KANSAS INITIATIVE FOR STROKE SURVIVAL

A PROJECT BY AND FOR KANSANS

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Oral anticoagulation in stroke management

"First Tuesdays" Lecture Series

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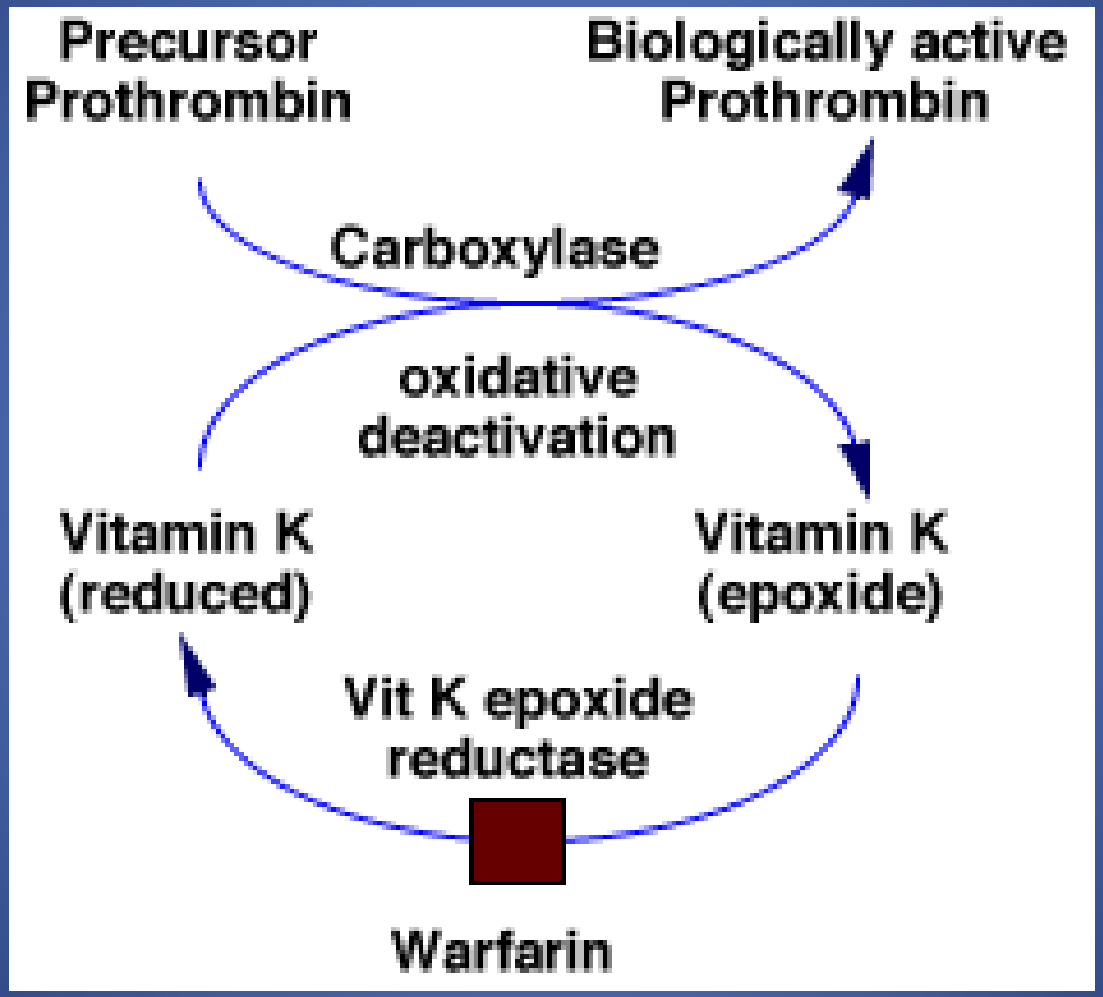
Introduction and Goal of “First Tuesdays”

- 1st Tuesday of the month**, NEW TIME 12-12:30 PM**
- **WILL GIVE 0.5 CREDIT CE**
- Didactic lecture series as part of the Kansas Initiative for Stroke Survival (KISS)
- Updates in Practice and FAQ’s on Acute Stroke Care
- 20 minute didactic, 10 minutes for questions/discussion.

