the type of Fontan operation performed, the presence and size of the fenestration, the material used for the actual Fontan connection, noncardiac comorbidities (eg, risk of extracardiac and extracerebral bleeding, risk of bone mineral density decrease on warfarin), and patient preference.

More than half a century after the first Fontan operation was performed, it is time now to get these answers and know what we should offer to our Fontan patients. They deserve it.

Reference

Commentary: Less is more

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While exceedingly common in modern vernacular, the term “less is more” is ascribed to renowned architect Ludwig Mies Van der Rohe. His artistic approach sought to simplify architecture to its most basic elements. By removing ornate details and inefficient uses of space and material, he not only defined an entire architectural movement, but his efficient use of steel and glass also helped to define the modern skyscraper, which persists long after his death.

Those practitioners who advocate a “less-is-more” approach to anticoagulation following the Fontan procedure were given further evidence in this issue of the Journal. Attard and colleagues1 demonstrated that, among those patients who were older than 13 years and had been maintained on either warfarin or aspirin therapy for thromboprophylaxis for a duration of 5 years or longer, those treated with aspirin had the same incidence of stroke but had significantly lower incidence of bleeding complications compared with the warfarin group. This study builds on previous studies that have demonstrated similar incidence of thrombotic complications between patients with Fontan circulation treated with aspirin compared with warfarin2,3 but is novel in its focus on patients further removed from their Fontan operation (greater than 11 years). This focus on a more adolescent patient population is important, as adolescent patients present unique challenges. Of particular interest in this study is the authors’ assessment of bone density, where they demonstrate significant bone density loss among patients treated with warfarin. It is particularly poignant to see such clinical changes in children who already have so many additional comorbidities.

Thrombotic complications in Fontan circulation are unfortunately common, and their etiology is multifactorial. Even though this study demonstrated equivalent thrombotic complications between warfarin and aspirin in patients with Fontan
circulation and an increased bleeding risk in patients taking warfarin, more studies are needed to properly inform guidelines on this matter. To be sure, there are many questions that remain unanswered after this study, specifically the time in the therapeutic range for patients with Fontan circulation maintained on warfarin in this and other Fontan registries; the additional effects of the myriad anatomic, physiologic, and surgical configurations of Fontan circulations on their thrombotic risk; and additional surgical and medical factors that lead practitioners to choose warfarin or aspirin as the primary anticoagulant for these complex patients.

Another famous aphorism ascribed to van der Rohe is “God is in the details.” The details of ideal anticoagulation strategies for patients with Fontan circulation have yet to be fully realized. This study suggests that the long-term risk of thrombotic complications may be able to be managed with aspirin alone, which could greatly simplify outpatient management while sparing these patients the additional morbidity and inconvenience of long-term warfarin therapy. Whether there is a subset of patients who require additional anticoagulation, either for a brief duration or for life, among this heterogeneous and challenging patient population requires further investigation. While studies continue that compare novel oral anticoagulants against warfarin in this challenging patient population, this and other studies should serve as important reminders that warfarin may not be the gold standard, and that less anticoagulation may, in fact, be more.

References