Direct-acting oral anticoagulants: a bridge to nowhere

To the Editor: Patients may require long term anticoagulation for reasons that commonly include deep vein thrombosis, pulmonary embolism or atrial fibrillation.[1] In these circumstances, heparin is commonly used for bridging and is discontinued after the effects of warfarin result in a therapeutic international normalisation ratio. It takes approximately 5 days for this to occur because warfarin inhibits the production of vitamin K-dependent clotting factors II, VII, IX and X.[2] The time to therapeutic anticoagulation is a reflection of the half-lives of the circulating clotting factors and the time for them to diminish from the plasma. This has been our mindset for decades from the perspective of warfarin use.

The introduction of direct-acting oral anticoagulants (DOACs), such as apixaban, dabigatran and rivaroxaban, has resulted in important logistical and clinical benefits in patients admitted to hospital. For example, bridging with heparin is no longer needed[3] because DOACs directly inhibit circulating clotting factors resulting in a relatively quick onset of anticoagulation. The maximum concentration in the plasma is achieved within a few hours, which also mirrors its anticoagulant effect.[4] Unfortunately, based on internal audits at our institution, our medication safety committee has identified cases in which DOACs were combined with heparin or low molecular weight heparin. During a 38-day audit period, there were 14 cases involving such duplication. Based on anecdotal discussions, this duplication is partly related to the prescribers' lack of knowledge with regards to DOACs. Nurses or pharmacists usually intercepted these events such that the overlap occurred for a few doses and no patients were harmed. In the shift from warfarin to DOACs, inadvertent and unnecessary duplicate anticoagulation due to bridging increases the risk of bleeding. Although we seldom use absolutes, we can confidently endorse that there are no circumstances in which DOACs should be combined with another anticoagulant. Prescriber education and clear institutional guidelines may help deal with this issue. In addition, institutions with electronic medical records could optimise clinical decision support systems to prevent such duplication. The combination of DOACs with heparin is a bridge to nowhere.

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Competing interests: No relevant disclosures. ■

doi: 10.5694/mja2.50149

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