

Letter to the Editor

Editöre Mektup

Predictors of neurologically favorable survival among patients with out-of-hospital cardiac arrest: A tertiary referral hospital experience

Dear Editor,

I read with great interest the original article written by Balcı et al. published in the April 2017 issue of the journal^[1] about out-of-hospital cardiac arrest victims and factors predicting neurologically favorable survival. Out-of-hospital cardiac arrests have poor clinical outcomes despite medical improvements, and even with proper cardiopulmonary resuscitation interventions offered in current guidelines, survival rates remain low.^[2] With on-going cardiopulmonary resuscitation, it is vital to search for the treatable and reversible causes of cardiac arrest. Physicians should be aware of every clue that may be related to the patient's collapse. It is a challenging situation to make a differential diagnosis at the time of on-going cardiopulmonary resuscitation and interventions, but some clinical findings can be helpful. As proof of this low rate of definitive diagnosis, Balcı et al. reported 58.1% unknown diagnosis related to out-of-hospital cardiac arrests.^[1] Usually, we do not have enough time to correct our possible differential diagnosis, and we have to manage out-of-hospital cardiac arrest patients depending on "most probable differential diagnosis." This kind of management can direct us to a faster specific treatment choice while cardiopulmonary resuscitation is going on. Initial heart rhythm can give us that kind of chance for management. Balcı et al. reported asystole as initial rhythm on monitor at first sight in 97 of patients out of 129 victims.^[1] However, in a recently published paper investigating initial heart rhythm in out-of-hospital cardiac arrest victims, asystole as initial rhythm was reported to be as low as 34%, and even lower in bystander-witnessed cases.^[3] This difference in asystole as initial rhythm may be related to prolonged transportation time, as reported in the article by Balcı et al.,^[1] and may be even greater case percentage when there is no witness. Yamaguchi et al. also reported that pulseless electrical activity or shockable first rhythm, such as ventricular tachycardia/ventricular fibrillation, has a more favorable clinical

outcome.^[3] In a report previously published,^[4] it was also suggested that initial rhythm can guide physicians in the possible differential diagnosis. In this report, ischemic coronary events were found to be more related to initial rhythms of asystole and ventricular arrhythmias. Interestingly, the authors suggested that witnessed, atraumatic, out-of-hospital cardiac arrest with initial rhythm of pulseless electrical activity is most probably related to massive pulmonary embolism. Also in this paper, the authors claimed that pulseless electrical activity is somehow a neurologically more favorable clinical presentation than other initial rhythms, such as asystole.^[4] Physicians and emergency ambulance service medical staff dealing with out-of-hospital cardiac arrest victims should evaluate initial heart rhythm on monitor promptly for possible differential diagnosis and to decide on specific treatment of reversible etiological factors of cardiac arrest. Initial heart rhythm can be a strong predictor of neurological outcome in survivors of out-of-hospital cardiac arrest.

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doi: 10.5543/tkda.2017.64609

Conflict-of-interest issues regarding the authorship or article: None declared

References

1. Balcı KG, Balcı MM, Şen F, Akboğa MK, Kalender E, Yılmaz S, et al. Predictors of neurologically favorable survival among patients with out-of-hospital cardiac arrest: A tertiary referral hospital experience. *Turk Kardiyol Dern Ars* 2017;45:254–260.
2. Karam N, Marijon E, Dumas F, Offredo L, Beganton F, Bougouin W, et al. Characteristics and outcomes of out-of-hospital sudden cardiac arrest according to the time of occurrence. *Resuscitation* 2017;116:16–21. [CrossRef]
3. Yamaguchi Y, Woodin JA, Gibo K, Zive DM, Daya MR. Improvements in Out-of-Hospital Cardiac Arrest Survival from 1998 to 2013. *Prehosp Emerg Care* 2017;1–12. [CrossRef]
4. Courtney DM, Sasser HC, Pincus CL, Kline JA. Pulseless electrical activity with witnessed arrest as a predictor of sudden death from massive pulmonary embolism in outpatients. *Resuscitation* 2001;49:265–72. [CrossRef]