Donor Optimisation Care Bundle – Paediatric (37 wks CGA - 15 yrs)

Patient Name

Date of Birth

Unit Number

Date

Cardiovascular

	Y	N/A
1. Monitor cardiovascular state aim for normal parameters[1]	☐	☐
2. Measure CVP (4 – 10 mmHg) (if suitable access available)	☐	☐
3. Review intravascular fluid status and correct hypovolaemia with isotonic Fluid boluses (10mls/kg aliquot)	☐	☐
4. Measure central venous oxygen saturation (maintain >70%)	☐	☐
5. Measure cardiac output if appropriate (non-invasive monitoring is appropriate if availiable)	☐	☐
6. Commence vasopressin where vasopressor required, wean or stop catecholamine pressors as able	☐	☐
7. Commence dopamine / noradrenaline to maintain MAP as required	☐	☐
8. Introduce adrenaline / dobutamine if echo indicates poor cardiac function	☐	☐
9. Consider esmolol / labetalol in cases of persistent hypertension in the absence of vasopressors.	☐	☐

Respiratory

(>1 month old - pH > 7.25 $PaO_2 \geq 10$ kPa)

(37wk CGA - <1 month old pH >7.2 PaO2 >8kPa)

	Y	N/A
1. Perform lung recruitment manoeuvres (following apnoea tests, disconnections, suctions, de-saturations).	☐	☐
2. Review ventilation, ensure lung protective strategy (Tidal volumes 6– 8ml/kg (< 1month old 4-6mls/kg) and optimum PEEP (5 – 10 cm H_2O), PIP <30cmH_20)	☐	☐
3. Maintain regular chest physio incl. suctioning as per unit protocol	☐	☐
4. Maintain 30 – 45 degrees head of bed elevation	☐	☐
5. If appropriate use a cuffed endotracheal tube and ensure it is adequately inflated (consider changing to cuffed tube if indicated)	☐	☐
6. Patient positioning (side, back, side) as per unit protocol	☐	☐
7. Where available, and in the context of lung donation, perform bronchoscopy, bronchial lavage and - toilet for therapeutic purposes	☐	☐

Fluids and metabolic management

	Y	N/A
1. Review fluid administration. IV crystalloid maintenance fluid (or NG water where appropriate) to maintain Na^+ < 150 mmol/l	☐	☐
2. Maintain urine output between 1.0 – 2.0ml/kg/hr (If > 4ml/kg/hr, consider Diabetes insipidus and treat promptly with vasopressin and/or DDAVP.)	☐	☐
3. Administer methylprednisolone	☐	☐
4. Start insulin infusion if necessary to maintain blood sugar (4 –12 mmol/l)	☐	☐
5. Continue NG feeding as appropriate, ensure prescribed gastric protection as unit policy	☐	☐
6. Correct electrolyte abnormalities (maintain Na, K, Ca, Phos, and Mg within normal ranges)	☐	☐

Thrombo-embolic prevention

1. Ensure prevention measures in place as per unit policy	☐	☐

Lines, Monitoring and Investigations (if not already completed)

1. Insert arterial line	☐	☐
2. Continue hourly observations as per critical care policy	☐	☐
3. Perform CXR (post recruitment procedure where possible)	☐	☐
4. Perform a 12-lead ECG	☐	☐
5. Send Troponin level in all cardiac arrest cases (and follow-up sample where patient in PICU > 24 hours)	☐	☐
6. Where available, perform an echocardiogram	☐	☐

Other

1. Maintain normothermia using active warming /cooling where required	☐	☐
2. Review and stop all unnecessary medications	☐	☐
3. Consideration for blood sampling volumes [2]	☐	☐
4. Family considerations and support throughout	☐	☐

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Physiological Parameters / Goals

