SERBIA

PREHOSPITALNI AKUTNI ZASTOJ SRCA I KARDIOPULMONALNA REANIMACIJA U HMP JAGODINA

Milan Đorđević, Zoran Denković
Health center Jagodina, Emergency Medical Service

Summary: INTRODUCTION: The aim of this study was to analyze the frequency of prehospital acute cardiac arrest, demographic characteristics and outcomes of patients resuscitated by the team of the Emergency Medical Service (EMS) of Jagodina during 2016.
MATERIAL AND METHODS: Retrospective analysis based on data obtained by inspecting the protocols of the EMS of Jagodina in the period from 01.01.2016. until 31.12.2016.
RESULTS: During 2016, the EMS Jagodina team resuscitated a total of 22 patients with acute cardiac arrest, of which 12 men (54.54%), 9 women (40.9%) and one child aged 6 years (4.54%) who was also the youngest patient while the oldest was 90 years old. Cardiopulmonary resuscitation measures (CPR) were most often applied at home (72.27%), while 5 (22.72%) patients were resuscitated during transport to the Emergency Department of the General Hospital Jagodina. The months with the highest number of CPRs are April and December. Ventricular fibrillation (VF) and pulseless ventricular tachycardia (VT) were the initial rhythm found in 7 (31.82%) patients, asystole in 13 patients (39.09%), while pulseless electrical activity (PEA) was noted in 2 (9.09%) . In 13 (59.09%) patients a ventilation mask and balloon were used, endotracheal intubation was used in 8 patients (36.36%), laryngeal mask and Igel in 1 patient (4.54%) were used as a measure of airway protection. Basic life support measures (BLS) were started in only 3 patients (13.64%) before the arrival of the emergency medical team. Spontaneous circulation (ROSC) recurrence occurred in 3 (13.64%) patients.
CONCLUSION: Since most acute cardiac arrests occur at home, it is necessary to educate the population for early recognition of sudden cardiac arrest by eyewitnesses, adequate calling of number 194 and providing basic life support measures until the ambulance arrives.
Key words: acute cardiac arrest, cardiopulmonary resuscitation

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INTRODUCTION

Acute cardiac arrest is one of the most urgent, as well as the most dramatic situations that doctors encounter in everyday practice. By definition, it represents a sudden and unexpected cessation of blood circulation caused by a functional cessation of heart function. [1] Cardiopulmonary resuscitation is a set of emergency measures and procedures performed in patients with cardiac and respiratory arrest, with the aim of restoring circulation and respiration. The set of actions that connect the victims of sudden cardiac arrest with survival, are called the chain of survival. [2] The first link in the chain is early recognition and calling for an ambulance, the second link is early cardiopulmonary resuscitation by eyewitnesses, the third link – early defibrillation, and the fourth early application of advanced life support (ALS) measures and post-resuscitation care. [2,3] Data from the current world literature indicate that only 9.6% of patients survive until discharge from the hospital. Every year, 300,000 Americans experience acute cardiac arrest outside the hospital, and a total of 700,000 experience it. The survival rate is 6.4%. [4]

AIM OF THE WORK

The aim of this paper is to analyze the frequency of prehospital acute cardiac arrest, demographic characteristics and outcomes in patients resuscitated by the team of the EMS of Jagodina during 2016.

MATERIAL AND METHODS

A retrospective analysis of the data obtained by inspecting the protocols of the EMS Jagodina was performed in the period from 1.1.2016. to 31.12.2016. The work was done according to the work of the colleagues from EMS Health center Subotica, published in ABC journal in 2014. The obtained data are shown in tables and graphs.

RESULTS

During 2016, 5313 medical examinations in the field and 29152 outpatient examinations were performed in EMS Jagodina. EMS Jagodina teams resuscitated a total of 22 patients diagnosed with acute cardiac arrest, of which 13 males (59.1%) and 9 females (40.9%) (Chart 1). In relation to the age of the patients, two age groups are distinguished by their number: patients aged 50-59 years (22.73%) and patients aged 80-89 years (31.82%). (Chart 2).
The highest number of cardiopulmonary resuscitations was recorded in April and December (4 patients 18.18%), and the lowest in January and October when there were none. (Chart 3).

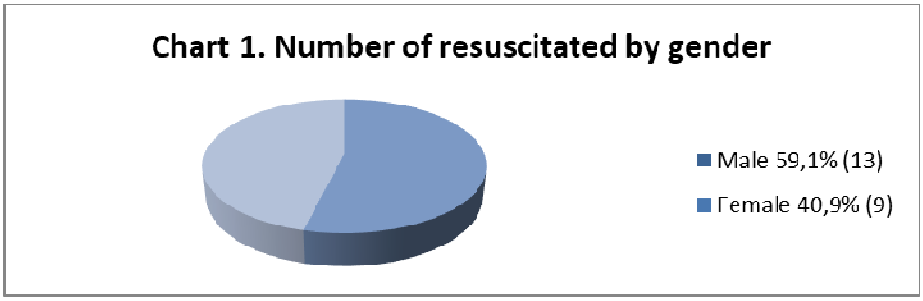

Chart 1: Number of resuscitated by gender

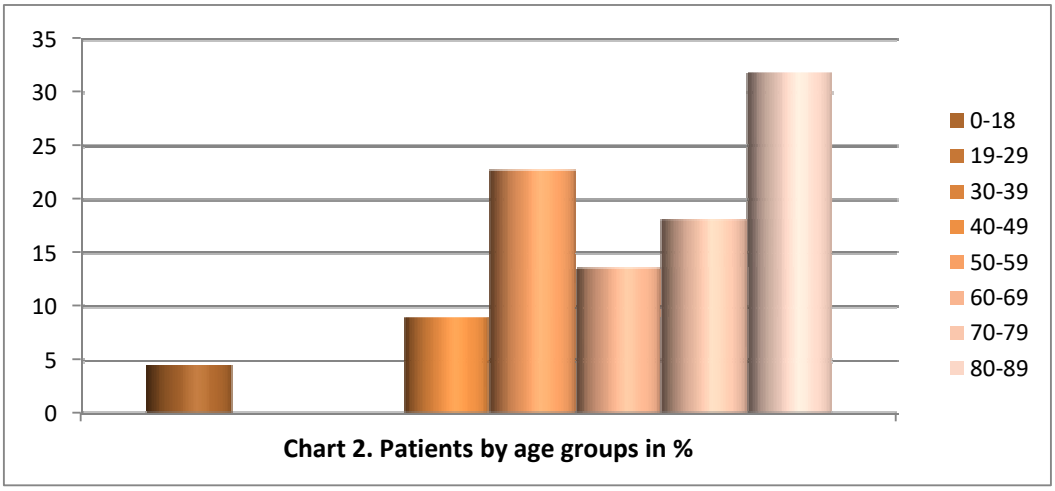

Chart 2: Patients by age groups in %

Cardiopulmonary resuscitation (CPR) measures were most often applied at home (72.72%), then in transport (22.72%), while our team intervened once in a public place (4.54%) (Chart 4).

VF and VT were the initial rhythm found in 7 (31.82%) patients, asystole in 13 (59.09%), while PEA was noted in 2 patients (9, 09%). (Chart 5).

In 1 (4.54%) patient, supraglottic I-gel was used as a measure of airway protection, in 8 (36.36%) endotracheal intubation, while 13 (59.09%) patients were ventilated with a mask and a ventilation balloon. (Chart 6)

BLS measures before the arrival of the emergency medical team, were started in only 3 (13.64%) persons. ROSC occurred in 3 (13.64%) patients. Two patients who developed ROSC were patients with an initial shock rhythm and one patient had asystole when the diagnosis was foreign body obstruction.

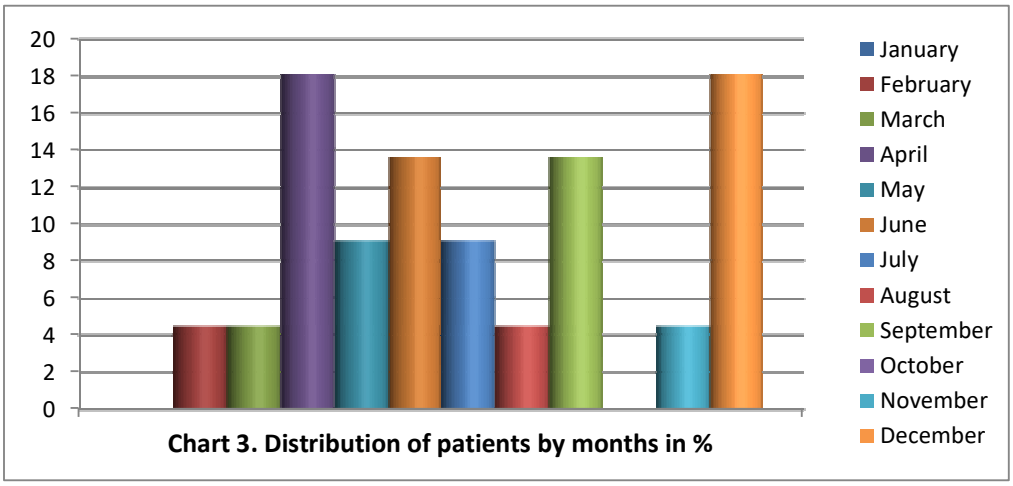

Chart 3: Distribution of patients by months

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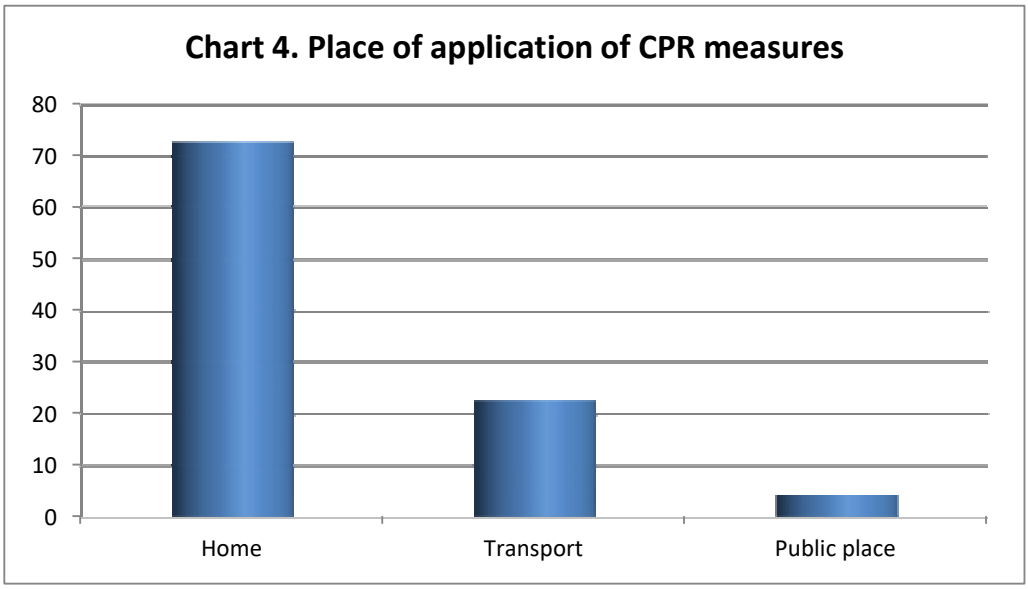