Warfarin (Coumadin)



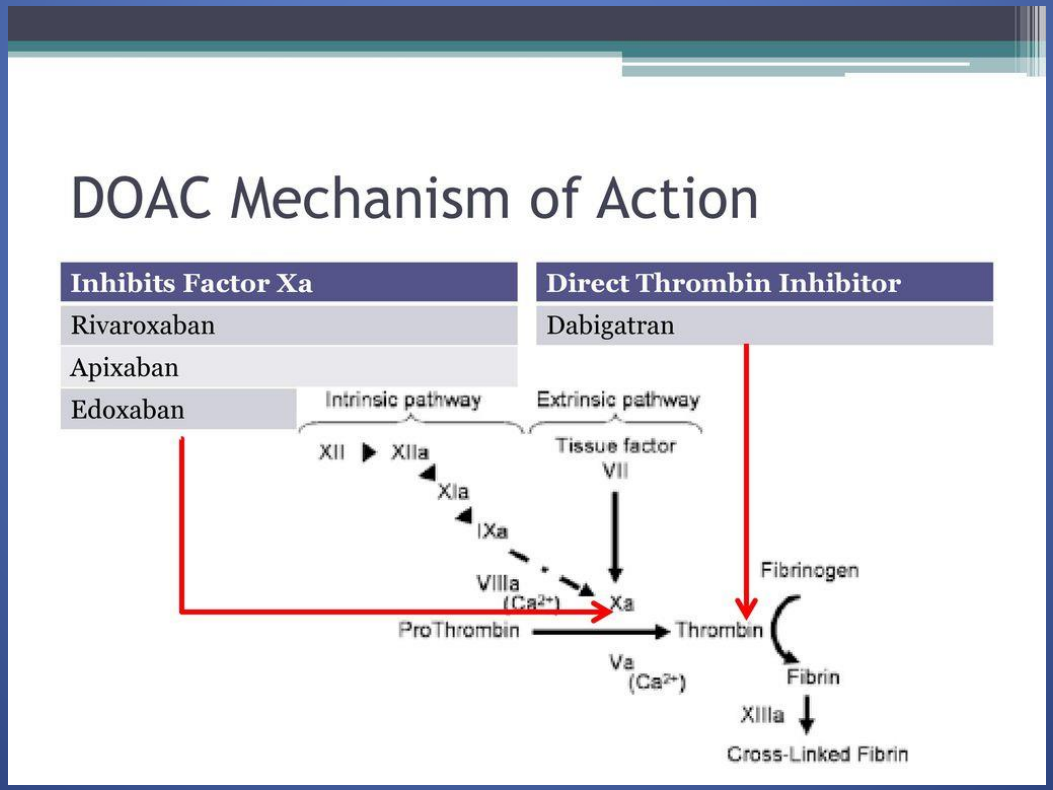
Warfarin

- Works against vitamin-K dependent coagulation factors and prevents prothrombin from becoming active.
- In atrial fibrillation, warfarin over aspirin reduces risk for subsequent stroke (60-70% vs 20%)
- Only have evidence for Warfarin in mechanical valve related stroke (need both Warfarin + aspirin; target INR high at 2.5-3.5)
- Has significant interactions with many other drugs, including seizure medications
- Need to avoid high amounts of vitamin K containing foods: eg broccoli, spinach, turnips
- Reversal of Warfarin associated bleed: 4factor-PCC (prothrombin complex concentrates)>FFP, Vitamin K[1]

Tomaselli et al, *J Am Coll Cardiol* 2020

DOACs (direct oral anticoagulants)

- No longer called “NOACs”
- Dabigatran (Pradaxa), Rivaroxaban (Xarelto), Apixaban (Eliquis), Edoxaban (Savaysa)



Dabigatran

- Direct thrombin inhibitor
- NOT approved for valvular disease
- Cannot take with certain antifungals, HIV drugs, immunosuppressants
- Use with caution in renal disease
- Common side effects: GI symptoms
- Reversal: Idrucizumab (Praxbind), can also give PCC if not available

RE-LY study

- 18,113 patients with Afib blinded to two different doses of Dabigatran (110 or 150 mg daily) or unblinded use of warfarin
- Rates of stroke/systemic embolism and major bleeding:
  - Dabigatran 150 mg group = 1.11%/year and 3.11%/year
  - Dabigatran 110 mg group = 1.53%/year and 2.71%/year
  - Warfarin group = 1.69%/year and 3.36%/year
- Dabigatran 150 mg is **superior** to warfarin for stroke prevention. Dabigatran lower dose is **noninferior** to warfarin.

