Immunosuppression protocols

Immunosuppression is tailored according to an assessment of the patients' immunological risk. It is more intense in the first few weeks and months when the risk of acute rejection is greatest, but needs to continue long-term. After transfer back to local units post-transplantation, the local nephrology team adjusts immunosuppression.

This page deals with immunosuppression in the first few months. There are sub-pages on Tacrolimus levels, on Steroid avoidance and withdrawal, and on Long-term immunosuppression.

See also the timepoint summaries under Outpatient Management indicating expectations at 3, 6 and 9 months.

Assessing immunological risk

We base immunological risk on the presence or absence of donor-specific anti-HLA antibodies (DSA) (more about these tests on Crossmatch page) and other markers associated with increased risk of rejection.

Transplantation will not proceed if CDC crossmatch (explain this) is positive, except in very unusual and carefully planned circumstances. All positive crossmatch or DSA positive cases should be discussed with the H&I team to determine risk and their assessment on pathogenicity of the antibody.

High risk: positive flow (FACS) crossmatch

Indicates presence of donor-specific antibodies (DSA) measured by solid phase assay

- Irrespective of number or class of antibody
- No MFI cut-off stated
- Current or historic

Standard risk: No DSA present.

The following features can form part of immunological risk assessment for judging maintenance immunosuppression. However, in the absence of DSA, they

should generally not lead to enhanced induction:

- Previous graft failure due to rejection in the first year
- Number of HLA mismatches
- 'High' cRF – this may be an additional risk factor in patients with DSA but not without.
- Pancreas transplant (see Pancreas protocols)

Immunosuppressive regimen: standard risk

This regimen applies to all first, non-sensitised deceased donor recipients with standard immunological risk.

From Sep 2018, Edinburgh switched to use the Adoport® formulation of Tacrolimus in place of Prograf®. Formulations of Tacrolimus are not interchangeable and must be prescribed as a specific proprietary product. The age for reducing the standard MMF dose was also reduced from 65 to 60.

Pre-op (at admission)	• Mycophenolate mofetil (MMF) PO 1g • Tacrolimus (*Adoport*) PO 0.05mg/kg
Peri-op	• Basiliximab IV 20mg • Methylprednisolone IV 500mg in theatre; - and another 500mg 24hrs post-op
Post-op	• Prednisolone PO 20mg daily (reducing to 15 mg at week 4, 10 mg at week 8, 5mg at 3 months. Restart clock if high dose steroid pulses given). • Mycophenolate mofetil (MMF) PO 1g bd at 10:00 and 22:00 (MMF 500mg twice daily if >60 years) • Tacrolimus (*Adoport*) 0.05mg/kg bd at 10:00 and 22:00
Day 4	• Basiliximab IV 20mg

Immunosuppressive regimen: high risk

It is important to identify patients who are at high immunological risk at the time of listing where possible (for example in living donation), although many cases will only become evident on the day of transplant when DSA

testing/crossmatching for the offered organ is performed.

Where possible, and in particular if there are any unusual features, the tailored immunosuppressive regimen should be decided at the time of listing, and a clear plan documented (and justified) in the patient's notes.

In general, high risk cases, consideration should managed as follows:

- Induction therapy with a T-cell depleting agent.
    - This is generally ATG although Alemtuzumab (Campath®) SC 30mg may be considered.
    - When used, basiliximab is omitted.
- Monitoring of antibody levels post-operatively where there is a known DSA, and intervention with plasma exchange and/or IVIg as necessary.
- Tacrolimus as standard dose with target levels 8-12.
- Prednisolone and MMF are prescribed as above. Early biopsy should be carefully considered.

Recipients of Marginal grafts

Usually use standard immunosuppression, with target trough Tacrolimus levels of 5-7mg/dl if patient is standard immunological risk. If high immunological risk, follow the high risk protocol.

What is a Marginal graft? Risk for delayed graft function (DGF) may be estimated by this scoring system:

Consider as Marginal Graft if Score 2 or higher
Donor age 60-65 = 1
Donor diabetes = 1
Donor hypertension =1
Donor vascular disease =1
Donor cold ischaemia >24 hrs =1
Donor donation after circulatory death (DCD) = 2
Donor age over 65 = 2

Sclerosis: >20% sclerosed glomeruli on donor biopsy = 2

Live donor organ recipients

The same protocols apply as for deceased donor transplants. Tacrolimus and MMF are commenced at the time of admission of patients for live donor transplants.

Surveillance biopsy

This is a biopsy carried out at a fixed time point irrespective of other parameters. Recommended in:

- High immunological risk patients, particularly those with DSA pre-transplant/positive flow (FACS) crossmatch
- Previous graft lost to early acute rejection
- ABO incompatibility
- Recipient with an episode of early acute rejection
- Patients with high risk of recurrent disease
- De novo DSA

The optimal time period whereby results may impact management is within 3-6 months of transplant.