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Letter to the Editor

The role of extracorporeal life support in patients with hypothermic cardiac arrest



Dear Sir,

We read the systematic review by Beyea et al.¹ with great interest. We were impressed by authors' efforts to assess the impact of extracorporeal cardiopulmonary resuscitation (ECPR) on neurologic outcome in out-of-hospital cardiac arrest (OHCA) patients. We strongly agree with the authors that current evidence supporting the routine use of ECPR for OHCA patients remains limited and that high quality randomized controlled trial data is urgently needed. However, we wish to add some additional comments regarding the selection criteria used in their study.

Beyea et al. in their systematic review included patients suffering from non-traumatic OHCA of various causes. The aetiology of some OHCA may however be very specific, and representing a separate entity that requires special treatment. As noticed by the authors, two studies were found to have a specifically higher rate of survival 70%² and 71.4%³. Both these studies indeed did not include patients with cardiac arrest (CA) of cardiac origin, but cases of OHCA secondary to accidental hypothermia² or drug intoxication³.

Hypothermic cardiac arrest is a very specific cause of CA, which justified the development of specific management guidelines⁴. Cooling of the body decreases oxygen consumption by about 6% for every degree below 37 °C. Thus, the brain can tolerate cardiac arrest for up to 10 times longer at 18 °C than in normothermia and intact neurological recovery may be possible even after prolonged cardiac arrest⁴. Out of 286 patients in hypothermic cardiac arrest identified recently by Pasquier et al. 37% survived, mostly (84%) with a good neurological outcome⁵. This was especially true for patients suffering from accidental hypothermia without component of asphyxia. OHCA inclusion of hypothermic origin in the study of Beyea and co-workers may therefore lead to the over-estimation of ECPR benefit for OHCA of cardiac arrest of other origin. On the other side, drawing conclusions from the systematic review by Beyea and al. should be conservative in particular with regard to OHCA from very specific cause like accidental hypothermia.

The eligibility criteria that may identify the patients who will best benefit from ECPR in OHCA patient of presumed cardiac origin has still yet to be defined. At the same time, the role of ECPR in the

management of OHCA from some specific causes appears to be well established. This is notably the case of patients suffering CA from accidental hypothermia, who have an excellent potential for survival with good neurological outcome.

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Conflict of interest

None.

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