RENAL TRANSPLANT QUICK GUIDE

Aug 2023

THIS QUICK GUIDE DOES NOT REPLACE THE RENAL TRANSPLANT PROTOCOL AVAILABLE ON THE INTRANET AND THE FULL PROTOCOL SHOULD BE REFERRED TO WITH ANY QUERIES AND FOR FULL INFORMATION

A period of post-operative observation and assessment of the function of the graft in a setting with sufficient staffing to meet the monitoring needs of the patient is appropriate. Most patients will have good immediate graft function.

On arrival

1. **Take handover** in the usual manner and examine the patient. Important points include:
    a. Ischaemic time
    b. Any unusual or problematic features and any anticipated difficulties in the early post-op period.
    c. An examination of the patency of the fistula if present (pulsation/thrill/bruit)
2. **Airway and breathing.** Patients arrive extubated and supplemental oxygen should be given (usually by mask) to all patients as needed to maintain oxygen saturations as below.
3. **Diet.** Unless otherwise stated by the operating surgeon, all patients may eat and drink as tolerated as soon as they are fully alert.

Investigations

1. **CXR (in PACU); 12 lead ECG; ABG; FBC; Extended biochemistry; Full coagulation profile –** are initial investigations. Check all results. Ongoing investigations will be guided by the intensivist but should include regular monitoring of electrolytes including sodium. This is usually with arterial blood gases every 4-6 hours.
2. **Doppler Ultrasound -** Usually requested by the Renal Transplant Team in the routine postoperative transplant cases. If there are no concerns with the function of the graft then this is often undertaken on the morning after admission. *In certain circumstances it will be requested by the DCCM registrar and in these cases it is imperative that the sonographer understands this is for a renal transplant Doppler (there are specialist sonographers for this)*

Charting: ***Do NOT chart heparin or enoxaparin in the immediate post-operative phase in ICU (risk of bleeding)***

Fluids	**Plasma-Lyte 148 at a rate of the previous hours urine output**	*- Patients are often polyuric with urine outputs up to 1000mls/hr.* *- The aims of fluid management are to maintain good renal perfusion while minimising ECF expansion.*
Analgesia	**Paracetamol 1g PO/NG q6h**	
	Fentanyl PCA	
Routine medications	**Ondansetron 4-8mg IV/PO PRN max q8h**	
Antimicrobials	**Cefuroxime 750mg IV q8h – 2 postoperative doses**	

Immunosuppression – As per Nephrologist – **Confirm doses in clinical notes**		
Ciclosporin Backbone (NB. MMF Dose)	**Prednisone 30mg PO daily – start at 0800 hours next morning**	
	Mycophenolate mofetil 1g PO q12h	
	Ciclosporin – the starting dose is 5mg/kg. Give at 0630 and 1830 hours (start at the first postoperative time that occurs)	*2 hour post dose (C2) drug level monitoring*
OR		
Tacrolimus Backbone (NB. MMF Dose)	**Prednisone 30mg PO daily – start at 0800 hours next morning**	
	Mycophenolate mofetil 750mg PO q12h	***Note the smaller dose with tacrolimus***
	Tacrolimus – the starting dose is 0.05mg/kg. Give at 1000 and 2200 hours (start at the first postoperative time that occurs)	*Trough (C0) drug level monitoring*

Physiological targets

Heart Rate (HR)	**60 – 120/min**	
Mean Arterial Pressure (MAP)	**80 – 120mmHg**	*This is to ensure good perfusion of the newly transplanted kidney*
Haemoglobin target	**Red cells should only be given to keep haemoglobin >80g/L**	
Temperature	**36 – 38.5 degrees Celsius**	

Medications that should **NOT** be charted or are **contraindicated**

Heparin Not usually given for venous thrombo-embolism prophylaxis in these patients in DCCM for first 48 hrs.

Macrolides Macrolides (incl. erythromycin, azithromycin, clarithromycin) inhibit the metabolism of tacrolimus via the Cytochrome P-450 3A subfamily, increasing tacrolimus concentrations to potentially toxic levels.

NSAID Non-steroidal anti-inflammatory medications should be avoided post renal transplantation as they are nephrotoxic and can potentiate calcineurin inhibitor induced nephrotoxicity.

Statins Statins and ciclosporin are metabolised by the same pathway and may increase ciclosporin levels.

Common issues

Hypotension Treat hypotension with appropriate fluid boluses initially. Consider other causes including bleeding, sepsis, and myocardial infarction. Low dose vasopressors may be required.

Oliguria Patients who are not polyuric (>125mls/hr) should have volume expansion with crystalloid initially. Exclude mechanical obstruction of the urinary catheter. Ensure adequate blood pressure (MAP >80mmHg). If ongoing (i.e. >4 hours) oliguria discuss with ICU SMO +/- transplant nephrologist.

Hyponatraemia If hyponatraemia develops then change the fluid replacement to Plasma-Lyte 148 at a rate of 2/3 of the previous hours urine output. This decreases the amount of free water given to the patient.

Bleeding Evident bleeding (either as loss from drains or as transfusion requirement) of more than 200ml/hour should be replaced as required, coagulation should be aggressively corrected and the situation discussed within two hours with the transplant surgeon. Re-operation may be required. Sudden massive bleeding usually indicates vascular anastomotic failure and immediate re-operation is required without other investigations such as imaging.

Hyperkalaemia K+ 6.0 – 6.4mmol/L should be treated with the following:

- Give 50ml of IV 50% dextrose bolus with 10 units of IV insulin bolus
- Re-check serum potassium in 2 hours
- Consider other therapies (e.g. bicarbonate if acidotic)

K+ ≥ 6.5 mmol/L can be a life threatening emergency

- Discuss the patient immediately with the ICU SMO (+/- transplant nephrologist). Haemodialysis may be needed and this is preferred in this circumstance over continuous veno-venous haemodiafiltration (CVVHDF) .
- Give 50ml of IV 50% dextrose bolus with 10 units of IV insulin bolus.
- Start 20ml/hr 50% dextrose IV infusion immediately .
- Start 2 units/hr insulin infusion immediately – adjust as necessary to keep blood glucose 7 - 12mmol/L.
- Give salbutamol 10mg by nebuliser immediately.

Simultaneous pancreas kidney transplant (SPK) Refer to the intranet protocol for this group of patients. They should have a serum amylase with initial bloods and require close glucose control.