**Policy: Kidney/Pancreas Post-Transplant Anticoagulation Protocol**

**Statement: 1. Activation date: 10/11/2007**
**2. Affected Department:** Kidney/PancreasTransplant Program
**3. Vision Strategy:** Patient Care
**4. Policy Statement:** The Emory Transplant Center will comply with all applicable federal, state and local laws, regulations and policies regarding the evaluation and selection of suitable candidates who are referred for kidney and/or pancreas transplantation.
**5. Basis**: This policy is necessary for the protection of patients, physicians and staff.
**6. Administrative Responsibility:** Section heads, physicians, practitioners, and staff are responsible for compliance with this policy.

**7. Policy:** Kidney/Pancreas recipients carry inherent risk for thromboembolic disease and may warrant prophylactic heparin treatment until the day of discharge or at least 5-10 days post-transplant or longer as clinically indicated.

Kidney/Pancreas recipients may also carry the risk of thromboembolic events as result of pre-operative indications for anticoagulation therapy. Such indications include: atrial fibrillation, venous-thromboembolism, or mechanical valve prosthesis.

* Bridging anticoagulation in the perioperative period of a kidney/pancreas transplantation is a clinical dilemma in cases where the risk of bleeding may be greater than the risk of a thromboembolic event (TE).
* Likewise, absence of bridging anticoagulation may create unacceptable risk of a TE in some cases.
* Premature re-initiation of therapeutic heparin within 24 hours of surgery is an independent risk factor for bleeding.
* The net clinical benefit of bridging patients at high risk for TE (high risk atrial fibrillation, recent arterial/veneous TE, or mechanical heart valve) remains unknown and is not yet supported by clinical trial evidence.
* In this protocol are suggestions for how to handle post-transplant deep vein thrombosis (DVT) prophylaxis and bridging anticoagulation at high risk of TE and taking chronic oral anticoagulation.

**8. Procedure**:

**Standard DVT prophylaxis post-transplant: (as per Emory Healthcare orderset/guidelines)**

* In the absence of contraindications, kidney transplant recipients may be started on **subcutaneous unfractionated heparin** (5000 units q8hours) on the morning after transplantation and pancreas transplant recipients may be started immediately postoperatively on subcutaneous unfractionated heparin (5000 units q8hours).
* Contraindications to prophylactic anticoagulation with heparin include active bleeding, cases of high risk for bleeding (such as hemophilia, thrombocytopenia (platelet count <50K), history of GI bleeding, severe liver disease with INR > 1.3, adverse reaction to heparin, current anticoagulation, very high risk for falls, and renal impairment impacting clearance of low-molecular weight heparin).
* **Mechanical prophylaxis** may be applied post-operatively in the absence of contraindications, such as severe peripheral vascular disease or severe neuropathy.

**Bridging anticoagulation:**  Therapeutic post-operative heparin gtt/warfarin therapy can be implemented according to these suggestions:

1. **High Risk Atrial Fibrillation (CHADS2 ≥5 (1 point for CHF, HTN, ≥75, or diabetes, 2 points for stroke or TIA symptoms):**

-No consensus recommendation to bridge has been made by national societies and clinical trails are pending regarding therapeutic bridging for high TE risk. Individualize based on bleeding and thromboembolic risk. Will perform prophylactic dose heparin treatment in the absence of contraindications.

1. **Recent (<3 months) Arterial or Venous Thromboembolic event:**

-Not eligible for renal transplantation. Organ offers will be deferred until treatment course completed.

-***After 3 months*** of treatment for arterial/venous TE, no consensus recommendation to bridge has been made by national societies and clinical trails are pending regarding therapeutic bridging. Individualize based on bleeding and thromboembolic risk. Will perform prophylactic dose heparin treatment in the absence of contraindications.

1. **Mechanical heart valve(s):**

- No consensus recommendation to bridge has been made by national societies and clinical trails are pending. Individualize based on bleeding and thromboembolic risk. Will perform prophylactic dose heparin treatment the absence of contraindications.

**BleedMAP(BMP) score (1 point for history of bleed, mitral mechanical heart valve, active malignancy, or platelet < 150K)** may be considered when selecting which high TE risk patients to bridge:

* **BMP 3 or more** (increased risk for bleed): no immediate bridge, delay heparin gtt for at least 48-72 hours post-transplant. Subsequent warfarin therapy to start after heparin gtt.
* **BMP 1-2**: no immediate bridge, consider restarting heparin gtt at 48 hours post-transplant. Subsequent warfarin therapy to start after heparin gtt.
* **BMP 0** (lower risk for bleed): no immediate bridge, start heparin gtt at 48 hours post-transplant. Subsequent warfarin therapy to start after heparin gtt.

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| **Regulatory References:**1. Rechenmacher SJ, F.J., *Bridging Anticoagulation: Primum Non Nocere.* JACC, 2015. 66.2. Parajuli S, L.J., Langewisch ED, Norman DJ, Kujovich JL., *Hypercoagulability in Kidney Transplant Recipients.* Transplantation, 2016. 2016 Apr;100(4):719-26. .3. Tafur AJ, M.R.n., Wysokinski WE, Litin S, Daniels P, Slusser J, Hodge D, Beckman MG, Heit JA., *Predictors of major bleeding in peri-procedural anticoagulation management.* J Thromb Haemost. 2012 Feb;10(2):261-7., 2012. |  |

**Related Policies/Procedures:**

**Approved By**
**Transplant Leadership Group**