Chart 4: Place of application of CPR measures

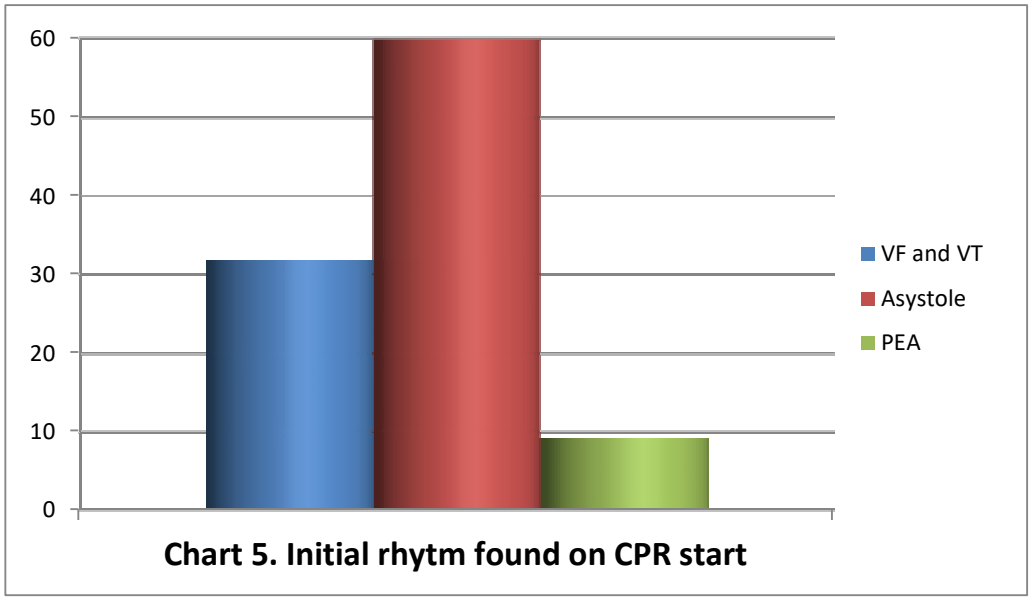

Chart 5: Initial Rhytm found on CPR start

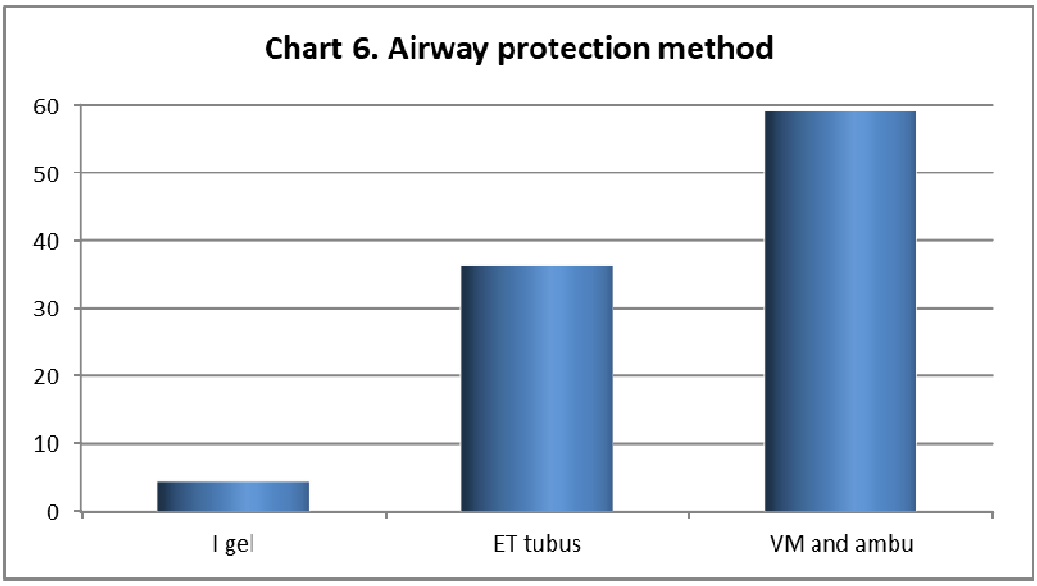

Chart 6: Airway protection method

DISCUSSION

The Jagodina EMS covers a territory of 470 km2, ie 71195 inhabitants, which are the data of the Republic Bureau of Statistics from 2011. [5] One medical team with a fully equipped ambulance is located on the territory of the city itself and practically only that team supplies the needs of the entire territory of the city. One of the most important factors influencing the success of cardiopulmonary resuscitation is the time that elapses from the onset of acute cardiac arrest to the initiation of CPR measures. It is the very first link in the survival chain, early recognition and calling emergency services, that often fails. Our reaction time prolongs the mixing of emergency telephone numbers (firefighters, police and ambulances), then the unwillingness to answer questions asked by the ambulance dispatcher, inadequate calls stating that the patient is unconscious or not breathing, although in reality that is not the case. Road congestion, leaks of ambulances with rotating lights on, vague instructions about the place where the acute cardiac arrest occurred are common problems faced by the team of our service. The obtained data from only 13.64% of the started BLS measures before the arrival of the medical teams is worrying. There are several reasons for that. On the one hand, there is a need for people to help in such situations, and on the other hand, there is very little knowledge about the correct implementation of the CPR method, which the field teams were convinced of, and also the fact that health care is not familiar with the proper implementation of resuscitation measures, they do not encounter it in their daily work. According to some world research, for every 30 people on whom eyewitnesses apply BLS, one additional life is saved. [6] It is believed that in an era of social networks and widespread internet availability, BLS measures should be known to a large number of people. A good step in the education of the general population is certainly the mandatory training of candidates for taking the driving test in first aid, mandatory training in schools, mass trainings, educational videos.

The ratio of the number of resuscitated males and females is in line with world data. The ratio of shockable / non-shockable initial rhythm disturbances indicates that the reaction time for the ambulance crew was longer than 4 minutes, and none of the eyewitnesses applied the CPR measures. It is believed that most victims have VF or VT without a pulse at the time of collapse, but by the time the first ECG is recorded, rhythm worsened to asystole. [7] Of the 5 patients who experienced acute car-

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diac arrest in an ambulance, a return to spontaneous circulation occurred in 3 (60%). Since 2013, the EMS Jagodina has also had access to the Igel, which is especially important because the structure of 13 employed doctors consists of one emergency medicine specialist, one doctor specializing in emergency medicine, three general medicine specialists and other general practitioners. The large number of patients with asystole as the initial rhythm is a consequence on the one hand, the late arrival of the EMS team, non-recognition of the situation by EMS callers and lack of EMS staff structure and on the other hand great ignorance of BLS by ordinary people.

CONCLUSION

Since most acute heart failure occurs at home, it is necessary to educate the population for early recognition of sudden cardiac arrest by eyewitnesses, adequate calling of number 194 and providing BLS measures until the emergency medical team arrives. We should also work on the possibilities of training and specialization of doctors who work in the EMS, because the quality of providing emergency medical care depends on their training.

