# PEDIATRIC BLOOD AND MARROW TRANSPLANT PROGRAM

**DOCUMENT NUMBER:** PBMT-GEN-028

**DOCUMENT TITLE:**
Administration of Cyclosporine A (CYA) and Tacrolimus (FK506)

**DOCUMENT NOTES:**

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**Document Information**

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**Control Information**

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PBMT-GEN-028
ADMINISTRATION OF CYCLOSPORINE A (CYA) AND TACROLIMUS (FK 506)

1 PURPOSE

1.1 To outline the procedure required for administration of Cyclosporine A (CYA) and Tacrolimus (FK506).

1.2 Responsibilities of the nursing staff for administering and monitoring reactions to CYA and FK506 are described.

2 INTRODUCTION

2.1 CYA and FK506 are immunosuppressant medications (calcineurin inhibitors) which are used to prevent or treat graft-versus-host disease. They act by inhibiting the first phase of T-cell activation and used to suppress graft vs host disease.

2.2 Possible side effects:

2.2.1 Neurologic→tremors, seizures, headache, paresthesia, confusion, anxiety and ataxia.

2.2.2 Cardiovascular→hypertension.

2.2.3 Renal→insufficiency, hypomagnesemia, hypokalemia, acidosis.

2.2.4 Integumentary→hirsutism, hyperpigmentation.

2.3 Drug Interactions

2.3.1 Drugs which can cause increased CYA or FK506 levels when given simultaneously:

2.3.1.1 Voriconazole

2.3.1.2 Fluconazole

2.3.1.3 Itraconazole

2.3.1.4 Posaconazole

2.3.1.5 Calcium channel blockers

2.3.1.6 Cimetidine

2.3.1.7 Erythromycin

2.3.1.8 Methylprednisone

2.3.1.9 Metoclopramide

2.3.1.10 Imipenem-cilastatin
2.3.2 Drugs which can cause decreased CYA or FK506 levels when given simultaneously:
   2.3.2.1 Phenobarbitol
   2.3.2.2 Phenytoin
   2.3.2.3 Rifampin

3 SCOPE AND RESPONSIBILITIES
   3.1 Interdisciplinary: Requires an MD order to be entered into EPIC. RNs and MLPNs may administer CYA or FK506 after successful completion of the medication administration test and demonstration of clinical competency with their preceptor.

4 DEFINITIONS/ACRONYMS
   4.1 MLPN Medical Licensed Practical Nurse
   4.2 D5W 5% Dextrose in Waters
   4.3 MAR Medication Administration Record

5 MATERIALS
   5.1 Non PVC tubing or secondary tubing
   5.2 Cyclosporine or FK506 infusion
   5.3 D5W or compatible solution
   5.4 Alcohol Prep Pad

6 EQUIPMENT
   6.1 Volumetric pump

7 SAFETY
   7.1 N/A

8 PROCEDURE
   8.1 Infusion of Cyclosporine A (CYA) and Tacrolimus (FK506)
      8.1.1 Every dose of CYA/FK506 must be administered through the same lumen.
      8.1.2 Upon admission, place pink tape on the patient’s white lumen to identify this lumen as the CYA/FK506 line. Place the pink tape on the tubing closest to the patient and closest to the pump.
      8.1.3 CYA may be given as a continuous infusion over 24 hours (1 mg/mL mixed as 250 mg/250 mL or 500 mg/500 mL).
8.1.4 CYA/FK506 may be given as intermittent infusion Q 12 hours infused over 2 hours.

8.1.5 Notify pharmacy if CYA or FK506 is to infuse through a peripheral line.

8.1.6 Bolus Infusion for CYA: Spike CYA bag with secondary tubing. Prime tubing and connect to pink taped medication line and infuse over 2 hours. Verify 5 rights with correct lumen by 2 RNs.

8.1.7 Both RNs must document this in EPIC. The first RN signs off on patient’s MAR and the 2nd RN must sign off by documenting in the MAR administration comment section.

8.1.8 Bolus infusion for FK506: FK506 is delivered in a syringe from pharmacy. Connect syringe to pink taped tubing and infused over 2 hrs. Verify 5 rights with correct lumen by 2 RNs.

8.1.9 Both RNs must document this in EPIC. The first RN signs off on patient’s MAR and the 2nd RN must sign off by documenting in the MAR administration comment section.

8.1.10 Continuous Infusion: Spike CYA/FK506 bag with non PVC tubing. Prime entire line marked with pink tape with CYA/FK506.

8.1.11 Connect to infusion pump and infuse as directed. Verify 5 rights with correct lumen and rate by 2 RNs.

8.1.12 Both RNs must document this in EPIC. The first RN signs off on patient’s MAR and the 2nd RN must sign off by documenting in the MAR administration comment section.

8.2 Patient Assessment

8.2.1 No special monitoring is required.

8.2.2 Monitor for side effects as described above.

8.3 Monitoring Serum CYA and FK506 Levels:

8.3.1 CYA levels are drawn as trough samples with AM labs as ordered. Intermittent or Q 12 hr. CYA and FK506 levels are to be drawn in the am prior to administration of intermittent dose. For patient’s on continuous infusion CYA, temporarily stop infusion and clamp line before drawing level.

8.3.2 It is mandatory to draw levels from a line through which CYA/FK506 has never been infused.

8.3.3 The CYA/FK506 line is labeled with “pink” tape upon admission. Do not use this line when drawing levels.

8.3.4 All fluids must be held and all other lines must be CLAMPED (especially the pink taped lumen) while CYA/FK506 levels are being drawn.
9 RELATED DOCUMENTS/FORMS
9.1 NA

10 REFERENCES
10.1 2003 THOMPSON MICROMEDEX

11 REVISION HISTORY

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<td>J. Allison</td>
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