

Outcomes of Patients with Cardiac Arrest and Effect of Blood Glucose Concentration

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Dear Editor,

We intriguingly read the article by Ece et al. (1) titled "Evaluation of Characteristics and Clinical Outcomes of Patients with Cardiac Arrest" in the June 2017 edition of Eurasian Journal of Emergency Medicine and we believe that is an important subject for emergency physicians. In this paper, the authors aimed to investigate the efficiency of updated cardiopulmonary resuscitation (CPR) methods and emergency cardiac care guidelines on CPR outcomes. We congratulate the authors for this valuable study, and we have a few comments on the same.

A study by Dane et al. (2) found that Advanced Cardiovascular Life Support (ACLS) courses increase the knowledge level in healthcare providers and the survival-to-discharge rate. Therefore, emergency physicians and nurses should be trained regarding updated CPR methods and emergency cardiac care guidelines including basic life support and ACLS. Although the authors aimed to investigate the efficiency of updated CPR methods and emergency cardiac care guidelines on CPR outcomes, they failed to demonstrate this in their findings as the authors did not specify the guidelines used and whether they were used.

Return of spontaneous circulation (ROSC) and survival-to-discharge ratios are higher in patients with pulseless ventricular tachycardia

(pVT) and ventricular fibrillation (VF), and the ROSC ratio is higher during respiratory arrest (3,4). Cardiac arrest associated with trauma is one of the special circumstances of CPR. The ROSC ratio in trauma patients is different from that in non traumatic patients (5). Authors stated that a study investigating trauma patients requiring CPR over a 5-year period found the survival rate to be 9.5%. Of all patients, 14.2% were successfully resuscitated and survived and they mentioned that "the reason for the greater survival rate in our study might be associated with the possibility of unpredictable injuries that multiple-trauma patients might have." In their study, the number of patients with VF at the time of arrival was presented; however, the numbers of patients with pVT at the time of arrival, those with respiratory arrest, and those with trauma and the ROSC ratio of trauma patients were not presented. To evaluate the clinical outcomes of patients with cardiac arrest, presenting these data would be beneficial.

Blood glucose concentration is a factor that influences CPR outcomes including functional neurological recovery. Therefore, it is important to specify the upper normal values of blood glucose and to indicate the values of blood glucose levels in patients who died and those discharged from hospital, separately (6). However, authors did not state these parameters in their study. For identifying the association between higher glucose levels and higher mortality, upper normal values of blood glucose and values (median or mean) of blood glucose levels should be determined.

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References

1. Ece Y, Unluer EE, Erenler AK, Sener A. Evaluation of Characteristics and Clinical Outcomes of Patients with Cardiac Arrest. *Eurasian J Emerg Med.* 2017; 16: 79-82. [CrossRef]
2. Dane FC, Russell-Lindgren KS, Parish DC, Durham MD, Brown TD. In-hospital resuscitation: association between ACLS training and survival to discharge. *Resuscitation.* 2000; 47: 83-7. [CrossRef]
3. Gulacti U, Celik M, Akcay S, Erdogan MO, Ustun C. Initial results of code blue emergency call system: first experience in Turkey. *Anadolu Kardiyol Derg.* 2014; 14: 486-7. [CrossRef]
4. Gulacti U, Lok U, Aydin I, Gurger M, Hatipoglu S, Polat, H, et al. Outcomes of In-Hospital Cardiopulmonary Resuscitation after Introduction of Medical Emergency Team. *Kuwait Med J.* 2016; 48: 127-31.
5. Lavonas EJ, Drennan IR, Gabrielli A, Heffner AC, Hoyte CO, Orkin AM, et al. Part 10: Special Circumstances of Resuscitation: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation.* 2015; 132(18 Suppl 2): S501-18.
6. Müllner M, Sterz F, Binder M, Schreiber W, Deimel A, Laggner AN. Blood glucose concentration after cardiopulmonary resuscitation influences functional neurological recovery in human cardiac arrest survivors. *J Cereb Blood Flow Metab.* 1997; 17: 430-6. [CrossRef]

Author's Reply

Re: Outcomes of Patients with Cardiac Arrest and Effect of Blood Glucose Concentration

Dear Editor,

We are grateful and thankful to all authors that spare their precious time on analyzing the results of our study.

It is understood that some concerns have raised about the findings of our study and we hope this letter helps eliminate confusions.

Firstly, our study was conducted with patients presented between 2010 and 2011. So, some of the patients involved were resuscitated according to previous guideline and some of them were resuscitated according to 2010 guideline (1, 2). However, our study did not aim to compare guidelines but focused on outcomes of cardiopulmonary resuscitation (CPR) whether of traumatic or non-traumatic source. With the statement 'updated CPR methods', we tried to underline the fact that every patient was treated by the 'valid guideline' on time of admission. Since this data was not relevant to our aim and outcomes, we did not feel the need to mention it.

Certainly, some of our patients had pulseless VT (pVT) on admission. In the study, we mentioned that defibrillation was performed in 49 patients and 31 patients had ventricular fibrillation (VF) on admission. It is obvious that 18 patients presented with 'the other shockable rhythm'; pVT. However, this data was not presented in the study since only the most common three rhythms were mentioned within the text. Additionally, number of unrecognized rhythms on admission was presented as a limitation of our study.

Glucose level in patients with arrest definitely has some effects on outcomes of CPR (3). However, we believe that comparison of all parameters or determination of all issues about CPR must not be expected from a single study. For instance, we also did not investigate the effects of hypothermia on CPR procedure (4). Our aim was to share our clinical experience and reveal the performance of our clinic.

We are looking forward to further studies on CPR investigating different aspects of the procedure.

Best regards.

References

1. Kaminska H, Wiecek W, Matusik P, Czyzewski L, Ladny JR, Smereka J, et al. Factors influencing high quality chest compressions during cardiopulmonary resuscitation scenario according to 2015 American Heart Association Guidelines. *Kardiol Pol.* 2018; DOI: 10.5603/KPa.2018.0003. [CrossRef]
2. Mallikethi-Reddy S, Akintoye E, Rubenfire M, Briasoulis A, Grines CL, Afonso L. Nationwide survival after inhospital cardiac arrest before and after 2010 cardiopulmonary resuscitation guidelines: 2007-2014. *Int J Cardiol.* 2017; 249: 231-3. [CrossRef]
3. Wang CH, Huang CH, Chang WT, Tsai MS, Yu PH, Wu YW, et al. Associations between blood glucose level and outcomes of adult in-hospital cardiac arrest: a retrospective cohort study. *Cardiovasc Diabetol.* 2016; 15: 118. [CrossRef]
4. Hakim SM, Ammar MA, Reyad MS. Effect of therapeutic hypothermia on survival and neurological outcome in adults suffering cardiac arrest: a systematic review and meta-analysis. *Minerva Anestesiol.* 2018; DOI: 10.23736/S0375-9393.18.12164-X.

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