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PREHOSPITALNI AKUTNI ZASTOJ SRCA I KARDIOPULMONALNA REANIMACIJA U HMP JAGODINA

Milan Đorđević, Zoran Denković
Dom zdravlja Jagodina, Služba hitne medicinske pomoći

Sažetak: CILJ RADA je analiza učestalosti prehospitalnog akutnog zastoja srca, demografskih karakteristika i ishoda kod pacijenata reanimiranih od strane ekipe Službe hitne medicinske pomoći (SHMP) Jagodina u toku 2016. godine. Materijal i metode: Retrospektivna analiza na osnovu podataka dobijenih uvidom u protokole SHMP Jagodina u periodu od 01.01.2016. do 31.12.2016.godine.
REZULTATI: U toku 2016.godine, ekipa SHMP Jagodina reanimirala je ukupno 22 pacijenta sa akutnim zastojem srca, od toga 12 muškaraca (54.54%), 9 žena (40.9%) i jedno dete uzrasta 6 godina (4.54%) koje je bilo i najmlađi pacijent dok je najstariji imao 90 godina. Mere kardiopulmonalne reanimacije (KPR) su najčešće primenjivane u kućnim uslovima (72.27%), dok je 5 (22.72%) pacijenata reanimirano prilikom transporta do Urgentne službe Opšte bolnice Jagodina. Meseci sa najvećim brojem KPR su april i decembar. Ventrikularna fibrilacija (VF) i ventrikularna tahikardija (VT) bez pulsa su inicijalni poremećaj ritma zatečeni kod 7 (31,82%) pacijenata, asistolija kod 13 pacijenata (39,09%), dok je bezpulsna električna aktivnost (PEA) zabeležena kod 2 (9,09%). Kod 13 (59,09%) pacijenata je kao mera obezbeđenja disajnog puta korišćena ventilaciona maska i balon, endotrahealna intubacija kod 8 pacijenata (36,36%), laringealna maska i Igel kod 1 pacijenta (4,54%). Mere osnovne životne potpore (BLS), pre dolaska ekipe hitne medicinske pomoći započete su kod svega 3 pacijenata (13,64%) osoba. Do povratka spontane cirkulacije (ROSC) došlo je kod 3 (13,64%) pacijenta.
ZAKLJUČAK: S obzirom da se najveći broj akutnih zastoja srca dešava u kućnim uslovima, neophodna je edukacija stanovništva za rano prepoznavanje iznenadnog srčanog zastoja od strane očevidaca, adekvatno pozivanje broja 194 i pružanje mera osnovne životne potpore do stizanja ekipe hitne medicinske pomoći.
Ključne reči: akutni srčani zastoj, kardiopulmonalna reanimacija

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ZAKLJUČAK: S obzirom da se najveći broj akutnih zastoja srca dešava u kućnim uslovima, neophodna je edukacija stanovništva za rano prepoznavanje iznenadnog srčanog zastoja od strane očevidaca, adekvatno pozivanje broja 194 i pružanje mera osnovne životne potpore do stizanja ekipe hitne medicinske pomoći.
Ključne reči: akutni srčani zastoj, kardiopulmonalna reanimacija

UVOD

Akutni zastoj srca predstavlja jednu od najhitnijih, kao i najdramatičnijih situacija sa kojom se lekari susreću u svakodnevnoj praksi. Po definiciji, predstavlja nagli i neočekivani prestanak cirkulacije krvi izazvan funkcionalnim prestankom rada srca. [1] Kardiopulmonalna reanimacija je skup hitnih mera i postupaka koji se sprovode kod bolesnika kod kojih je došlo do zastoja rada srca i disanja, sa ciljem ponovnog uspostavljanja cirkulacije i disanja. Skup akcija koji povezuju žrtve iznenadnog zastoja srca sa preživljavanjem, nazvane su lanac preživljavanja. [2] Prva karika u lancu je rano prepoznavanje i pozivanje hitne medicinske pomoći, druga karika je rana KPR od strane prisutnih očevidaca, treća karika – rana defibrilacija, a četvrta rana primena mera naprednog održavanja života i postreanimaciona nega. [2,3] Podaci iz aktuelne svetske literature ukazuju da do otpusta iz bolnice preživi svega 9,6 % pacijenata. Svake godine 300 hiljada Amerikanaca doživi akutni zastoj srca van bolnice a ukupno ih doživi 700 hiljada. Procenat preživljavanja je 6,4%. [4]

CILJ RADA

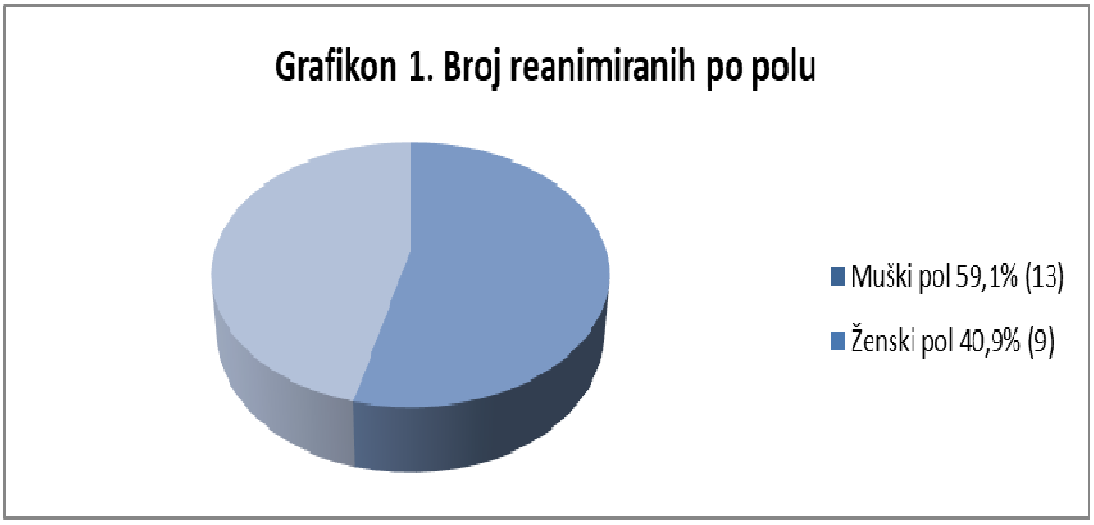
Cilj rada je analiza učestalosti prehospitalnog akutnog zastoja srca i njihovih karakteristika kod pacijenata reanimiranih od strane ekipe SHMP Jagodina u toku 2016.godine.

MATERIJAL I METODE

Urađena je retrospektivna analiza podataka dobijenih uvidom u protokole SHMP Jagodina u periodu od 1.1.2016. do 31.12.2016. Istraživanje je rađeno prema istraživanju kolega iz SHMP Doma zdravlja Subotica, objavljenom u ABC časopisu 2014. Dobijeni podaci prikazani su tabelama i grafikonima.

REZULTATI

U toku 2016.godine u SHMP Jagodina izvršeno je 5313 lekarskih pregleda na terenu i 29152 ambulantnih pregleda. Ekipe SHMP Jagodina reanimirale su ukupno 22 pacijenta sa dijagnozom akutnog zastoja srca, od toga 13 osoba muškog (59,1%) i 9 ženskog pola (40,9%) (Grafikon 1).



Grafikon 1: Raspodela pacijenata po polu

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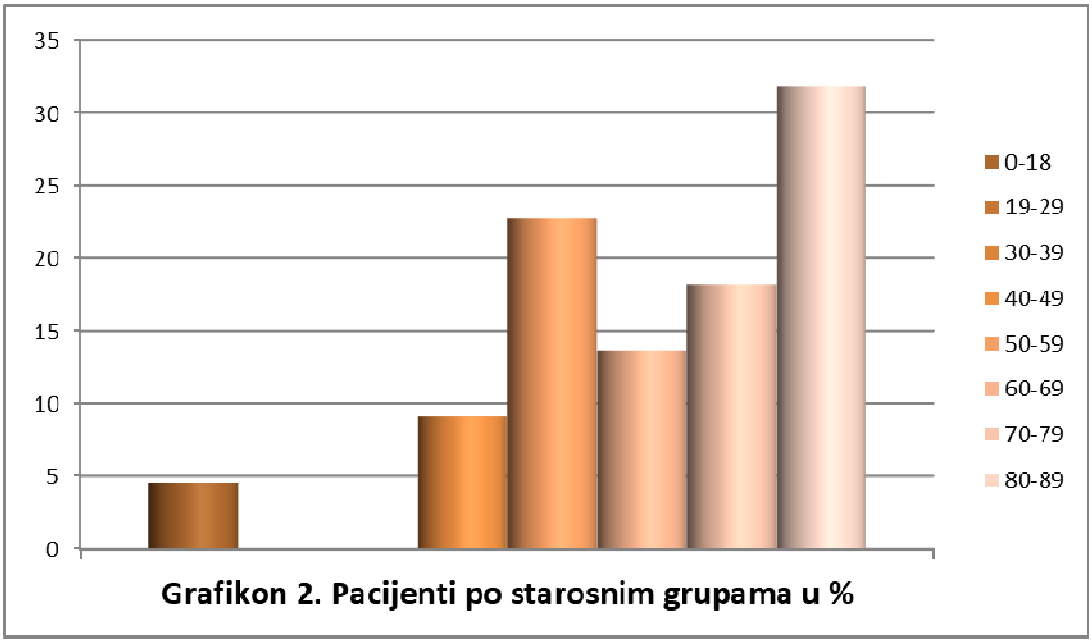
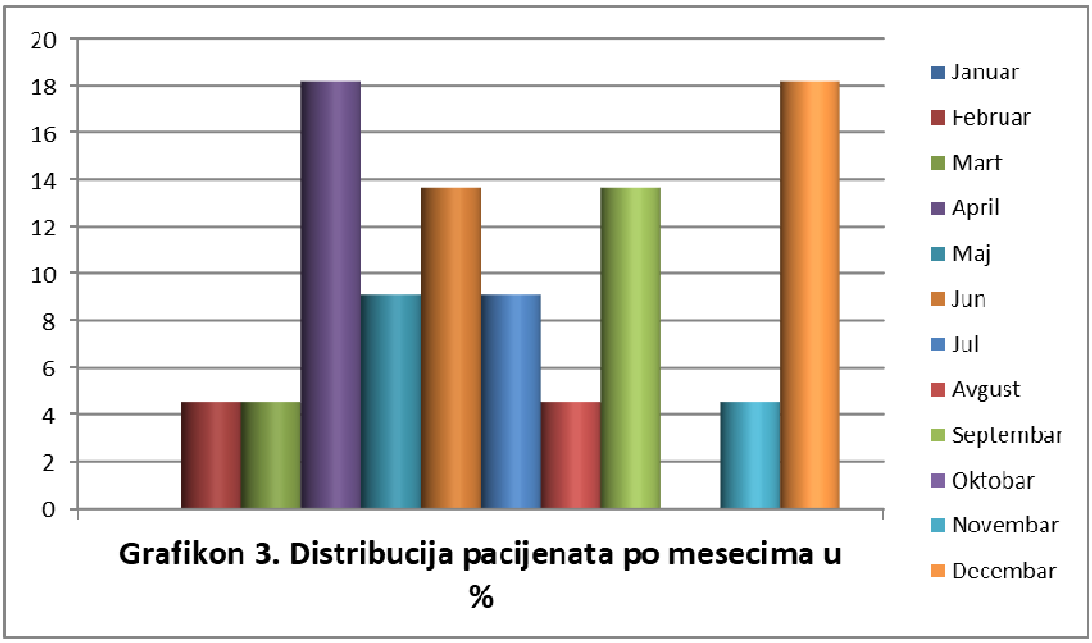


Grafikon 2: Reaspodela pacijenata po starosnim grupama



Grafikon 3: Distribucija pacijenata po mesecima

U odnosu na starost pacijenata po brojnosti se izdvajaju dve starosne grupe: pacijenti starosti 50-59 godina (22,73%) i pacijenti starosti 80-89 godina (31,82%). (grafikon 2).

