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| **TITLE:** Emory Transplant Center Kidney/Pancreas  |
| **APPLICABLE FACILITIES:** (check all that apply)□EUH **□**EUOSH □EWWH □EUHM □EJCH □ESJH □TEC □ESA □ERH |
| **EFFECTIVE DATE:** 05/15/2019 | **ORIGINATION DATE:** 03/25/2015 |

**SCOPE:**

The Emory Transplant Center and all the solid organ transplant programs will comply with all applicable federal, state, and local laws regulations, policies and protocols regarding the management of transplant patients.

**PURPOSE:** This protocol provides guidelines on treatment for rejection in patients with a kidney or kidney/pancreas transplant.

**Admin Responsibility:** All transplant program physicians, practitioners and clinical staff members are responsible for compliance with this protocol.

**GUIDELINES:**

**REJECTION PROTOCOLS**

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| **Borderline** | * + Mini Pulse
	+ Augment maintenance immunosuppression
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| **ACR 1A** | * + Steroid Pulse (10mg/kg x 3days)
	+ 6 week prednisone taper
	+ Rebiopsy in 1 month if SCr not improved
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| **ACR 1B** | * + Thymoglobulin (1.5mg/kg x 3 days)
	+ 6 week prednisone taper
	+ If on belatacept and Prograf, reduce Prograf goal trough to 3-5 ng/ml. Then taper per protocol.
	+ For patients on belatacept and weaned from Prograf, no change in maintenance immunosuppression.
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| **ACR 2A, 2B** | * + Thymoglobulin (1.5mg/kg x 5 days)
	+ 6 week prednisone taper
	+ If on belatacept and Prograf, reduce Prograf goal trough to 3-5 ng/ml. Then taper per protocol.
	+ For patients on belatacept and weaned from Prograf, no change in maintenance immunosuppression.
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| **ACR 3** | * + Thymoglobulin (1.5mg/kg x 7days)
	+ 6 week prednisone taper
	+ If on belatacept and Prograf, reduce Prograf goal trough to 3-5 ng/ml. Then taper per protocol.
	+ For patients on belatacept and weaned from Prograf, no change in maintenance immunosuppression.
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| **AMR** | Plasmapheresis/ IVIG |

**A. Mini Pulse**
Prednisone 100mg po qd x 5 days

**B. Steroid Pulse**
10mg/kg IV Solu-medrol x 3 days (max dose = 1000mg)
Prednisone 20mg po qd x 4 weeks, Prednisone 15mg po qd x 1 week, Prednisone 10mg po qd x 1 week, then 5mg po qd
indefinitely

**C. Thymoglobulin**

1. Obtain CXR PA and lateral within the 24 hours prior to beginning Thymoglobulin to evaluate for pulmonary edema

2. Order rabbit anti-thymocyte globulin via transplant order set. Standard dose 1.5mg/kg, rounded to nearest 25mg

a. Order standard Thymoglobulin for central administration.
b. Order peripheral Thymoglobulin for peripheral administration (diluted to concentration of 0.25mg/ml or less with 1000 units heparin and 20mg hydrocortisone)

3. For the first 3 doses, premedicate 30 min prior to infusion with:

a. Methylprednisolone 500mg IV Day 1, 250mg IV Day 2, 125mg IV Day3
b. Diphenhydramine (Benadryl) 50mg PO/IV
c. Acetaminophen (Tylenol) 650mg PO/PR

Consider premedication with acetaminophen and diphenhydramine prior to subsequent doses

4. Monitor for cytokine release syndrome, which may occur with the first several doses. Ensure emergency medications are ordered, including:

a. Epinephrine 1:1000 IV
b. Hydrocortisone 100mg IV
c. Diphenhydramine 50mg IV
d. Albuterol inhaler

5. Prophylaxis and Monitoring:

-Administer cytomegalovirus (CMV) prophylaxis for 3 months for moderate risk and 6 months for high risk and PCP prophylaxis for 1 year after Thymoglobulin. Adjust for renal dysfunction:

a. Valganciclovir 450mg po daily or Valtrex 1000mg daily(if CMV-/-)
b. Bactrim SS 400/80mg daily or Mepron 1500mg daily or Dapsone 100mg daily

-Monitor BK virus level every month for six months after Thymoglobulin administration.

-Monitor CMV virus every month for three months after prophylaxis.

6. Continue all maintenance immunosuppression.

7. Add CBC differential to daily labs to monitor for neutropenia and lymphopenia. Consider the following guidance for dose adjustments:

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| http://euhnotes.eushc.org/icons/ecblank.gif | **Thymoglobulin Dosage Adjustments** |
| **WBC**  |  |
| >1.5  | no changes |
| 1 - 1.5  | 1/2 thymo dose |
| ≤ 1.0 | 1/2 dose & neupogen |
| ANC<500  | hold thymo and give neupogen |
| **PLT**  |  |
| > 60K  | no changes |
| 30-60K  | 1/2 thymo dose |
| <30K  | hold thymo |

 8. Repeat biopsy 1 month following treatment with Thymoglobulin unless specific contraindications or concerns with re-biopsy.

**D. Plasmapheresis / IVIG**

1. Consult Transfusion Medicine for plasmapheresis:

a. Plasmapheresis every other day for a total of 5 therapies.

2. Order sucrose-free IVIG 100mg/kg IV following first 4 sessions of plasmapheresis (rounded to nearest 5g)

a. Administer dose over 2 hours

3. Order sucrose-free IVIG 2g/kg IV following 5th session of plasmapheresis (max dose = 140g, rounded to nearest 5g)

a. Dose may be split into 2 doses of 1mg/kg IV (max 70g) to be infused on separate days
b. Begin infusion at 50ml/hr and double rate every 30 min as tolerated to a max infusion rate of 250ml/hr

4. IVIG should be given AFTER plasmapheresis, but prior to Thymoglobulin (if prescribed)

5. Premedicate with acetaminophen 650mg and diphenhydramine 50mg if patient did not receive with plasmapheresis.

6. Refer to protocol “Intravenous Immunoglobulin (Solid Organ Transplant)” for additional information and monitoring

7. Repeat DSA titers prior to the 5th session of plasmapheresis, and again 30 days after administering 2g/kg dose of IVIG.

**E. High Dose IVIG for Antibody Mediated Rejection**

1. Order sucrose-free IVIG 2g/kg IV (max dose = 140g, rounded to nearest 5g)

a. Dose may be split into 2 doses of 1mg/kg IV (max 70g) to be infused on separate days
b. Begin infusion at 50ml/hr and double rate every 30 min as tolerated to a max infusion rate of 250ml/hr

2. Premedicate with acetaminophen 650mg and diphenhydramine 50mg

3. Refer to protocol “Intravenous Immunoglobulin (Solid Organ Transplant)” for additional information and monitoring

4. Repeat DSA titers 30 days after administration.

**RELATED DOCUMENT(S)/LINK(S):**

**DEFINITIONS:** *(If applicable)*

**REFERENCES AND SOURCES OF EVIDENCE:**

**KEY WORDS:**

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| **REVIEW/APPROVAL SUMMARY:**  |
| **APPROVAL BODY/BODIES:**  |
| **REVIEW/REVISION DATES:**  | **APPROVAL DATE:**  |