

Improving Survival from Cardiac Arrest: A Review of Current Practice and Challenges

Guest Editor

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Message from the Guest Editor

Cardiopulmonary resuscitation (CPR) is a set of complex procedures aiming to restart normal circulation and restore normal perfusion. CPR consists of basic life support (BLS) and advanced cardiac life support (ACLS). The guidelines for managing patients with cardiac arrest were first published in 1966. Since then, CPR guidelines have been reviewed and updated regularly every five years by the American Heart Association (AHA), latest in 2020. To date, the AHA recommended only three medications in the algorithms, consisted of epinephrine (adrenaline), amiodarone, and lidocaine. However, recent literatures have been reported that there were several medications as well as non-pharmacological interventions that ameliorate the outcomes of CPR (i.e., bicarbonate, calcium, vasopressin, steroid). Despite the guidelines stated that acidosis (H^+) is one of the reversible causes of cardiac arrest, bicarbonate, which makes blood more alkali, is not routinely recommended. Besides, calcium represents another example of this controversy. Despite stating that hyperkalemia is the reversible cause of cardiac arrest, calcium, which is recommended for stabilizing myocardial membrane potential during hyperkalemia, is not routinely recommended, as well. The debate on these topics is continuing. In addition, several novel techniques and interventions were mentioned in the previous literature. Still, the conclusion and recommendation are limited in the guidelines since there is no strong evidence to prove them.

The goal of this special issue is to enhance the evidence regarding the use of medications and non-pharmacological interventions during adult cardiac arrest. Science requires a marketplace of ideas to challenge our understanding and motivate others to rigorously test our theories. We have the CPR guidelines for over 50 years; however, the rate of favorable neurological outcomes after attempted resuscitation is still the same. Like most things in life, you may not always succeed, but failure is usually guaranteed if you do not try.

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