Reviewer’s report

Title: Cooling after successful resuscitation in cardiac surgery patients

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Reviewer: Wilhelm Behringer

Reviewer’s report:

The authors report the outcome of 20 cardiac surgery patients after in-hospital cardiac arrest, treated with mild hypothermia. They conclude that the use of therapeutic hypothermia in resuscitated cardiac surgery patients is associated with improved neurologic outcome independently from initial heart rhythm.

Major Compulsory Revisions:

The major limitation of the study is its conclusion, which is not supported by the results. The authors did neither report neurologic outcome of the patients, nor compare the results with a normothermic control group.

- The aim of the study should include the specific patient population (cardiac surgery patients)
- Exclusion criteria: what is the definition of “highly inotropic support”? Why did the authors exclude these patients from treatment with mild hypothermia? There is a good evidence that mild hypothermia benefits also patients with cardiogenic or septic shock.
- The patients sections belongs to results
- What were the criteria for relaxation?
- What is the definition of acute renal failure?
- What is the definition of acute respiratory failure?
- In results, the authors describe 4 patients with highly inotropic support? In methods, patients with highly inotropic support were excluded. This is kind of a contradiction.
- What is the definition of gastro-intestinal bleeding? Need for red blood cells?
- Please describe cardiac arrest data: how many days after cardiac surgery cardiac arrest was experienced? Now flow times, low flow times, total epinephrine doses? Time to start cooling? Time to target temperature 33°C?
- Definition of low cardiac output syndrome? Measurements?
- Discussion: “However, in order to previously published data we could demonstrate a significant improvement in neurological outcome [8].” The authors did not report neurological outcome, so no comparison can be made with the literature. Ref 8 is an old reference, there are more recent publications. I addition, ref. 8 refers to out of hospital cardiac arrest.
- Discussion: “With our study we could underline the previous described benefits for neurological outcome due to therapeutic hypothermia independently from initial rhythms” the authors did not report neurologic outcome. References for “hypothermia independently from initial rhythms”?
- Some references do not match (e.g. ref 1 and 5 on page 8), references 4 and 7 are not listed in the text (ref 4 probably refers to ref 3 in the text)
- There are many references about hypothermia after in hospital cardiac arrest and after non VF cardiac arrest. These references could be discussed in comparison with the results of the study.

Minor Essential Revisions
- In introduction the authors describe “moderate hypothermia”. Common understanding is to use either “mild hypothermia”, or better “targeted temperature control”.
- Table 1 is labeled with Table 2
- This article would benefit from an English editor

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I am shareholder of the company EMCOOLS
I hold a patent on EMCOOLSpad, and receive yearly licence fees
I received travel reimbursement from the company BARD