Cost-Effectiveness of Bridging Anticoagulation

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To the Editor

We thank Dr. Rose for his interest in our article, and for his comments here. We agree that no trial has demonstrated benefit of bridging, and that no observational studies have shown clear reduction in thromboembolism. As discussed in this article and elsewhere, the key assumption and limitation of our analysis is that heparin products reduce the risk of arterial thromboembolism.^{1, 2} If heparin products are not effective at reducing risk of thromboembolism (or arterial thromboembolism specifically), bridging should be rejected entirely, and many other current uses of heparin products should be discarded as well.

Even if heparin products are effective, we agree that bridging should be avoided for nearly all patients, and potentially only prescribed for a selected subset. As a rough estimate, the subgroups that appear to receive cost-effective benefit in our analysis comprised around 0.5% of one real-world cohort (3.1% when using a higher cost-per-QALY threshold).³ To a first approximation, no patients should receive bridging of the sort we have considered. If bridging is to be used, it should be used an order of magnitude less frequently than the 24% observed in registry data.⁴

Our analysis also demonstrates that if bridging is to be used, selection by both bleeding risk and stroke risk is essential. Although the risk scores we used are highly imperfect, HAS-BLED has some demonstrated prognostic value in the perioperative period, and both are incorporated into expert consensus recommendations for bridging.^{5, 6} If the practice is to be used, stratification by both bleeding risk and stroke risk is essential, and we know of no better methods of risk stratification here.

In light of the small population of interest and difficulty enrolling patients at high risk of stroke in the largest trial of bridging,⁷ we regard it as unlikely that a sufficiently powered, high-quality trial will be performed in the population of interest in the near future. But bridging persists, and we think it

unlikely that clinicians will stop bridging entirely.⁸ With our analysis, we hope to guide the practice toward a more thoughtful integration of imperfect evidence.

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Compliance with ethical standards:

Conflict of Interest: Dr. Pappas has no conflicts to disclose.

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