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| 3-13 Neuroprotection following cardiac arrest v.1 |
| Outcome from cardiac arrest is determined by the severity of any supervening neurological or cardiac dysfunction / instability which results from poor vital organ perfusion. Following return of spontaneous circulation (ROSC), inability of the patient to obey commands indicates that neuroprotection techniques should be considered.  |

 START.

❶ Prepare the cardiac arrest trolley for any further events.

❷ Use positive pressure ventilation, aiming for:

* SpO2 > 94% and < 98%.
* PCO2 > 4.5 kPa and < 5.5 kPa.

❸ Give sedation and neuromuscular blocking drugs to reduce thermogenesis from shivering.

❹ Insert intra-arterial blood pressure monitoring. Consider vasopressor/inotrope to maintain systolic blood pressure, target SBP > 100 mmHg.

❺ Obtain 12-lead ECG and discuss with cardiology if percutaneous coronary intervention is possible or appropriate.

❻ Check blood glucose.Start glycaemic control therapies if above 10 mmol.l-1.

❼ Check core temperature. Target temperature is a constant temperature in the range of 32 – 36°C (precise target determined by local policy):

* Temperature usually decreases without intervention in the immediate post-arrest period.
* Start cooling strategies if indicated (Box A).
* Avoid hyperthermia > 37.5°C.

❽ Give antiepileptic drugs if seizures develop (Box B).

**❾** Plan further management in critical care area. Call for extra help as necessary.

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| Box A: COOLING STRATEGIES |
| Intravenous fluid bolus: if not contraindicated give 30 ml.kg-1 of cold (4°C) non glucose-containing solutions External: simple ice packs and/or wet towels; cooling blankets or pads; water or air circulating blankets; water circulating gel-coated pads Internal: intravascular heat exchanger; cardiopulmonary bypass  |

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| Box B: DRUGS TO CONTROL/PREVENT SEIZURES |
| * Benzodiazepines or propofol are likely to be closest to hand in the operating theatre.
* Sodium valproate, levetiracetam, phenytoin or a barbiturate can also be used.
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| Box C: CRITICAL CHANGES |
| Cardiac arrest → 2-1  |

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