HERPC

Hull & East Riding Prescribing Committee

Prescribing Framework for Tacrolimus prescribed by brand (Prograf® or Adoport) for Post Solid Organ Transplant

Patient's Name:…….. NHS Number: ……

Patient's Address:……...……(Use addressograph sticker)

GP's Name:……..

Communication

We agree to treat this patient within this Prescribing Framework

Specialist Prescriber's Name…… Prof Reg. No. ……

Specialist Prescriber's Signature…… Date:…….

Where prescriber is not a consultant:

Consultant's Name: …… GMC No ……..

Consultant's Signature ……... ……. Date:…….

GP's Signature:…… Date:……..

GP's Name (if different from listed above)……..

The front page of this form should be completed by the specialist and the form sent to the patient's general practitioner.

The patient's GP should sign and **send back to specialist**, to confirm agreement to enter into shared care arrangement. If the General Practitioner is **unwilling** to accept prescribing responsibility for the above patient the specialist should be informed within two weeks of receipt of this framework and specialist's letter.

1. BACKGROUND

These guidelines aim to provide a framework for the prescribing of Tacrolimus as either Prograf® or Adoport® by GPs and to set out the associated responsibilities of GPs and hospital specialists who enter into the shared care arrangements.

The preferred immunosuppressant combination for new renal transplants is mycophenolate mofetil and Tacrolimus as either Prograf® or Adoport®, this combination has been shown to eliminate the need for maintenance corticosteroids.

There are several brands of tacrolimus available it is important that patients continue on the same preparation; this will be specified in the clinic letters sent to GPs. See tacrolimus drug safety update (http://www.mhra.gov.uk) and prescribing information in the BNF. **Tacrolimus should not be prescribed by its generic name.**

Shared care will be implemented 3 months post-transplant.

This document should be read in conjunction with the guidance "Responsibility for prescribing between Primary & Secondary/Tertiary Care" https://www.england.nhs.uk/wp-content/uploads/2018/03/responsibility-prescribing-between-primary-secondary-care-v2.pdf

2. INDICATION

Immunosuppression following kidney transplant

3. DOSE

The dose of tacrolimus is titrated according to blood levels. The level required to prevent rejection is between 3 – 14ng/ml. The usual dose may be between 1mg and 4mg twice a day. Tacrolimus should be taken every 12hours (unless modified release preparation; see below). On clinic days patients will be advised to delay the dose until after the clinic visit to allow trough tacrolimus levels to be measured.

Tacrolimus should be prescribed by the brand specified by the consultant usually Prograf® or Adoport®. This is to prevent confusion with other preparations that may not be bioequivalent. See tacrolimus drug safety update (http://www.mhra.gov.uk) and prescribing information in the BNF.

N.B. Other brands of tacrolimus (including Advagraf MR, once daily preparation) are non-formulary within Hull and East Riding area. However, due to the risk of toxicity or graft rejection, any patient who has been initiated on another brand of tacrolimus should remain on this brand unless advised by the renal team.

4. DURATION OF TREATMENT

Long term

5. CONTRAINDICATIONS AND CAUTIONS

Pregnancy and breast feeding
Avoid unless potential benefit outweighs risk—crosses the placenta and risk of premature delivery, intra-uterine growth restriction, and hyperkalaemia

Patients discovered or planning to have a family should be started on folic acid 400micrograms daily and referred to specialist. Manufacturers advise that combined oral contraceptive (COC) pill should not be used with tacrolimus. This is due to a theoretical risk that the COC is less effective when taken with tacrolimus. However in practice there have been no reported problems and therefore COCs are recommended as a viable method of birth control.

Avoid in breast feeding women

6. INTERACTIONS

The following agents may interact with tacrolimus and therefore **should be avoided** unless discussed with specialist. Live vaccines should be avoided. NSAIDs (and other nephrotoxic drugs) should be used with extreme caution. Potassium sparing agents may exacerbate tacrolimus induced hyperkalaemia and should only be initiated with regular monitoring of U&Es.