Connoll et al, *NEJM* 2009

Rivaroxaban, Apixaban

- Factor Xa inhibitor
- NOT approved for valvular disease
- Cannot take with certain antifungals, HIV drugs
- Rivaroxban: 20 mg daily, reduced in renal 15 mg daily
- Apixaban: 5 mg bid, reduced dose 2.5 mg bid
- Reversal: adexanet alfa, can also use PCC if not available

ROCKET-AF

- 14,264 patients with Afib given rivaroxaban vs warfarin
- Rates of stroke/systemic embolism and major bleeding
  - Rivaroxaban = 1.7%/year and 3.6%/year
  - Warfarin = 2.2%/year and 3.4%/year
- Rivaroxaban group had significantly fewer ICH and fatal bleeding than warfarin
- Rivaroxaban was **noninferior** to warfarin for prevention of stroke and systemic embolism

Patel et al, *NEJM* 2011

ARISTOTLE

- 18,201 patients with Afib given Apixaban vs warfarin
- Rates of stroke/systemic embolism and major bleeding:
  - Apixaban: 1.27%/year and 2.13%/year
  - Warfarin: 1.60%/year and 3.09%/year
- Apixaban was **superior** to warfarin in preventing stroke or systemic embolism and caused less bleeding and less mortality

Granger et al, *NEJM* 2011

When considering IV tPA

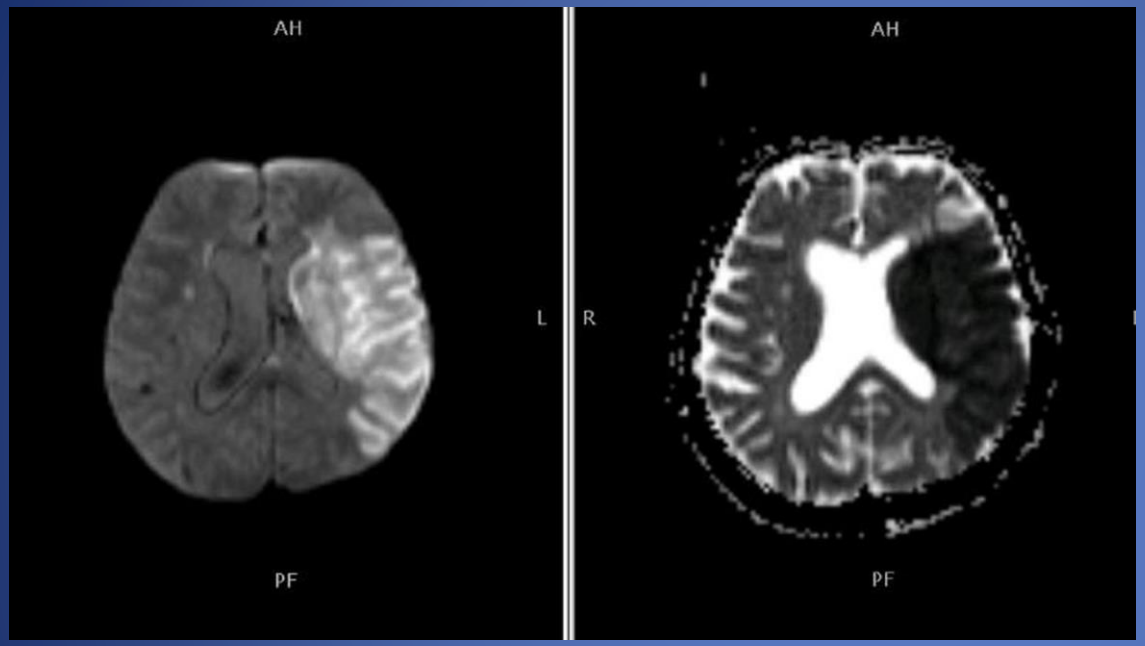
- If taking warfarin, can still consider IV tPA if INR is ≤ 1.7
- If taking DOAC's, can still consider IV tPA if confirming that they have NOT taken a dose for ≥ 48 hours
- Patients can all receive endovascular thrombectomy

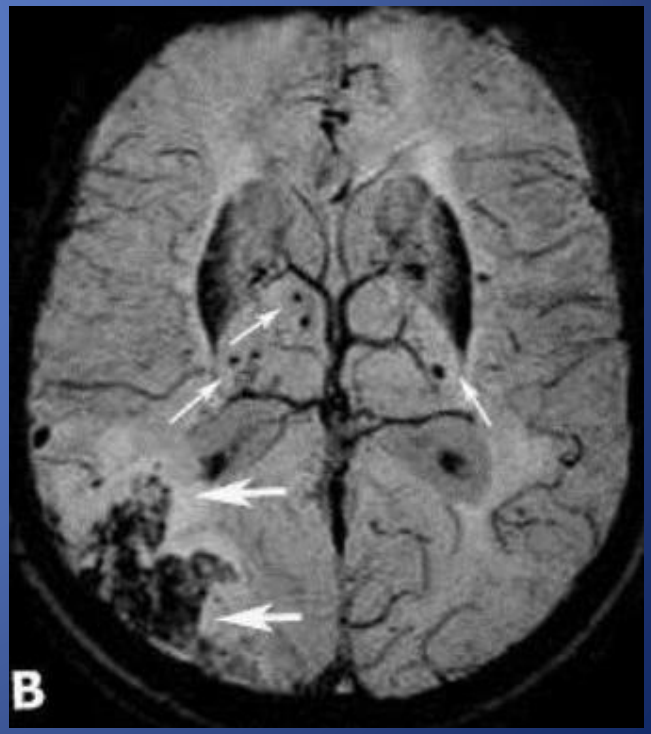
Timing of anticoagulation?

