



Postcardiac arrest care, neuro-prognostication and patient outcomes

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Introduction:

The main goal treating postcardiac arrest survivors is to minimize secondary brain and myocardial injury by maintaining physiologic homeostasis, and to avoid derangements in temperature, blood pressure, oxygenation and ventilation.

One large cardiac arrest trial, the TTM2-trial, comparing targeted temperature management (TTM) at 33°C with “no fever” was published in 2021. Two subsequent meta-analyses have concluded on a lack of effect of TTM at 33°C compared to normothermia on survival or functional outcomes. Updated ILCOR treatment recommendations consequently suggest active prevention of fever $\leq 37.5^\circ\text{C}$ for ≥ 72 hours for patients who remain comatose.

Prognostication of outcome after cardiac arrest is challenging but improved tools have emerged, e.g. simplified continuous EEG (cEEG), automated pupillometry and novel biomarkers of brain injury, particularly neurofilament light (NfL). An updated international algorithm for neuro-prognostication after cardiac arrest has been published and will be discussed. A Core Outcome Set for Cardiac Arrest survivors (COSCA) has been published that includes assessment of Health Related Quality Of Life (HRQOL).

Aims:

The overall aims of postcardiac arrest care are:

- to identify and treat the cause of arrest
- to optimize evidence-based treatments
- to continuously monitor neurologic and cardiac conditions to avoid secondary injury
- to continuously analyze collected data in order to assess prognosis
- to improve survival with good functional outcomes

Preliminary data:

A large cardiac arrest trial, the TAME-trial, randomizing patients to either high or normal PCO_2 will present results in 2022. A multimodal strategy for neuro-prognostication is recommended, including clinical examinations, pupillometry, neurophysiology, brain imaging and biomarkers of brain injury. A reduced EEG-montage has excellent performance, supporting the use of simplified cEEG. Neurofilament light chain (NfL) is a novel biomarker candidate that may replace NSE.

Conclusion:

Optimizing and prolonging postcardiac arrest care will minimize secondary brain injury and risk of premature withdrawal of care, that will save lives. A standardized follow-up protocol and access to a rehabilitation clinic will improve quality of life for patients and their relatives.