EMORY HEALTHCARE

PROTOCOL TITLE: Antithymocyte Globulin Induction for Heart Transplant Recipients with DSAs Present at the Time of Transplant							
APPLICABLE FACILITIES:							
☐EHC	☐EDH	☐EHH	☐EHI	☐EHN	☐EJCH	☐ELTAC	☐ESJH
☒EUH	☐EUHM	☐EUHS	☐EUOSH	☐EWWH	☐RJV-ERH	☐RJV-ESOP	☐TEC/ESA
EFFECTIVE DATE:					**ORIGINATION DATE:** 03/10/2022		

CATEGORY: Medication Guidelines

LEVEL:

CONTENT: This protocol applies to heart transplant recipients who are determined to have donor-specific antibodies (DSAs) present at the time of transplant.

Background: Donor hearts have a higher risk of being less well-matched to their recipients compared to other transplant groups due to a smaller pool of donor organs available, a high urgency for transplant, and a shorter acceptable graft-storage time compared to other organs. A consensus statement in 2009 recommended lymphocyte-depleting induction therapy with rabbit antithymocyte globulin (Thymoglobulin®) for pre-sensitized transplant recipients due to an increased risk of antibody-mediated rejection (AMR).

Heart transplant recipients positive for DSAs at the time of transplant will receive Thymoglobulin® for induction immunosuppression therapy instead of basiliximab.

Dosing: Thymoglobulin® dosing will be as follows:

POD 0	POD 1	POD 2	POD 3
Thymo 1.5 mg/kg	Thymo 1.5 mg/kg	Thymo 1.5 mg/kg	Thymo 1.5 mg/kg
Pre-medications: - Methylprednisolone **500** mg IV - Diphenhydramine 50 mg IV/PO - Acetaminophen 650 mg PO/PR	**Pre-medications:** - Methylprednisolone **125** mg IV (part of standard taper) - Diphenhydramine 50 mg IV/PO - Acetaminophen 650 mg PO/PR	**Pre-medications:** - Methylprednisolone **125** mg IV (part of standard taper) - Diphenhydramine 50 mg IV/PO - Acetaminophen 650 mg PO/PR	**Pre-medications:** - Methylprednisolone 0.5 mg/kg IV (part of standard taper)

- Round Thymoglobulin® doses to the nearest 25mg
- Pre-medication with acetaminophen and diphenhydramine can continue past the first 3 doses if needed

EMORY HEALTHCARE

Thymoglobulin® Administration:

Route	Concentration/administration
Via central line (preferred)	- Concentration: 0.5 mg/mL in NS - First dose should be administered over 6 hours, subsequent doses may be administered over 4 hours if tolerated
Via peripheral line	- Concentration: 0.25 mg/mL or less in NS (solution should also contain hydrocortisone and heparin) - First dose should be administered over 8 hours, subsequent doses may be administered over 6 hours if tolerated

- Central administration is preferred for rabbit antithymocyte globulin. Thymoglobulin® can be also be administered via an 18-22 gauge peripheral intravenous catheter. Peripheral administration requires a different, less concentrated preparation containing hydrocortisone and heparin as well as a longer infusion time. Ensure appropriate preparation for route prior to administration by checking the label.
- Antithymocyte globulin requires a 0.22 micron filter.

Monitoring:

- **Labs**: Monitor daily platelets and CBC with differential as neutropenia and lymphopenia can occur. Consider the following guidance for dose adjustments:

Lab parameter	Thymoglobulin® dosage adjustment suggestion
WBC	
> 1.5	No changes
1.0 – 1.5	Decrease Thymoglobulin® dose by 50%
≤ 1.0	Decrease Thymoglobulin® dose by 50% and consider Neupogen
ANC	
≤ 500	Hold Thymoglobulin® and consider Neupogen
PLT	
> 60K	No changes
30 – 60K	Decrease Thymoglobulin® dose by 50%
< 30K	Hold Thymoglobulin®

- **Nursing**: Monitor and document vital signs (HR, BP, Pulse, O_2 Sat) as per Thymoglobulin® protocol.
- Ensure the following emergency medications are readily available, as cytokine release syndrome may occur with the first several doses of Thymoglobulin®:

  a. Epinephrine 1 mg/ml: 0.5 mg subQ
  b. Hydrocortisone 100mg IV
  c. Diphenhydramine 50 mg IV
  d. Albuterol inhaler

EMORY HEALTHCARE

Opportunstic infection prophylaxis

- **CMV (cytomegalovirus)**

Heart transplant patients receiving antithymocyte globulin for induction immunosuppression will receive CMV prophylaxis as follows **(NOTE: this is different than standard CMV prophylaxis** for patients receiving induction therapy with basilixmab). For patients requiring valganciclovir for prophylaxis, ganciclovir will be used until patient is able to take PO medications.

Donor/Recipient CMV status	Prophylaxis regimen	Duration
D+/R-	Valganciclovir 900 mg PO daily	6 months
Any R+	Valganciclovir 900 mg PO daily	3 months
D-/R-	Valacyclovir 1000 mg PO daily	3 months

CMV prophylaxis renal dosing adjustments:

CrCl (mL/min)	Ganciclovir prophylaxis dose	Valganciclovir prophylaxis dose	Valacyclovir prophylaxis dose
>60	5mg/kg IV q24h	900 mg PO q24h	1000 mg PO q24h
40-59	2.5mg/kg IV q24h	450 mg PO q24h	1000 mg PO q24h
25-39	1.25mg/kg IV q24h	450 mg PO 3x/week	500 mg PO q24h
10-24	0.625mg/kg IV q24h	450 mg PO 3x/week	500 mg PO q24h
<10 or dialysis-dependent	0.625mg/kg IV 3x/week (post-HD)	450 mg PO 2-3x/week (post-HD)	500 mg PO q24h

- **PJP *(Pneumocystis jiroveci Pneumonia)* and Antifungal (oral thrush) prophylaxis:** as per standard protocol

RELATED POLICIES / PROCEDURES: Antithymocute Globulin (Solid Organ Transplant)

DEFINITIONS: Not applicable

REFERENCES AND SOURCES OF EVIDENCE:

Zuckermann A, Schulz U, Deuse T, et al. Thymoglobulin induction in heart transplantation: patient selection and implications for maintenance immunosuppression. Transpl Int. 2015 Mar;28(3):259-69.

KEY WORDS: