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To Bridge or Not to Bridge: Modelling Periprocedural Anticoagulation Management

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Background
Bridging anticoagulation in atrial fibrillation patients who need to interrupt vitamin K antagonists for procedures is a clinical dilemma. Currently, guidelines recommend clinicians to take the stroke and bleeding risk into consideration, but no clear patient-specific thresholds are advised.

Main objectives
Using a Markov model, we compared two clinical strategies: administering vs. withholding periprocedural bridging therapy in atrial fibrillation patients, using clinical stroke (CHA2DS2-VASc) and bleeding (HAS-BLED) scores. The effect of INR management was investigated by modelling different post-procedural periods to reach therapeutic INR.

Key Findings
For patients at high risk of stroke and low risk of bleeding (CHA2DS2-VASc ≥ 6 and HAS-BLED ≤ 2), bridging anticoagulation may result in additional quality-adjusted life years. For patients at high risk of bleeding or at a low risk of stroke, bridging anticoagulation is unlikely to be beneficial. In practice, few patients are expected to benefit from bridging. INR management is an important factor to consider periprocedurally when making the decision whether to bridge.

Methods
A probabilistic Markov model was developed to simulate both a bridge and a non-bridge cohort of AF patients periprocedurally (5 days before and 30 days after the procedure). Quality-adjusted life expectancy after the procedure was the main outcome considered. The base case considered women 75-80 years old.

Bridging anticoagulation was simulated using the effect of INR management was investigated by modelling different post-procedural periods to reach therapeutic INR.

Results
The base case analysis shows that bridging anticoagulation increases the bleeding rate, but reduces the stroke rate. Bridging may be beneficial for the quality-adjusted life expectancy in patients with a CHA2DS2-VASc score of 6 or higher and HAS-BLED scores of 0 to 2. Bridging is less likely to be beneficial if the life expectancy is shorter. For expected shorter periods to reach therapeutic INR, bridging therapy is less likely to be beneficial.

References
In-text references are not provided in this document.

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