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Managing Bleeding Risk in Fracture Patients on Anticoagulation

Announcer:
You're listening to *Clinician's Roundtable* on ReachMD, and this episode is sponsored by CSL Behring. Here's your host, Dr. Alexandria May.

Dr. May:
Welcome to *Clinician's Roundtable* on ReachMD. I'm Dr. Alexandria May, and joining me to discuss bleeding risks for fracture patients and considerations for addressing them is Dr. Clay Spitler. He's an orthopedic trauma surgeon and serves as Vice Chair of Clinical Affairs for the Department of Orthopedic Surgery at the University of Alabama at Birmingham. Dr. Spitler, thanks for being here today.

Dr. Spitler:
Absolutely. Thank you for having me.

Dr. May:
To start us off, Dr. Spitler, when you encounter an orthopedic trauma patient on anticoagulation, what key physiologic or clinical red flags immediately shape your assessment of bleeding risk?

Dr. Spitler:
Fracture patients come in lots of different varieties. As we have a more active aging population, we have started seeing some higher energy geriatric patients with injuries that we typically, in years past, may have only seen in younger active patients. And so we're seeing sort of two subsegments of the population on anticoagulants. One would be sort of the lower energy, standard fall from standing hip fracture type patients. And then also, when elderly folks are in car accidents or fall down a flight of stairs, they can have multi-system trauma. And so those are the same patient profile but different physiologic status, and they can end up with some increased complication rates as associated with their medications.

Dr. May:
And building on that, how do individual risk factors and fracture-specific variables, such as location, severity, or associated soft tissue injury intersect with anticoagulation to raise the stakes for complications?

Dr. Spitler:
When we think about fractures as a whole, there are some that are more urgent to take care of. So, specifically, open fractures, fractures with compartment syndrome, and even hip fractures have sort of a time frame that is ideal to have them treated within. And so the acuity with which they need to be either reversed or have the medication be metabolized before we can intervene is different based on the individual patient, their physiologic status, and their resuscitation status. Again, these higher energy patients can present in hemorrhagic shock, and often have associated intracranial injuries from relatively low energy falls that also have to be managed alongside some of our other colleagues in the hospital.

Dr. May:
Now, let's focus on anticoagulation as a risk factor and take a look at some clinical findings. A study published in the *European Journal of Trauma and Emergency Surgery* in 2023 found a significant correlation between anticoagulant therapy and complications in patients with proximal femur fractures. In your experience, how does being on a direct-acting anticoagulant or warfarin affect outcomes for patients, and what do some of these complications look like?

Dr. Spitler:

For me, it's actually the two separate categories a little bit. I mean, they get lumped together often, but the two separate categories are different. Warfarin, obviously, is an older medication, and honestly, sometimes can be harder to reverse reliably and consistently. Different patients respond differently to different doses of vitamin K, FFP, and PCC, whereas with the direct oral anticoagulants on the whole, unless patients are in hemorrhagic shock and bleeding to death, typically, if it's urgent enough, we will just operate through that.

But the half-life is relatively short, and so for most patients with, say, a hip fracture, we want to have them in the operating room within 24, at the outside, 48 hours. At least at our facility, the protocol is to wait 24 hours from their last dose and then have them in an operating room. And so it requires a lot of collaboration between trauma surgeons and anesthesia, and some places strongly rely on geriatrics and surgical subspecialties to make sure that these patients are receiving the timely care that they need.

Dr. May:
Thank you for that explanation, Dr. Spitler. For those just joining us, this is *Clinician's Roundtable* on ReachMD. I'm Dr. Alexandria May, and I'm speaking with Dr. Clay Spitler about the importance of understanding bleeding risk in fracture patients.

So, Dr. Spitler, now that we've talked about risk factors for fracture patients, I'd like to shift gears and talk about anticoagulation reversal. Why is timely reversal so important? And what does the current therapeutic landscape look like?

Dr. Spitler:
Yeah, so again, I generally think of them in the two buckets: one being the warfarin bucket, and the other being the direct oral anticoagulants as a class of drugs. For warfarin patients, typically, oral vitamin K is given upon arrival with the judicious use of fresh frozen plasma around the time of surgery, if needed—again, being mindful of target INRs based on why they're on warfarin, and for the mechanical heart valves, generally trying to stay between two and three. If patients happen to be on warfarin for something like AFib, then overshooting below two is not quite as morbid as someone with mechanical heart valve.

In the more urgent cases, for patients who are in hemorrhagic shock, prothrombin concentrate complex is used as an adjunct in their resuscitation to try to stop the bleeding and prevent or reverse coagulopathy that's often the case in those patients.

When thinking about the direct oral anticoagulants, when patients have urgent surgical needs, we typically operate straight through that. So that would be open fracture, compartment syndrome, things like that. Fortunately, the half-lifes are shorter for those drugs, and for that reason, we often will wait out one and a half to two half-lifes. So for most of those drugs, that's 24 hours. And so we will delay 24 hours from their last dose, and then plan to have them out in the operating room as soon as that timer is up.

Dr. May:
With all of that in mind, there's often hesitation around reversal due to fears of thrombotic rebound, so how should we weigh that risk against the risks of delay?

Dr. Spitler:
Yeah, it's a tough balance, it really is. And so I think that we're trying to weigh both sides of this. Again, I think for the direct oral agents we have, in most cases, we don't have to use an actual reversal medication, because it's just a delay. But that delay typically falls well within the standard of care for taking care of hip fracture patients, and that's probably the most common patient that we see on these medications. There is the worry that—and particularly in a warfarin patient—if you overshoot their INR, then they're going to be at a higher risk for PED, TE, things like that.

The bottom line is, these patients have higher rates of complications no matter what you do. And if you stack the risk of delay, excessive delay, that tends to lean more towards being aggressive and early in terms of our interventions. And so yes, you are going to probably have a higher rate of complications regardless of what you do. But we know that earlier intervention for the important fractures at least does make a difference in their outcomes, and so rather than have that additive increased risk, we accept the fact that we may have some additional thrombotic risk. But in terms of the fracture outcome and the patient's morbidity overall and mortality, we believe that being aggressive early tends to lead to better outcomes for the patient.

Dr. May:
Before we wrap up our program, Dr. Spitler, let's talk about how we can apply this knowledge in clinical practice. From your perspective, what can institutions do to improve outcomes for fracture patients on anticoagulation?

Dr. Spitler:
Yeah, I think that this is a place where the interdisciplinary work between multiple different subspecialties is really important. I think that having a written-out protocol or order set is really beneficial. That way, regardless of which clinicians are involved, the same thing happens in a repeatable way that's decided upon by all of the subspecialties, and in a way that seems to be optimal for the patient. So I think that communication and then a standardized practice at your hospital is really important in terms of making this a repeatable and

optimal process.

Dr. May:
With those strategies in mind, I want to thank my guest, Dr. Clay Spitler, for joining me to discuss how we can effectively care for fracture patients on anticoagulation. Dr. Spitler, it was great having you on the program.

Dr. Spitler:
Thank you. I appreciate it.

Dr. May:
Thank you.

Announcer:
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