

QUICK REFERENCE GUIDE

MEDICAL MANAGEMENT

- Maintain MAP ≥ 70 mmHg: maintain normal volume state, if required administer inotropic agents (e.g. noradrenaline)
- Maintain adequate organ perfusion (monitor urine output, lactate), consider invasive haemodynamic monitoring (arterial line +/- central venous catheter usually required)
- Monitor electrolytes (Na⁺, K⁺) every 2 to 4 hours and correct to normal range
- Undertake usual respiratory care (routine suctioning, positioning/turning, atelectasis reducing ventilation – adequate PEEP, recruitment manoeuvres)
- Suspected diabetes insipidus (UO > 200 mL/h, rising serum sodium): administer DDAVP (e.g. 4 microgram IV in adults) and replace volume loss with 5% dextrose
- Treat hyperglycaemia (Actrapid infusion): aim blood glucose 5 to 10 mmol/L
- Prevent or treat hypothermia, maintain temperature ≥ 35 C. Pre-emptive use of warming blankets etc. is advised.
- Maintain haemoglobin (e.g. Hb >70 g/L)

PHYSIOLOGICAL PARAMATERS AND GOALS

PaO ₂	≥ 250 mmHg (FiO ₂ 1.0)
MAP	≥ 70 mmHg
CVP	6 – 10 mmHg
Haemoglobin	≥ 70 g/L
Temp	≥ 35
Blood glucose	5 – 10 mmol/L
Urine output	30 – 200 ml/h (0.5 – 3 ml/kg/h for children)

CONSIDER HORMONE RESUSCITATION - The use of hormonal resuscitation remains controversial. Some centres use it in the setting of persistent haemodynamic instability (despite volume resuscitation and low dose inotropes) and/or if cardiac ejection fraction < 45% and heart donation is being considered.

	Adult	Paediatric
Arginine vasopressin (AVP)	0.5 – 4.0 U/h* - start at 2 U/h and wean inotropes**	0.02 - 0.06 U/kg/h
Tri-iodothyronine (T3)	4 microgram IV bolus, then 4 microgram/h	0.05 - 0.2 microgram/kg/h
Methylprednisolone	15 mg/kg IV single bolus (max dose 1 gram)	15 mg/kg IV single bolus

**Most protocols recommend a dose range of 0.5 to 4.0* units/h, although doses greater than 2.4 units/h may cause regional ischaemia.

IV PREPARATIONS:

T3 (20 microgram) reconstitute with water for injection to 1 mcg/ml solution.

AVP (20 units/1ml) reconstitute with 40mls 5% dextrose to make 0.5 U/ml solution.

Methylprednisolone (500mg – 1gm vials) reconstitute with water for injection. Doses up to 250 mg should be given over a period of at least 5 minutes and doses greater than 250 mg should be given over at least 30 minutes.

ORGAN SPECIFIC OPTIMISATION

RESPIRATORY

- Chest x-ray post declaration of brain death.
- Careful respiratory management including regular suctioning, positioning and turning.
- Lung protective ventilation – ventilator techniques that reduce atelectasis (adequate PEEP 5 – 10 cm/H₂O, Vt 6 – 8 ml/kg).
- Consider lung recruitment manoeuvre/s – refer to lung recruitment protocol (SP, HO, JS 2013)
- Avoid fluid overload – maintain low to normal volume state.
- Consider Alfred lung donor referral summary and requirement for CT chest.
- Consider methylprednisolone (15mg/kg dose) maximum dose 1 gm. D/W lung transplant unit.
- Routine broad spectrum antibiotic – preference Tazocin 4.5 grams 8 hourly.
- Arrange bronchoscopy (in collaboration with accepting lung team). Ensure bronchoscopy equipment available prior to arrival of respiratory transplant physician. If retrieving team unable to perform the bronchoscopy, and local medical staff can facilitate; provide them with a 'DLV lung donor bronchoscopy guide' to enable recommended reporting of findings including anatomy.
- Send BAL for Fungi, MC&S, AFB for processing at the donor hospital.

CARDIOVASCULAR

- Request ECG and transthoracic echo following declaration of brain death if being considered for heart donation.
- Review intravascular fluid status and correct hypovolaemia with fluid boluses.
- Consider Vasopressin (0.5 – 2 units/hour) where inotropes required; wean or stop catecholamine pressors as able.
- Commence Tri-iodothyronine (T3) at 4 microgram /hour (following 4 microgram bolus) if requested by the heart transplant unit or if the donor has significant haemodynamic instability (D/w treating Intensivist and/or DLV medical consultant).

FLUIDS AND METABOLIC MANAGEMENT

- Review fluid administration. IV crystalloid maintenance infusion (or NG water) to maintain Na⁺ <150mmol.
- Start Actrapid insulin infusion to maintain tight blood glucose control 5 – 10mmol/L.
- Continue NG feeding.
- If diabetes insipidus suspected (e.g. UO > 200 mL/h in adult or > 3ml/kg/h in child, with rising serum sodium) – administer DDAVP or vasopressin early. DDAVP 4 mcg (paeds 0.25 – 2 mcg) IV every 2 – 6 hrs (or as required). Replace volume loss with IV 5% dextrose (or sterile water via CVC if persistent hyperglycaemia).

REFERENCE DOCUMENTS:

Organ donor management in ICU (HO 2010)

DLV Lung recruitment Protocol (SP HO JS 2013)

Lung Donor Bronchoscopy guide DLV (GS HO SB 2013)

Australian and New Zealand Intensive Care Society. The ANZICS Statement on Death and Organ Donation (Edition 3.2). Melbourne: ANZICS, 2013.