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Commentary: Should patients awaiting cardiac surgery who need anticoagulation be on direct oral anticoagulants or vitamin K antagonists?

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CENTRAL MESSAGE

Until there are readily available tests and standardized reference ranges for direct oral anticoagulants, perhaps coumadin should be used for anticoagulation for patients awaiting cardiac surgery.

ADULT

Direct oral anticoagulant (DOAC) prescriptions increased 233-fold over 7 years partly due to the convenience benefits (standardized dosing, minimal/no drug interactions and no need for monitoring) of these drugs.[1,2] However, questions subsequently arose about the data and the analysis in DOAC studies[3]; drug and food interactions became apparent[2,4,5]; and thrombosis and bleeding problems occurred.[2,6] In fact, 2 companies have already paid more than $1.4 billion in lawsuits over harms caused by DOACs.[7]

In this issue of the *Journal*, Fox and colleagues[8] describe a perioperative anticoagulation management strategy with associated postoperative outcomes in patients undergoing elective cardiac surgery. Patients were either on preoperative DOACs, preoperative vitamin K antagonists, or no preoperative anticoagulation. The authors observed that a DOAC level below <30 ng/mL, which was a median of 3.8 days from last dose, was associated with comparable bleeding and secondary outcomes to patients on traditional vitamin K antagonists. Although the authors have provided important data relating specifically to cardiac surgery patients, questions remain. It is still unclear what serum DOAC level is safe. When data from the study by Fox and collègues are examined,[8] measured DOAC levels were low, with a median value of 0 for most categories. Thus, is 3.8 days of withholding DOACs too long in patients with a greater risk of thromboembolic events? In contrast, Douketis and colleagues[4] demonstrated holding DOAC for only 2 days (level <50 ng/mL) in high-risk surgery (such as cardiac surgery) provided acceptable bleeding rates. Of note, Fox and colleagaues[8] did find that only 71% of patients stated the last dose of DOAC they took and 69% of patients with high DOAC levels were still taking their DOAC despite being told to stop. Thus, measuring levels was very important.

DOACs have specific assays with specific reagents, and these are not readily available.[2,9] In addition, at present there are no standardized guidelines or therapeutic ranges established for what DOAC level to aim for particular operations.[2,9] Although reversal agents for DOACs are now on the market, there are issues with cost and efficacy.[2,10] Even though there are problems with coumadin, such as need for monitoring, food/drug interactions, and nonstandardized dosing, some of these problems appear to be arising for DOACs as well. However, for coumadin, there are easily and widely available tests with reference ranges to measure the degree of anticoagulation, there are effective reversal methods, and the costs to the patient/health care system are minuscule (at least 40-fold lower for coumadin vs DOAC).[1,2,11] Until more information is available on DOACs, it may be appropriate to manage patients awaiting cardiac surgery who require anticoagulation with coumadin.

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