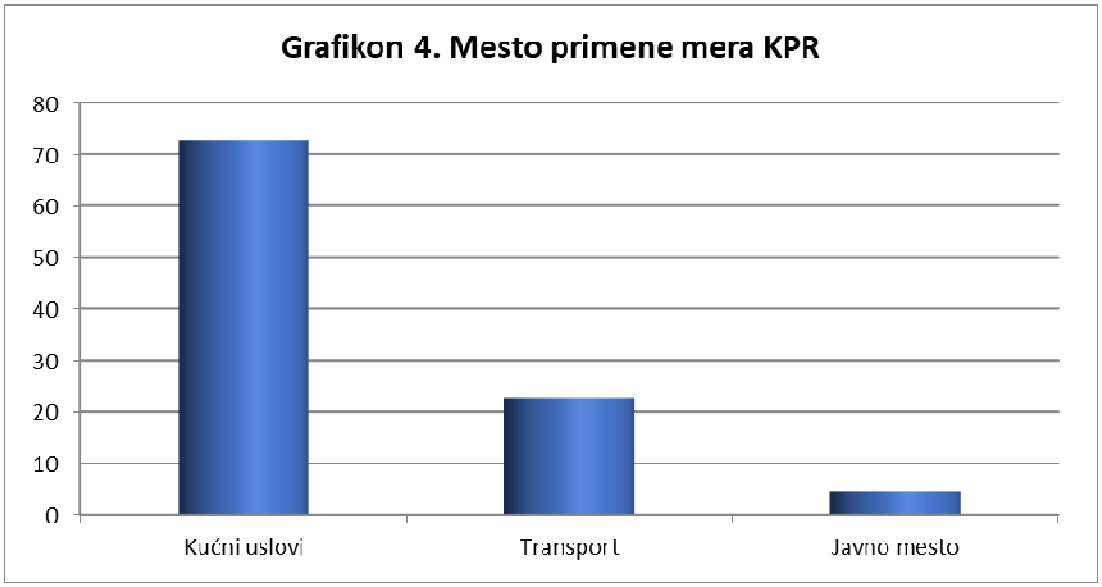
Najveći broj kardiopulmonalnih reanimacija zabeležen je u aprilu i decembru (4 pacijenata 18,18%), a najmanje u januaru i oktobru kada ih nije ni bilo. (Grafikon 3).

Mere KPR su najčešće primenjivane u kućnim uslovima (72,72%), zatim u transportu (22,72%), dok je naša ekipa intervenisala jedanput na javnom mestu (4.54%) (Grafikon 4).

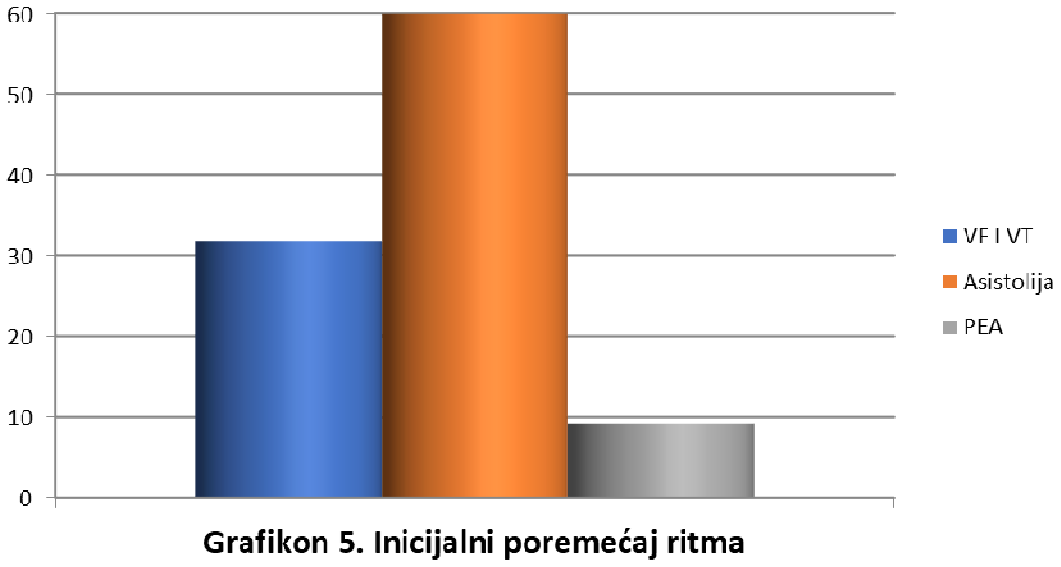
VF i VT bez pulsa su inicijalni poremećaj ritma zatečen kod 7 (31,82%) pacijenata, asistolija kod 13 (59,09%), dok je PEA zabeležena kod 2 pacijenta (9,09%). (Grafikon 5).

Kod 1 (4,54%) pacijenata je kao mera obezbeđenja disajnog puta korišćeno supraglotičko sredstvo I-gel, kod 8 (36,36%) endotrahealna intubacija, dok je 13 (59,09%) pacijenata ventilirano pomoću maske i ventilacionog balona. (grafikon 6).

Mere BLS, pre dolaska ekipe hitne medicinske pomoći, započete su kod svega 3 (13,64%) osoba. Do ROSC-a došlo je kod 3 (13,64%) pacijenta. Dvoje pacijenata kod kojih je došlo do ROSC-a čine pacijenti sa zatečenim inicijalnim šokabilnim ritmom a jedan pacijent sa asistolijom kod koga je dijagnoza bila opstrukcija stranim telom.



