GUIDELINES IN ANTIPLATELET AND ANTICOAGULATION RX IN CARDIAC SURGERY

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Patients at High Risk for peri-op bleeding

- Advanced age (>70 years)
- Diminished RBC count (small body size or anemia)
- Complex operation
  - Double or triple valve
  - TAA or TAAA
- Urgent operation
- Pre-op meds
  - Antiplatelets
  - Anticoagulants
  - Vitamins and herbs
- Pt comorbidities
  - PLT disorder
  - Renal failure
  - Liver failure

Ferraris et al, J Thorac Surg 2012;94:1761-81
Anticoagulation before Cardiac Surgery

- Class I Recommendation
  - Discontinue **clopidogrel** 5-7 days before surgery to reduce bleeding and blood transfusion, especially in high-risk pts. (Level of evidence B)

- Class IIb Recommendation
  - Discontinue **ASA** 5-7 days before surgery to reduce bleeding and blood transfusion, especially in high-risk pts. The effect on bleeding is less than other antiplatelets. (Level of evidence A)
  - **Ticagrelor**: discontinue 24-48 hrs before surgery
  - **Dabigatran (Pradaxa)**: 5-7 days before surgery
  - **Prasugrel (Effient)**: 5-7 days before surgery
  - **Rivaroxaban (Xarelto)**: 3-5 days before surgery
CABG

- 28% of SVGs occlude during 1st year after surgery
- Usually due to early graft thrombosis
- The effect of ASA may vary over time and dual antiplatelet Rx may be needed
- Clopidogrel, but not ASA, inhibits more intimal hyperplasia
- However the CASCADE trial did not show better patency in CABG pts when clopidogrel was added to ASA
- An agent that is similar to clopidogrel but with reversible effect is needed

Head et al. *Interv Cardiol* 2011
Anticoagulation after CABG

• Class I Recommendation
  – For stable nonbleeding patients, aspirin should be given within 6 to 24 hours of CABG to optimize vein graft patency. (Level of evidence A)
  – For patients undergoing CABG after ACS, dual antiplatelet drugs should be restarted when bleeding risk is diminished to decrease intermediate-term major adverse cardiovascular outcomes. That may have the secondary benefit of increasing early vein graft patency. (Level of evidence A)

• Class IIb Recommendation
  – Once postop bleeding risk is decreased, testing of response to antiplatelet drugs, either with genetic testing or with point-of-care platelet function testing, early after cardiac procedures might be considered to optimize antiplatelet drug effect and minimize thrombotic risk to vein grafts. (Level of evidence B)
  – For patients with high platelet reactivity after usual doses of clopidogrel, it may be helpful to switch to another P2Y12 inhibitor (e.g., prasugrel or ticagrelor). (Level of evidence C)

Hurst, JACC 2003;41:1838-40
Fye, JACC 2002;39:2077-9
Valve surgery

- 300,000 prosthetic valves are implanted yearly
- Vitamin K antagonists (warfarin, etc) are the only licensed agents to prevent mechanical valve thromboembolic events
  - bleeding
  - many drug & food interactions
  - INR monitoring
- New agents are needed

Head et al. *Interv Cardiol* 2011
Anticoagulation after valve surgery

• Aortic valve repair
  – ASA 81mg for life

• Aortic valve replacement
  1. Tissue valve
     – ASA 81mg for life with or without warfarin (INR 2-3) for 3 mos
  2. Mechanical valve
     – ASA 81mg and Warfarin (INR 2-3) for life

TAVI
  – ASA 81mg & Clopidogrel 75mg for 6 months

Hurst, JACC 2003;41:1838-40
Fye, JACC 2002;39:2077-9
Anticoagulation after valve surgery (cont)

- Mitral valve repair
  - ASA 81mg for life and warfarin for 3 mos
- Mitral valve replacement
  1. Tissue valve
     - ASA 81mg for life and warfarin (INR 2-3) for 3 mos
  2. Mechanical valve
     - ASA 81mg and Warfarin (INR 2-3) for life
Possible new agents in Cardiac Surgery

• Dabigatran (Pradaxa)
  – Approved for Afib
  – May replace vitamin K inhibitors for mechanical valve thromboembolism prophylaxis
  – RE-ALIGN study

• Rivaroxaban (Xarelto)
  – Stroke prevention in AF
  – DVT/PE prevention & treatment
  – RECORD trial
  – Potential role post-CABG as adjunct to ASA or replacement of warfarin in mechanical valves
Rx options for urgent surgery (antiplatelets)

- Try to delay at least one day before going into surgery
- Make decisions about delay based in PLT inhibition tests
- If necessary, use short-acting bridging agents (usually iv)
  - Abciximab
  - Integрин
- Consider PLT transfusion
- For intractable bleeding, use recombinant factor VIIa
Rx options for urgent surgery (anticoagulants)

- Try to delay at least 2-3 days before going into surgery
- Make decisions about delay based on INR
- If necessary, use short-acting bridging agents (usually iv)
  - heparin
  - enoxaparin (sc)
- Consider FFP transfusion
- For intractable bleeding, use recombinant factor VIIa or PCC (prothrombin complex concentrate)
THANK YOU
QUESTIONS?