Tick ✓ = achieved, x = not achieved

	O/A	+1hr	+2hrs	+4hrs	+6hrs	+8hrs	+10hrs	+12hrs	+14hrs	+16hrs	+18hrs
Target Systolic BP (primary goal) ……mmHg	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CVP 4 – 10 mmHg (secondary goal)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
$PaO_2 \geq 10.0$ kPa (>1month) (37wk CGA - < 1month old PaO2 >8 kPa and pH> 7.2) FiO_2 < 0.4 as able	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
$PaCO_2$ 5 – 6.5 kPa (or higher as long as pH > 7.25)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
$ScvO_2$ > 70%	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cardiac index > 2.5 - 6 l/min/m^2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
SVRI 400– 1200 dynes*sec/cm^5/m^2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Temperature 36 – 37°C	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Blood glucose 4.0 – 12 mmol/l	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Maintain Na < 150mmol/l	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Urine output 1- 2 ml/kg/hour	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Signature / Print Name											
Date / Time											

Bibliography / References

1. European Paediatric Advanced Life Support 4th ed (2016). European Resuscitation Council. Lippincott Williams & Wilkins

2. SOP 5058 – Neonatal and Infant Organ Donation

3. Rozenfeld V, Cheng JW. The role of vasopressin in the treatment of vasodilation in shock states. Ann Pharmacother. 2000; 34:250-4

4. Ralston.C & Butt. W Continuous vasopressin replacement in diabetes incipidus. Arch Dis. Child. 1990 65; 896-897 doi 10.1136/adc.65.8.896

5. Malleroy GB Jr, Schecter MG, Elidemir O, Management of the Paediatric Organ donor to optimise lung donation. Paediatric Pulmonol. 2009 Jun; 44(6):536-46

5. Paediatric Formulary Committee. *BNF for Children* (2015 -2016) London: BMJ Group, Pharmaceutical Press, and RCPCH Publications; (2015)

6. Optimisation care bundle http://www.odt.nhs.uk/pdf/dbd_care_bundle.pdf

7. Shemie. S Organ donation management in Canada; recommendations of the forum on medical management to optimise donor organ potential. 2006. Mar 14; 174(6):s13-s30

Systolic BP - Age specific ranges (mmHg) – EPALS guidance[1]	
0-1 month	50-60 mmHg
1-12 months	70-80 mmHg
1-10 years	70+(2 x age(yrs)) to 90+(2 x age(yrs))
> 10 yrs	90-120 mmHg

Drug	**Standard infusion**	**Diluent**	**Rate of infusion**	**Dose**
Dopamine	15mg/kg in 50mls (max 800mg in 50ml)	NaCl 0.9% OR Glucose 5%	1ml /hr = 5 micrograms/kg/min	<10 micrograms/kg/min
Noradrenaline	0.3mg / kg in 50mls (max concentration 8mg in 5ml)	Glucose 5%/ Na Cl 0.9%	1ml/hr = 0.1 micrograms/kg/min (of standard infusion)	0-0.5 micrograms/kg/min (maximum rate = 5mls/hr of standard infusion)
Vasopressin/ Argipressin	20 units in 50ml diluent	NaCl 0.9% / Glucose 5%	0.0003 units/kg/min = 0.045ml/kg/hr	0.0003-0.001units/kg/min (Max dose 6 u/hr)[3]
Vasopressin – treatment for Diabetes Insipidus [4]	2-5 units / litre diluent	NaCl 0.9% / Glucose 5%	ml for ml replacement of urine output	N/A
Adrenaline	0.3mg /kg in 50ml	Glucose 5%	1 ml /hr = 0.1micrograms/kg/min (of standard infusion)	0-0.5micrograms/kg/min
Dobutamine	30mg/kg in 50mls	Glucose 5%, 10% / Nacl 0.9%	1ml/hr = 10micrograms/kg/min	5-20 micrograms/kg/min

Esmolol	10mg/ml (pre-diluted)	50-300 micrograms/kg/min (max 500 micrograms/kg/min)	IV continuous infusion – titrated to response
Labetalol	5mg/ml (neat)	0.5 – 3 milligrams/kg/hr (max 5 milligrams/kg/hr)	IV continuous infusion – titrate to response

Drug	**Dose**	**Administration**
Methylprednisolone	15milligrams/kg (max 1g)	IV infusion over 1 hour
DDAVP (desmopressin)	1 month – 12 years 400 nanograms 12-18 years 1-4 micrograms	IV bolus
Insulin (50 units in 50ml)	0.1units/kg/hr	IV continuous infusion – titrated to response