

## Anticoagulation Snapshot

### Atrial Fibrillation

Medication	Monthly Rx Cost	Estimated Lab Cost	Mechanism of Action	Studies	Comments
Warfarin	\$10-15 / dose	\$30-90 per lab	Vit K Antagonist	Numerous for decades	Many Drug-Drug Interactions; Frequent INRs; High liability; Easy to confuse dosing; Cost of drug up with each dosage change
Dabigatrin (Pradaxa)	\$400	NA	Direct Thrombin Inhibitor	<b>RE-LY</b>	<b>Better than Warfarin</b> for preventing CVAs with a better safety profile (though marginally higher rates of MI, gastritis & dyspepsia).
Rivaroxaban (Xarelto)	\$400	NA	Factor Xa Inhibitor	Patel, M et al; Rivaroxaban vs Warfarin in Nonvalvular AF; NEJM 9/8/11	Noninferior to warfarin; No significant difference in risk of major bleeding, though fatal and intracranial bleeding <i>occurred less frequently</i> with Xarelto. Reduce dose in patients with GFR < 40-50 or < 60 kg (132 pounds).
Apixaban (Eliquis)	\$400	NA	Factor Xa Inhibitor	<b>ARISTOTLE</b> (NEJM September 2011)	RCT with >18,000 patients. AF patients had fewer strokes / embolic events + fewer major bleeds than Warfarin patients (including fewer hemorrhagic CVAs) and were less likely to die during 2 years of treatment. Compared to Warfarin, for each 1000 pts treated for 1.8 years, 6 CVAs, 15 major bleeds and 8 deaths would be prevented.
Xa & Thrombin Inhibitors	\$400	NA	Factor Xa & Direct Thrombin Inhibitor	<b>Meta Analysis</b> (JAGS May 2014)	Review of 10 RCTs with >25,000 patients >75 years old; No statistical difference in risk of clinically relevant bleeding ( $\pm 6.4\%$ ); For AF, newer agents were more effective in prevention of CVA or systemic embolism (3.3 vs 4.7%; NNT = 71); For non-AF trials, newer agents had a significantly lower risk of VTE & VTE-related death (3.7 vs 7%; NNT = 30)

For patients with Atrial Fibrillation, VTE, PE or at risk for VTE >75 years old, XA and Direct Thrombin Inhibitors did not cause excess bleeding and were associated with equal or greater efficacy than conventional therapy [New Oral Anticoagulants in Elderly Adults: Evidence from Meta-Analysis of Randomized Trials; May 2014]

## Interpretation of results: Putting this information in practical terms:

For every 100 patients treated with warfarin *instead of* a Xa Inhibitor for 1 year, you should expect:

- 3.3 – 5.3 **more CVAs**
- 1 – 8.3 **more major bleeding** episodes
- 4.5 **more deaths**
- Hundreds of additional drug – drug interactions
- Hundreds of additional phone calls to change warfarin doses with an associated increase in medication and transcription errors
- Comparative Cost Analysis: Although the Xas are initially more expensive, once the cost of labs (INRs) and a conservative estimate of the additional hospitalizations / rehab when using warfarin are factored in\*, the Xas are a much more affordable option.

\*(4 extra CVAs @ \$75K + 4 more Major Bleeds @ \$60K + 2 additional deaths sent to the hospital @ \$20K / each = \$580K; \$580K / 100 pts = \$5800/ patient/ year). Based on 1.5 INRs monthly (\$75) + \$20/month for drug (\$20) + additional hospital costs (\$580,000) = Total cost / patient / year for warfarin of \$7480. For comparison, the cost for a Xa inhibitor would be \$4800 per patient. Note: Both have hospitalizations for CVAs, bleeds and deaths. The above are a low end estimate of the *additional* costs with warfarin due to excess strokes, bleeds and deaths. This does not include additional liability expenses potentially incurred.