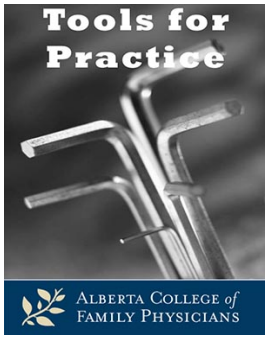
Tools for Practice is proudly sponsored by the Alberta College of Family Physicians (ACFP). ACFP is a provincial, professional voluntary organization, representing more than 4,400 family physicians, family medicine residents and medical students in Alberta. Established over sixty years ago, the ACFP strives for excellence in family practice through advocacy, continuing medical education and primary care research. www.acfp.ca

Reviewed: July 20, 2016
Evidence Updated: New evidence
Bottom Line: No change
First Published: October 5, 2009



Atrial Fibrillation Patients Needing Brief Interruptions in Warfarin: Bridge or Not?

Clinical Question: If non-valvular atrial fibrillation (AF) patients on warfarin require an interruption of warfarin, should we bridge with a heparin product?

Bottom-line: Non-valvular AF patients on warfarin at lower risk of thromboembolism ($CHADS_2$ score ≤3) do not require bridging for brief interruptions <7 days. Bridging is still recommended with higher risk (example $CHADS_2$ score >4, recent stroke/TIA, rheumatic valve disease or mechanical valves).

Evidence:

- BRIDGE trial:[1] Randomized Controlled Trial (RCT) of 1,884 patients on warfarin for AF/flutter going for elective procedure requiring warfarin interruption.
  - Mean age 72 years, $CHADS_2$ score 2.4 (<15% ≥4).
  - Bridging with therapeutic dalteparin versus placebo started three days before surgery and restarted post-operative day 0-1 for 5-10 days.
    - Higher risk of major bleed (3.2% versus 1.3%), Number Needed to Harm (NNH)=53.
    - No significant difference at day 30-37 in:
      - Death: 0.4% versus 0.5%.
      - Thromboembolic events: 0.4% versus 0.3%.
- Systematic review[2] of 34 studies including 7,118 bridged and 5,160 non-bridged patients.
  - 44% of patients had AF (rest were prosthetic valves, venous thromboembolism, etc.) undergoing wide variety of procedures.
  - Outcomes at 30-day follow-up for bridge versus non-bridged:
    - Major bleed: 4.2% versus 0.9%.
    - Thromboembolism: 0.9% versus 0.6%.
  - Limitations: 33/34 studies not randomized.

Context:

- For some procedures, continuing warfarin may be safer than bridging (example tooth extraction, cataract surgery).[3]

    - RCT[4] of 681 patients undergoing cardiac device surgery (considered high-bleeding-risk) with moderate-to-high risk of thromboembolism (example AF with $CHADS_2$ ≥3, prosthetic valve).
        - Clinically significant hematoma:
            - Continued warfarin 3.5% versus bridging 16%.
            - No difference in thromboembolic events.
    - Observational evidence suggests other procedures may be managed with warfarin continuation (example AF ablation,[5,6] elective coronary angiography[7]).
- Canadian AF guidelines,[8] published before BRIDGE trial results:
    - Low-bleed-risk procedure: No interruption required.
    - Intermediate-to-high risk procedure: Interrupt warfarin x5 days to get INR <1.2 for procedure and restart after hemostasis established (usually ~24 hours)
        - Low stroke risk ($CHADS_2$ ≤2-3): No bridging.
        - Moderate-to-high stroke risk ($CHADS_2$ ≥3-4, recent stroke/TIA, rheumatic valve disease, mechanical valve): Bridge.
    - American College of Chest Physicians' recommendations[9] and other reviews[10,11] are similar.

Original Authors:
Ricky Turgeon BSc(Pharm) ACPR PharmD, G. Michael Allan MD CCFP

Updated:
Ricky Turgeon BSc(Pharm) ACPR PharmD

Reviewed:
G. Michael Allan MD CCFP

References:

1. Douketis JD, Spyropoulos AC, Kaatz S, *et al*. N Engl J Med. 2015; 373:823-33.
2. Siegal D, Yudin J, Kaatz S, *et al*. Circulation. 2012; 126:1630-9.
3. Dunn AS, Turpie AG. Arch Intern Med. 2003; 163:901-8.
4. Birnie DH, Healey JS, Wells GA, *et al*. N Engl J Med. 2013; 368:2084-93.
5. Kuwahara T, Takahashi A, Takahashi Y, *et al*. J Cardiovasc Electrophysiol. 2013; 24:510-5.
6. Santangeli P, Di Biase L, Horton R, *et al*. Circ Arrhythm Electrophysiol. 2012; 5:302-11.
7. Jamula E, Lloyd N, Schwalm JD, *et al*. Chest. 2010; 138:840-7.
8. Verma A, Cairns JA, Mitchell B, *et al*. Can J Cardiol. 2014; 30:1114-30.
9. Douketis JD, Spyropoulos AC, Spencer FA, *et al*. Chest. 2012; 141:e326S-e350S.
10. Baron TH, Kamath PS, McBane RD. N Engl J Med. 2013; 368:2113-24.
11. Healey JS, Brambatti M. Can J Cardiol. 2013; 29(7 Suppl)S54-9.

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.