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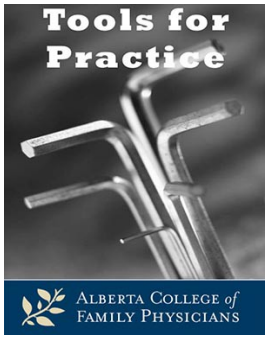
Reviewed: August 5, 2016
Evidence Updated: No new evidence
Bottom Line: No change
First Published: September 18, 2012



Novel Oral Anti-coagulants (NOACs): is newer better?

Clinical Question: For patients with non-valvular atrial fibrillation (AF), do the NOACs (dabigatran, rivaroxaban, apixaban) have advantages over warfarin?

Bottom Line: Compared to warfarin, NOACs offer some benefits for patients with non-valvular atrial fibrillation. The decision to use a NOAC or warfarin should be made after reviewing the patient's previous INR stability, kidney function and discussing the potential benefits and risks, direct and indirect costs with the patient.

Evidence: **NOAC Table**
All randomized controlled trials compared NOACs to warfarin: patients mean age 70-73 years, 35-40% female, 1.8-2 years follow-up. All outcomes versus warfarin:

- **Dabigatran**: 150mg BID or 110mg BID,[1,2] 18, 113 patients, mean $CHADS_2$=2.1.
  - Stroke & systemic embolism:
    - 150mg: 0.60% less/year, Number Needed to Treat (NNT)=167.
    - 110 mg: No statistical difference.
  - Major Bleed:
    - 150mg: No statistical difference.
    - 110mg: 0.70% less/year, NNT=143.
  - Mortality:
    - 150mg: Borderline significance [p=0.051, absolute difference would be 0.49% less/year, NNT=205].
    - 110mg: No statistical difference.
- **Rivaroxaban**: 20mg QD,[3] 14,264 patients, mean $CHADS_2$=3.5.
  - Stroke & systemic embolism, major bleed, or mortality: No statistical difference.
- **Apixaban**: 5mg BID,[4] 18,201 patients, mean $CHADS_2$=2.1
  - Stroke & systemic embolism: 0.33% less/year, NNT=303.
  - Major Bleed: 0.96% less/year, NNT=104.
  - Mortality: 0.42% less/year, NNT=238.

**Dose of rivaroxaban[3] and apixaban[4] adjusted for renal impairment,[3,4] age,[4] weight.[4]

Context:

- While statistical significance was achieved in some endpoints, whether clinically meaningful differences exist between the agents is unknown.
- In Canada, only dabigatran and rivaroxaban are currently approved for AF stroke prevention.
- Appropriate patient selection important:
  - Use $CHADS_2$, time in therapeutic INR range, and tools http://www.vhpharmsci.com/sparc/ to aid discussion.
  - NOACs contra-indicated in patients with significant renal impairment (CrCl < 30 mL/min), use lower doses if moderate renal impairment (CrCl 30-50 mL/min).[5]
- Major bleeding occurs with all anticoagulants:
  - NOACs: no established reversal strategy.
  - Bleeding risk factors: (primarily from dabigatran experience): age > 80 years, impaired[6] or deteriorating renal function[5], < 60 kg[6], and starting before INR < 2.0.[6]
- Potential risk of myocardial infarction (dabigatran): Number Needed to Harm (NNH)=250-500.[1,2,7]

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Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians who are joined occasionally by a health professional from another medical specialty or health discipline. Each article is peer-reviewed, ensuring it maintains a high standard of quality, accuracy, and academic integrity. If you are not a member of the ACFP and would like to receive the TFP emails, please sign up for the distribution list at http://bit.ly/signupfortfp. Archived articles are available on the ACFP website.