Increased tacrolimus levels:
Erythromycin / Clarithromycin
Diltiazem, nicardipine, verapamil
Fluconazole, Itraconazole, Ketoconazole,
Amphotericin
Grapefruit juice / fruit
Ranolazine

Decreased tacrolimus levels:
Rifampicin
Carbamazepine
Phenobarbitone
Phenytoin
St John's Wort

Tacrolimus may increase levels of dabigatran – manufacturer of dabigatran recommends to avoid concomitant use

Renal function should be taken into consideration when co-prescribing for renal transplant patients.

7. ADVERSE EFFECTS

Hypertension: this is a common side effect, and can be monitored and treated by the GP. Patients who are started on an ACE inhibitor or Angiotensin-2 blocker should have their U&Es checked after initiation. If creatinine rises by more than 20% then refer to specialist. Amlodipine may also be used to control blood pressure, but diltiazem, verapamil and nicardipine should be avoided as they may increase tacrolimus levels (See SPC)

Headache, tremor, insomnia, visual disorders: this may occur frequently. If symptoms persist then refer to specialist as it may be a sign of toxic tacrolimus levels.

Alopecia: this may rarely occur – patients should be referred to specialist.

Nephrotoxicity: This may be due to high blood levels or acute rejection. Such patients should be referred to the specialist.
Hyperglycaemia: This may occur (more likely than with ciclosporin). Blood glucose levels should be monitored in clinic.

Hepatic dysfunction and hyperlipidaemia: Patients will be monitored via the transplant clinic and appropriate treatment initiated if required.

Details of contraindications, cautions, drug interactions and adverse effects listed above are not exhaustive. For further information always check with BNF www.bnf.org.uk or SPC (www.medicines.org.uk).

8. INFORMATION TO PATIENT

See above – pregnancy.

Patients should be informed about benefits and risks of treatment and need for monitoring.

Patients should be told to go to their GP immediately if they experience any fever, rash, bruising, bleeding, jaundice or infection.

9. DRUG MONITORING

Monitor patient to ensure concordance with treatment, monitor for side effects (listed in section 7)

10. RESPONSIBILITIES OF CLINICIANS INVOLVED

Stage of Treatment	Hospital Specialist	General Practitioner
Initiation	Treatment is initiated in the Leeds on transplantation	Not involved
Monitoring of treatment and maintenance	0 to 3 months post transplant: Prescribe by BRAND Monitor patient for side effects. Perform blood tests when required dependant on clinical need (U&Es, FBC, LFTs, trough tacrolimus levels) Check Mid-Stream Urine, Blood pressure, blood glucose and lipids. Inform GP of necessary changes to treatment. Inform GP when patient is approaching 3 months post-transplant and on a stable dose requesting GP continue prescribing. Month 4 and thereafter: at each clinical visit and in between times depending on clinical nead Inform GP when patient is on a stable dose and request that prescribing is transferred. Inform GP of significant findings and necessary changes to therapy. Available for advice	Take on share care when patient is stable and requested by the specialist team Prescribe by BRAND Identify to specialist problems with concordance to therapy Identify adverse reactions and treat or refer where appropriate (U&E and FBC will be monitored by the specialist and relevant findings communicated to the GP)

Contact details:
During office hours: Please contact the relevant renal consultant's secretary via Hull Royal Infirmary switchboard. (01482)328541
Out of hours: Contact the on call renal consultant via switchboard
Specialist Transplant Nurses: (01482) 674110
Renal Pharmacist: (01482) 674043, or ask for bleep 140 when you contact the switchboard on 01482-875875.

APPROVAL PROCESS

Written by:	**Paul Kendrew. Reviewed by Aaron Acquaye, Renal Pharmacist**
Consultation process:	**Specialists teams in Renal Medicine,**
Approved by:	**MMIG**
Ratified by:	**HERPC Jan 2013 Updated: Mar 2019**
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