The Journal of Emergency Medicine, Vol. 56, No. 4, pp. 457–460, 2019

0736-4679/$ - see front matter

ELSEVIER

Letters to the Editor

☐ PREHOSPITAL SIMPLE THORACOSTOMY FOR TRAUMATIC CARDIAC ARREST: DOES THE CARDIAC ARREST RHYTHM MATTER?

☐ **To the Editor:**

We read the study by Dickson et al. published in the September 2018 issue of *The Journal of Emergency Medicine* with great interest (1). We were especially impressed by the outcomes of the patients included in their study and would like to take this opportunity to share and compare their results to our own experience with simple thoracostomy (ST) in traumatic cardiac arrest (TCA).

The prehospital Emergency Medical Service (EMS) of Lausanne includes one ground emergency resuscitation vehicle as well as one rescue helicopter, both staffed with emergency-trained physicians. They are dispatched according to specific keywords, or at the request of the paramedics on site. Our prehospital physicians have been performing simple thoracostomy (ST) for traumatic cardiac arrest since 2013. We have performed ST on 43 patients, mostly bilaterally (91%), and mainly for blunt trauma (42 patients, 98%). The mean patient age was 44 years (range 8–88 years) and 32 (74%) were male. The chest was successfully decompressed (i.e., the physician was able to reach the pleural cavity) in all but 1 patient. The rate of return of spontaneous circulation (ROSC) in our series was only 9% (4 of 43 patients), as 1 patient (2.5%) was discharged from hospital with a normal mental status.

The rate of ROSC and survival leading to hospital discharge in the Dickson et al. study were 25% and 9.3%, respectively, which is considerably higher than those in our series. As many factors may explain such difference, an important one to consider is the possible difference in patient selection, notably regarding their initial heart rhythm. Contrary to the Dickson et al. study, where the presenting rhythm was chiefly pulseless electrical activity (PEA) (65%), in our patients the majority (79%) presented with asystole, and the rate of PEA was significantly lower in our series (19%; $p < 0.001$). Furthermore, it is important to consider that the four survivors in the Dickson et al. study, as well as the only survivor in our series, had presented with PEA.

A possible explanation for the different proportions of PEA in our two studies may arise from the divergence between the European and North American guidelines. The 2015 European Guidelines TCA management do not integrate the initial rhythm as a criterion to withhold or terminate resuscitative efforts in the specific case of TCA (2). In our setting, we therefore propose ST in any TCA, regardless of the initial cardiac rhythm, including asystole. This may be different in the United States, where the absence of initial electrical activity strengthens the idea not to initiate resuscitation in a prehospital setting (3).

ST has an important role in the prehospital management of TCA. However, some criteria may help in identifying the patient who will best benefit from ST in TCA. This might notably be the case of the patients' initial rhythm of traumatic cardiac arrest.

François Stifkens, MD
Fabrice Dami, MD, PD, MBA
Adam-Scott Feiner, MD
Margaux Dubois, MD
Mathieu Pasquier, MD, PD
Emergency Department
Lausanne University Hospital
Lausanne, Switzerland

http://dx.doi.org/10.1016/j.jemermed.2018.09.058

REFERENCES

1. Dickson RL, Gleisberg G, Aiken M, et al. Emergency medical services simple thoracostomy for traumatic cardiac arrest: post implementation experience in a ground-based suburban/rural emergency medical services agency. J Emerg Med 2018;55:366–71.
2. Truhlář A, Deakin CD, Soar J, et al., Cardiac Arrest in special Circumstances Section Collaborators. European Resuscitation Council Guidelines for Resuscitation 2015: section 4. cardiac arrest in special circumstances. Resuscitation 2015;95:148–201.
3. Millin MG, Galvagno SM, Khandker SR, et al., Standards and Clinical Practice Committee of the National Association of EMS Physicians (NAEMSP); Subcommittee on Emergency Services—Prehospital of the American College of Surgeons' Committee on Trauma (ACSCOT). Withholding and termination of resuscitation of adult cardiopulmonary arrest secondary to trauma: resource document to the joint NAEMSP-ACSCOT position statements. J Trauma Acute Care Surg 2013;75:459–67.