Grafikon 4: Mesto primene mera KPR



Grafikon 5: Inicijalni poremećaj ritma

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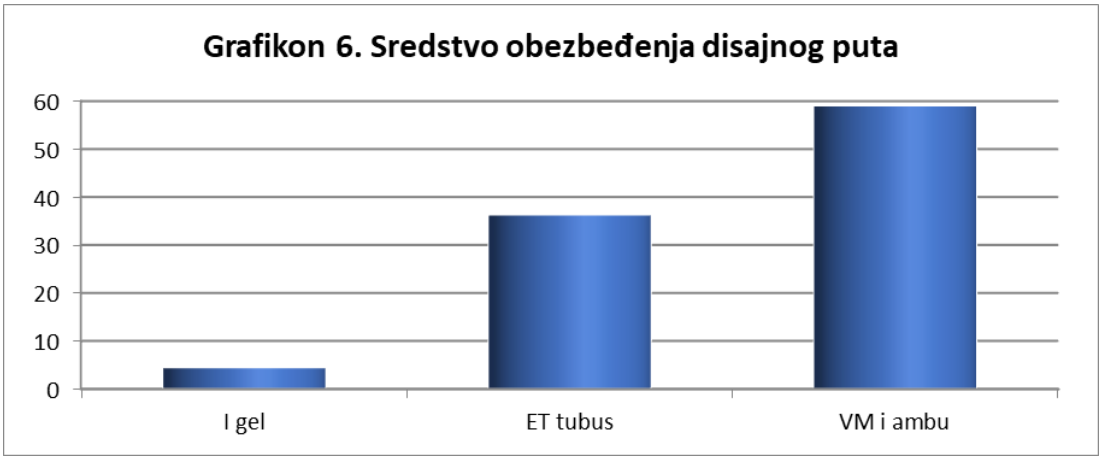

Grafikon 6: Sredstvo za obezbeđenje disajnog puta

DISKUSIJA

SHMP Jagodina pokriva teritoriju od 470 km2, odnosno 71195 stanovnika, što su podaci Republičkog zavoda za statistiku iz 2011.godine. [5] Jedna lekarska ekipa sa kompletno opremljenim sanitetskim vozilom nalazi se na teritoriji samog grada i praktično samo ta ekipa opskrbljuje potrebe celokupne teritorije grada. Jedan od najbitnijih faktora koji utiču na uspešnost kardiopulmonalne reanimacije, je vreme koje protekne od nastanka akutnog zastoja srca do započinjanja mera KPR. Upravo prva karika lanca preživljavanja, rano prepoznavanje i upućivanje poziva službi hitne pomoći, često zataji. Naše reakciono vreme produžava mešanje brojeva telefona hitnih službi (vatrogasaca, policije i hitne pomoći), zatim nespremnost da se odgovara na pitanja postavljena od strane dispečera hitne pomoći, neadekvatni pozivi u kojima se navodi da je pacijent bez svesti ili ne diše, iako u stvarnosti to nije slučaj. Opterećenost puteva, nepropuštanje sanitetskih vozila sa uključenim rotacionim svetlima, nejasne instrukcije o mestu na kome se desio akutni zastoj srca su česti problemi sa kojima se suočava ekipa naše službe. Dobijeni podatak od svega 13,64% započetih mera osnovne životne potpore pre dolaska lekarskih ekipa je zabrinjavajući. Razloga za to je više. S jedne strane postoji potreba ljudi da u takvim situacijama pomognu a sa druge postoji vrlo malo znanja o pravilnom izvodjenju metode KPR u šta su se uverile ekipe na terenu, a takođe i podatak da i samo zdravstveno osbolje nije upoznato sa pravilnim izvođenjem mera reanimacije jer se ne susreću u svom svakodnevnom radu sa tim. Po nekim svetskim istraživanjima, na svakih 30 ljudi na kojima očevici primene BLS, jedan dodatni život je spašen. [6] Smatra se da u eri društvenih mreža i široke dostupnosti interneta, mere BLS-a morale bi biti poznate velikom broju ljudi. Dobar korak u edukaciji opšte populacije svakako predstavlja i obavezna obuka kandidata za polaganje vozačkog ispita iz prve pomoći, obavezna obuka u školama, masovni treninzi, edukativni video snimci.

Odnos broja reanimiranih osoba muškog i ženskog pola je u skladu sa svetskim podacima.

Odnos šokabilnih/nešokabilnih inicijalnih poremećaja ritma ukazuje da je reakciono vreme ekipa hitne pomoći bilo duže od 4 minuta, te da niko od očevidaca nije primenio mere KPR. Smatra se da većina žrtava ima VF ili VT bez pulsa u trenutku kolapsa, ali da se do momenta snimanja prvog EKG-a ritam pogoršao do asistolije. [7] Od 5 pacijenata koji su akutni zastoj srca doživeli u sanitetskom vozilu, do povratka spontane cirkulacije došlo je kod 3 (60%). Od 2013. Godine Službi HMP Jagodina je dostupna I-gel maska što je posebno značajno jer strukturu od 13 zaposlenih lekara čine

jedan specijalista urgentne medicine, jedan lekar na specijalizaciji iz urgentne medicine, troje specijalista opšte medicine i ostali su lekari opšte prakse. Veliki broj zatečenih pacijenata sa asistolijom kao inicijalnim ritmom je posledica sa jedne strane, kasnog stizanja ekipe HMP, neprepoznavanja situacije od strane pozivalaca HMP i nedostatka kadrovske strukture HMP a sa druge strane velikim nepoznavanjem BLS od strane laika.

ZAKLJUČAK

S obzirom da se najveći broj akutnih zastoja srca dešava u kućnim uslovima, neophodna je edukacija stanovništva za rano prepoznavanje iznenadnog srčanog zastoja od strane očevidaca, adekvatno pozivanje broja 194 i pružanje mera osnovne životne potpore do stizanja ekipe HMP. Takođe treba raditi i na mogućnosti usavršavanja i specijalizacije lekara koji rade u službama HMP jer od njihove obuke zavisi kvalitet pružanja hitne medicinske pomoći.

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PREHOSPITAL CARDIAC ARREST AND CARDIOPULMONARY RESUSCITATION - OUR EXPERIENCE

