Post Cardiac Arrest Guideline

Refer EARLY to KIDSNTS for advice - 0300 200 1100

- **Indication**: **> 1minute cardiopulmonary resuscitation AND requires mechanical ventilation AND remains comatose following cardiac arrest (excluding anaesthetic, neuromuscular blockade)**
- **Contraindications:** Children with Advanced Care Plans where the agreed plan is different to the post cardiac arrest guideline, Or consultant in charge of care believes continued, aggressive neuro-critical care is not appropriate, AND patients with a diagnosis of brain death.

Therapeutic goals are to manage complications of Post Cardiac Arrest Syndrome:

1) Investigate and prevent further cardiac arrest.
2) Brain injury – deliver neuro-protective strategies.
3) Myocardial stunning/dysfunction (peaks at approx. 8 hours) – circulatory support, optimise electrolytes.
4) Systemic ischaemia/reperfusion injury – organ support.

Airway/ Breathing

- Monitor oxygen saturations & blood gas (ideally arterial).
- Target **oxygen saturations 94-99% and pCO2 4.5 – 5.5 kPa** (ETCO2 may be unreliable due to low cardiac output state).
- Early intubation and ventilation – cuffed ETT if possible.
- Manage acidosis.

Circulation

- Monitor heart rate, BP, perfusion, serum lactate and urine output.
- FBC and clotting profile - correct coagulopathy if present.
- Perform 12 lead ECG and focused echocardiogram if able.
- **Target normal BP for age** (>5th centile; invasive arterial if possible).
- If hypotensive:
  - IV fluid boluses with caution
  - Vasoactive drugs -Adrenaline first line
  - IV Hydrocortisone in catecholamine resistant shock

Age (yrs)	Systolic (5th centile)
1-2	70
3-4	75
5-6	80
7-10	85
11-14	90
15-16	95

Disability

- Assess 'best' neurology/GCS & pupils post ROSC.
- Central (oesophageal/rectal) and continuous temperature monitoring.
- Monitor for and treat seizures (follow APLS algorithm).
- Consider early CT head to rule out intracranial pathology.
- 30 degrees head up, midline position.
- **Temperature targeted management - do not actively warm unless <33 degrees** d/w KIDS NTS consultant for defined target.
- Start IV analgesia/sedation - monitor for and treat agitation.
- IV muscle relaxant if shivering (may mask seizures).

Electrolytes/ Fluids

- Start 80% maintenance IV fluids - target **normoglycaemia (3 – 10 mmol/L)**.
- Target normal electrolytes: **Potassium 3.5 – 5 mmol/L , iCa (on gas) > 1.0 mmol/l, Magnesium > 1 mmol/L.**
- Insert urinary catheter - aim **urine output > 1ml/kg/hr.**

Ensure comprehensive history obtained:

- Preceding neurological status and development.
- Family history of acute life threatening events, sudden cardiac arrest, metabolic or congenital disease.
- Details of cardiac arrest – witnessed, bystander CPR, initial cardiac rhythm identified, duration of CPR, doses of adrenaline, defib attempts, time of ROSC.

Other Management:

- Investigate underlying cause – seek specialist advice.
- Routine antibiotics/anticonvulsants not indicated.
- Consider Child Protection/SUDIC protocol.

See BCH PICU Post Cardiac Arrest Guideline v2.0 for full guideline

Author - CS/MR/BS - Nov '20. Review Nov '23.