Anticoagulation has long been viewed as a double-edged sword. In patients at high risk for thromboembolic (TE) events, anticoagulation with vitamin K antagonists such as warfarin or the newer “novel” oral anticoagulants (NOACs) has proven to be effective in reducing neurologic events. However, even the NOACs have bleeding complications as a notable side effect to therapy, and thus their use in patients with mechanical heart valves was discontinued. Patients with mechanical heart valves are a particularly challenging patient population because they tend to be young when they receive their valves. Inevitably, as they age they are at risk for common afflictions that often require surgical intervention. These interventions can be elective, such as routine orthopedic procedures or emergency procedures in patients with acute abdominal pain. The perioperative management of mechanical valve anticoagulation for noncardiac surgery has never been well standardized.

In this issue of the Journal, Tan and colleagues 1 have provided an expert commentary describing the evidence (or lack thereof) around bridging versus nonbridging strategies. Their Figure 1 is a nice pictorial illustration of the “art and science” that becomes necessary when managing anticoagulation in patients with mechanical heart valves.

A recent observational study from Italy provided some reassuring data. 2 In a cohort of more than 2350 patients in the Italian Federation of Anticoagulation Clinics, the overall rate of TE events was only 0.67 per 100 patient years. In contrast, the bleeding risk was slightly higher at 1.0 major bleeds per 100 patient years. Of note, the adequacy of anticoagulation (as measured by the time in therapeutic range) did not influence the occurrence of TE. Rather, patient factors such as atrial fibrillation, a history of TE, and a mitral prosthesis were found to be predictive of events. This report further supports the recommendations of Tan and colleagues, 1 who argue for patient-specific management of anticoagulation considering the clinical risk factors and the bleeding risk of the proposed intervention.

It is thought provoking to realize that even in the absence of anticoagulation, the risk of a TE event with a mechanical heart valve is only 0.67 per 100 patient years, and the risk of major bleeding is slightly higher at 1.0 per 100 patient years. The management of perioperative anticoagulation in patients with mechanical heart valves is not well standardized. Given the lower risk of TE compared to major bleeding, it seems prudent to focus on optimizing perioperative management of mechanical heart valve anticoagulation.
aortic valve ranges from 6% to 22%. Therefore, even at a 22% risk, the daily risk of TE without anticoagulation is 0.06%. Considering that we typically hold warfarin 3 days before elective surgery and resume it on postoperative day 1, the cumulative TE risk remains 0.24%. Clearly, patient factors may increase or decrease this risk, but the point is the risk is small compared with a potential life-threatening bleeding complication after major surgery.

In a trial of patients with atrial fibrillation, Douketis and colleagues found no benefit to perioperative bridging. Although these patients are at lower risk of TE complications compared with those with mechanical heart valves, it provides limited evidence of the lack of efficacy of short-term bridging before elective surgery.

As with Odysseus’ choice between the serpent Scylla or the whirlpool Charybdis (Figure 1), every patient with a mechanical heart valve faces the risk of TE versus bleeding when contemplating a surgical procedure. As pointed out in their Discussion, the field is really in need of prospective data to guide our therapeutic choices. In the interim, the proposed strategy appears logical and would be a useful addition to any anticoagulation clinic.

References