

Should perfusion guide cardiopulmonary resuscitation?



Perfusion-guided patient-specific resuscitation could be the next major step in improving cardiac arrest survival with good neurological outcomes, according to a letter published in *Resuscitation*.

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Rohit Mohindra, Jewish General Hospital Department of Emergency Medicine and the Department of Critical Care Research, McGill University, Montreal, Canada; Matthew Patel, of the Royal College of Surgeons in Ireland and Steve Lin, Li Ka Shing Knowledge Institute, St. Michael's Hospital and the University of Toronto, argue that as the ultimate goal of resuscitation is to restore tissue perfusion it would be effective to measure perfusion and treat according to perfusion response. Noninvasive devices, such as near-infrared spectroscopy, which can measure cerebral perfusion, are already in use. Cerebral perfusion could be measured to ensure that cerebral perfusion is not reduced during treatment to improve coronary perfusion pressure and return spontaneous circulation.

The authors suggest adapting an existing 3-step approach for perfusion-guided therapy ([Dünser et al. 2013](#))

1. Therapies are targeted to restore heart and brain perfusion. This should be the focus for treatments during CPR
2. Ensure global tissue perfusion
3. Perfusion of other organs that remain under-perfused

They advise that treatments, such as epinephrine, can be dosed appropriately to help maintain coronary perfusion but can also be adjusted to minimise cerebral vasoconstriction. Dynamic parameters better meet the physiological needs of organs during critical illness, meaning that every patient will have a different treatment plan to maximise organ perfusion.

They note that clinical data from human subjects is lacking currently, however, and RCTs using CPR feedback devices have had mixed results.

They conclude that the concept of perfusion-guided resuscitation will be the next paradigm shift to produce meaningful, patient-centred outcomes.

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