Milan Đorđević, Zoran Denković
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Summary: INTRODUCTION: The aim of this study was to analyze the frequency of prehospital acute cardiac arrest, demographic characteristics and outcomes of patients resuscitated by the team of the Emergency Medical Service (EMS) of Jagodina during 2016.
MATERIAL AND METHODS: Retrospective analysis based on data obtained by inspecting the protocols of the EMS of Jagodina in the period from 01.01.2016. until 31.12.2016.
RESULTS: During 2016, the EMS Jagodina team resuscitated a total of 22 patients with acute cardiac arrest, of which 12 men (54.54%), 9 women (40.9%) and one child aged 6 years (4.54%) who was also the youngest patient while the oldest was 90 years old. Cardiopulmonary resuscitation measures (CPR) were most often applied at home (72.27%), while 5 (22.72%) patients were resuscitated during transport to the Emergency Department of the General Hospital Jagodina. The months with the highest number of CPRs are April and December. Ventricular fibrillation (VF) and pulseless ventricular tachycardia (VT) were the initial rhythm found in 7 (31.82%) patients, asystole in 13 patients (39.09%), while pulseless electrical activity (PEA) was noted in 2 (9.09%) . In 13 (59.09%) patients a ventilation mask and balloon were used, endotracheal intubation was used in 8 patients (36.36%), laryngeal mask and Igel in 1 patient (4.54%) were used as a measure of airway protection. Basic life support measures (BLS) were started in only 3 patients (13.64%) before the arrival of the emergency medical team. Spontaneous circulation (ROSC) recurrence occurred in 3 (13.64%) patients.
CONCLUSION: Since most acute cardiac arrests occur at home, it is necessary to educate the population for early recognition of sudden cardiac arrest by eyewitnesses, adequate calling of number 194 and providing basic life support measures until the ambulance arrives.
Key words: acute cardiac arrest, cardiopulmonary resuscitation

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Časopis objavljuje naučne i stručne članke o teorijskim i kliničkim aspektima urgentne medicine, medicine katastrofe i drugih oblasti medicine koji se bave problemima vezanim za urgentno zbrinjavanje kritičnih pacijenata. Časopis se izdaje na srpskom i engleskom jeziku. Svi članci se recenziraju

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MANUSCRIPT PREPARATION

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After Discussion and before Reference, when needed, the following acknowledgments can be added in one or more sentences (a) contribution of an individual who needs to be recognized and awarded but does not deserve co-authorship, e.g. support of the head of department; (b) acknowledgment for technical support; (c) acknowledgment for financial and material support, underlying type of support etc.

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References should be listed in order of appearance in the text. The number of references should not exceed 30, except in reference overview where there could be up to 50. Most of the cited works should not be older than 5 years. Avoid using abstracts as reference. Identify references in text, tables and legends using ordinal numbers in square brackets [1]. All data on cited literature must be correct.

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(1) Standard journal article (name all the authors, but if their number exceeds six, name six and add et al.

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(2) Organization (Institution) as author

The Cardiac Society of Australia and New Zealand. Clinical exercise stress testing. Safety and performance guidelines. Med J Aust 1996; 164: 282–4.

(3) No author

Cancer in South Africa [editorial]. S Afr Med J 1994; 84: 15.

(4) Volume with supplement

Tadić V, Ćetković S, Knežević D. Endogenous opioids release: an alternative mechanism of cyanide toxicity? Iugoslav Physiol Pharmacol Acta 1989; 25 Suppl 7: 143–4.

(5) Tome with supplement

Dimitrijević J, Đukanović Lj, Kovačević Z, Bogdanović R, Maksić Đ, Hrvačević R, et al. Lupis nephritis: histopathologic features, classification and histologic scoring in renal biopsy. Vojnosanit Pregl 2002; 59 (6 Suppl): 21–31.

(6) Volume with part (Pt)

Ozben T, Nacitarhan S, Tuncer N. Plasma and urine sialic acid in non-insulin dependent diabetes mellitus. Ann Clin Biochem 1995; 32 (Pt 3): 303–6.

(7) Tome with part

Poole GH, Mills SM. One hundred consecutive cases of flap lacerations of the leg in ageing patients. N Z Med J 1994; 107 (986 Pt 1): 377–88.

(8) Tome without volume
Turan I, Wredmark T, Fellander-Tsai L. Arthroscopic ankle arthrodesis in rheumatoid arthritis. Clin Orthop 1995; (320): 110–24.
(9) No volume and tome
Browell DA, Lennard TW. Immunologic status of the cancer patient and the effects of blood transfusion on antitumor responses. Curr Opin Gen Surg 1993: 325–33.

(10) Pagination in Roman numerals
Fisher GA, Sikic BI. Drug resistance in clinical oncology and hematology. Introduction. Hematol Oncol Clin North Am 1995 Apr; 9 (2): xi–xii.

Books and other monographs

(11) Single author
Ringsven MK, Bond D. Gerontology and leadership skills for nurses. 2nd ed. Albany (NY): Delmar Publishers; 1996.

(12) Editor as author
Balint B, editor. Transfusiology. Beograd: Zavod za udžbenike i nastavna sredstva; 2004 (In Serbian).

(13) Book chapter
Mladenović T, Kandolf L, Mijušković ŽP. Lasers in dermatology. In: Karadaglić Đ, editor. Dermatology (In Serbian). Beograd: Vojnoizdavački zavod & Verzal Press; 2000. p. 1437-49.

(14) Congress proceedings
Kimura J, Shibasaki H, editors. Recent advances in clinical neurophysiology. Proceedings of the 10th International Congress of EMG and Clinical Neurophysiology; 1995 Oct 15–19; Kyoto, Japan. Amsterdam: Elsevier; 1996.

(15) Paper from congress proceedings
Bengtsson S, Solheim BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sep 6–10; Geneva, Switzerland. Amsterdam: North-Holland; 1992. p. 1561–5.

(16) Dissertation
Knežević D. The importance of decontamination as an element of complex therapy of poisoning with organophosphorous compounds [dissertation]. Belgrade: School of Veterinary Medicine; 1988 (In Serbian).

Other publications

(17) Newspaper article
Vujadinović J. The inconsistency between federal and republican regulation about pharmacies. In between double standards (In Serbian). Borba 2002 February 28; p. 5.

(18) Dictionaries and similar references
Kostić AĐ. Multilingual Medical Dictionary. 4th Edition. Beograd: Nolit; 1976. Erythrophobia; p. 173–4.

Unpublished work

(19) in press
Pantović V, Jarebinski M, Pekmezović T, Knežević A, Kisić D. Mortality caused by endometrial cancer in female population of Belgrade. Vojnosanit Pregl 2004; 61 (2): in press. (In Serbian)

Electronic references

(20) Article in electronic form
Morse SS. Factors in the emergence of infectious disease. Emerg Infect Dis [5serial online]
1995 Jan–Mar. Available on URL:
http://www.cdc.gov/ncidod/EID/eid/htm
Accesed at: 12.09.2005.

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