- After ischemic stroke, early initiation of anticoagulation comes with risk of hemorrhagic transformation (easily friable tissue).
- Late initiation comes with risk of recurrent ischemic stroke
- Guidelines from AHA/ASA: “reasonable” to start anticoagulation 4 to 14 days after acute ischemic stroke and Afib[1]

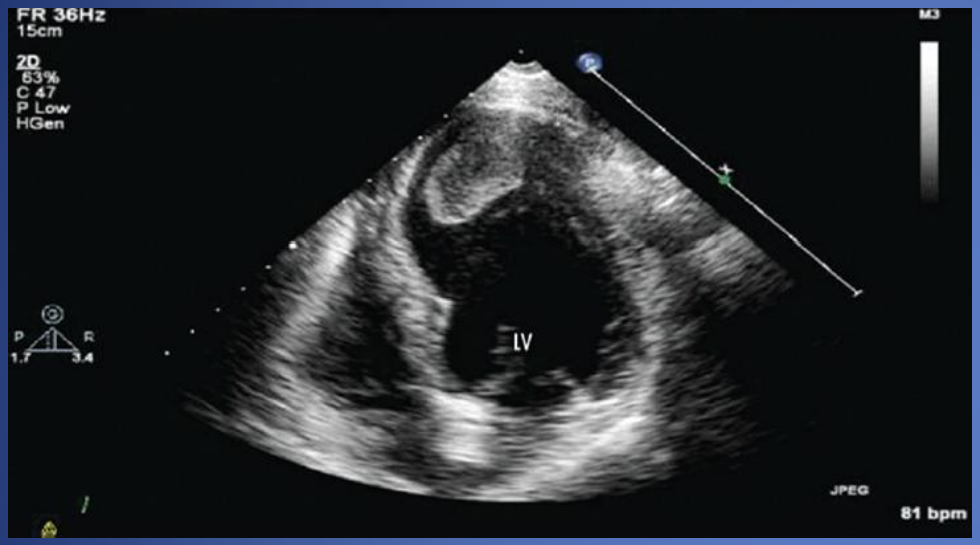
Mizoguchi, *Stroke* 2020

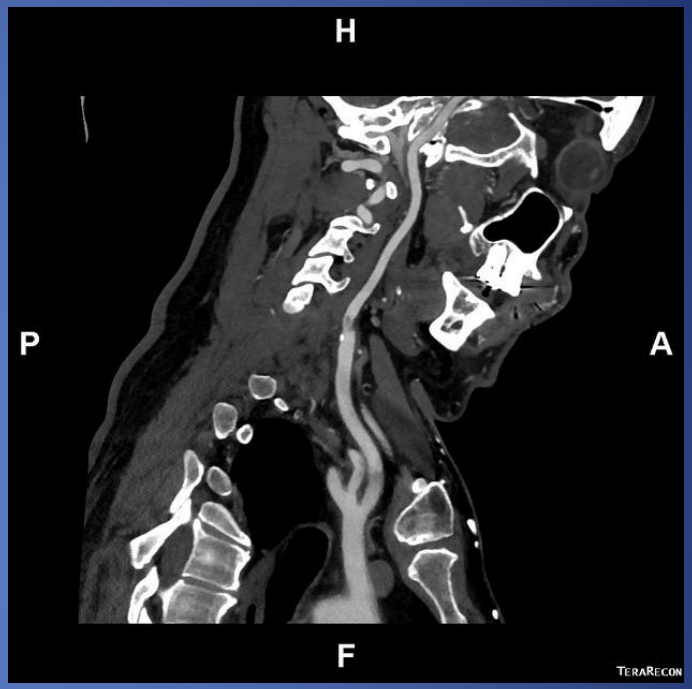
When to delay?





When to initiate earlier?





- Can start with Heparin drip, low-dose/no-bolus
- Continue frequent neurochecks when initiating

Reminders

- IV heparin is not a substitute for thrombolysis and should not be used in acute period of stroke except for special circumstances
- Avoid referring to antiplatelet medications (Aspirin, Clopidogrel, Ticagrelor) as “blood thinners”
- Prophylactic anticoagulation for DVT’s do not preclude use of IV thrombolysis

Questions?

- Call for help anytime!
- BAT phone: 913-588-3727
- http://www.kissnetwork.us/
- email at sslavin2@kumc.edu