

Periprocedural risk of bleeding and thrombosis: to bridge or not to bridge

Dr. James Douketis in an interview with Dr. Roman Jaeschke: part 2

Professor James Douketis, you were talking to us about handling of anticoagulation in the perioperative and periprocedural periods. We were talking about vitamin K antagonists to start with (see: BRIDGE trial on pages 798-800). One thing which strikes me, and it probably applies to every aspect of medicine, is that people whom you bridge still get thromboembolic events and people whom you do not bridge still bleed. It is obviously difficult to live in a situation where your decision leads to or is associated with an unintended outcome, whether it is caused, unmasked, or simply associated with it. How are those decisions made and how do you deal with them if inevitably some things do not go right?

That is a very important question, because often when patients are having surgeries or procedures, these are elective procedures. The last thing we want as clinicians is for something unintended, like a disabling stroke or a serious bleed, to happen, and we are always trying to find ways to mitigate both those risks. Having said that, we know that in a perioperative setting, strokes and other cardiovascular events will occur. Patients having bypass surgery, carotid endarterectomy—these are complications of these surgeries, and whatever we do to mitigate them, some may occur despite our best efforts. So when I am discussing this with a patient, I simply point out to them that we are trying to do what we feel is best for you, to mitigate or minimize your risk for both cardiovascular and bleeding events. Because we should not forget that a bleeding event is not always benign. It can lead to prolonged interruption of anticoagulation and that may in turn lead to unintended cardiovascular or thromboembolic events.

We have to also recognize that these episodes do occur, but the question is in this case, if we are talking about bridging anticoagulation, does that do anything to mitigate the risk for thromboembolism. The evidence as we know today suggests that it does not, and in fact it may cause harm. So like with a lot of other interventions in clinical practice, we have to be careful about wanting to do something with the aim of minimizing

risk, when in fact we have to resist that temptation and perhaps back off a bit. I think that is the best decision.

Because we have spoken about it during the previous interview with you (see: BRIDGE trial on pages 798-800), and it sounds like the pendulum is swinging towards not using bridging, would you mind repeating what are the situations in which you still, in your today's practice, would use bridging?

Sure. There are a lot of patients who are on warfarin now, and many of them because of the mechanical heart valve, mitral or aortic, some patients have venous thromboembolism, and there are even patients who had atrial fibrillation. There is a wide spectrum. In my practice, and I think many of my colleagues' practice, we continue to bridge patients who we deem as high-risk: those with the mechanical mitral valves, older aortic valves, if they have had venous thromboembolism within the previous 3 months, and maybe in atrial fibrillation patients who have had a recent stroke or transient ischemic attack or have a very high CHADS score, 5 or greater. We do that because we do not have compelling evidence, like we do from the BRIDGE trial,¹ that bridging does not mitigate the risk for thromboembolism. Some of us are relaxing that, so we may not bridge certain patients with bileaflet aortic valves, for example. But the evidence is just not there yet and until it is, we will continue to bridge, but we do so very carefully.

Thank you for this. We have been talking about vitamin K antagonists so far. How about the new classes of drugs? I keep hearing different acronyms here.

You are referring to the NOACs, or novel oral anticoagulants, but because they are not so novel the current term is the DOACs, or direct-acting oral anticoagulants. You are right—they are being used increasingly in patients with atrial fibrillation and venous thromboembolism; not, however, in any patient with a mechanical heart

valve. These agents are very different from warfarin, but just like in patients who are on warfarin, those patients on these newer agents do need the same surgeries and procedures, and we need to be able to manage their anticoagulation around their procedures or surgeries in a similar type of way as we do with warfarin, but with some caveats.

So how do you deal with it?

First thing is that these new classes of drugs are not the same. There is dabigatran, which has a longer half-life, is more dependent on the kidney for clearance; and then there are rivaroxaban, apixaban, and edoxaban, the oral anti-Xa inhibitors, which have shorter half-lives and are less dependent on renal clearance. When we see patients on these agents who need a surgery or procedure that requires these drugs to be interrupted, at this time we do not have a lot of good evidence about the best way to manage them. What we typically do is look at the half-life of the drugs, which is dependent on the kidney function, look at the type of the surgery or procedure that they are having, and individualize management. For example, in patients who are having a small, minor procedure that is associated with a lower risk for bleeding, we typically have patients off these agents 1 day and off the day of their surgery or procedure. Patients who are having a major surgery or higher risk for bleeding, or any patients who were having a neuraxial anesthetic, are off these agents for at least 2 days plus the day of the procedure. As I mentioned, because the management is drug-specific, if a patient is on dabigatran, we sometimes add an extra day or 2 off the dabigatran before their surgery or procedure if their renal function is impaired or if they are having a very high-risk surgery. So the management is individualized based on the type of surgery the patient is having, the renal function, and the drug they are taking.

Thank you very much. I think it is helpful to me, and I hope it will be helpful to at least some of our readers. Thank you, Dr. Douketis.

You are very welcome.

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REFERENCES

- 1 Douketis JD, Spyropoulos AC, Kaatz S, et al.; BRIDGE Investigators. Perioperative Bridging Anticoagulation in Patients with Atrial Fibrillation. *N Engl J Med.* 2015; 373: 823-833.