Should Antiplatelet Medications Be Held Before Cervical Epidural Injections?

CASE SCENARIO

E.B. is a 58-year-old man with a 6-week history of bilateral upper limb lancinating radicular pain. He initially presented to his primary care physician who prescribed hydrocodone and referred him to physical therapy, yet he has continued to experience severe debilitating pain. His physician thus ordered magnetic resonance imaging and referred him to you for further evaluation. He presents with 9/10 bilateral arm pain that radiates into his hands. He is unable to work as a computer programmer due to the pain. He does not have any weakness, clumsiness, balance problems, or bowel or bladder abnormalities. Results of a physical examination revealed no neurologic deficits in the upper or lower limbs, but movement of his neck re-created his upper limb pain. His magnetic resonance images revealed a central disk herniation at C5/C6 that abuts the spinal cord, without evidence of cord flattening or any abnormal intrinsic spinal cord signal. Because of his failure to respond to treatment thus far, his requirement of opioid medications, and his inability to work, you have suggested a cervical epidural steroid injection. He has a medical history of a cardiac stent placed 9 months ago and requires daily clopidogrel. Per guidelines, his cardiologist has recommended that he continues taking clopidogrel for another 3 months. Because of the severity of his pain, he does not want to wait 3 months for the procedure, yet he is wondering if it is safe to stop the clopidogrel for the 7-10 days before the procedure. Michael Furman, MD, Gene Tekmyster, DO, and Scott Davidoff, MD, will argue that it is acceptable to proceed with a cervical epidural injection without having the patient stop the clopidogrel, regardless of whether the injection is done via an interlaminar route or a transforaminal route. Christopher Plastaras, MD, and Adrian Popescu, MD, will argue that the safest approach for this patient would be to stop the clopidogrel before the procedure, regardless of injection route.

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Disclosures related to this publication: consulting fee/honorarium, National Council on Strength and Fitness (NCSF), Elite Rehabilitation Solutions, LLC, CMEInfo, Pennsylvania Neurosurgical Society Speaker, AAPM&R, North American Spine Society; support for travel to meetings for study or other purposes, AAPM&R, North American Spine Society; other, TLG Associates
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Michael B. Furman, MD, MS, Gene Tekmyster, DO, and Scott Davidoff, MD, Respond

Risk comes from not knowing what you're doing.
Warren Buffett

The presented clinical scenario is one we often see. A patient who is a suitable candidate for an interventional spine procedure due to significant pain and functional limitations despite appropriate conservative care. However, the patient is taking anticoagulants (AC), which his cardiologist recommends not holding due to a relatively recent cardiac stent placement. The "dilemma" is whether we risk injecting the patient at all with a cervical epidural steroid injection (CESI) and must be based on a risk-benefit ratio for the patient. If we decide to proceed with the CESI, we must do a "risk versus risk assessment" and choose between the procedural bleeding risk while on the AC versus the coagulation risk of stopping the AC before the procedure.

When looking for clinical direction, we first turn to the recently released International Spine Intervention Society's (ISIS) second edition guidelines [1]. The guidelines recommend that "Any change in patient's regimen of medication should be undertaken in consultation with the physician responsible for the prescription, in case there are insights, considerations, or precautions of which the physician or the patient are unaware" [1]. In the presented case, the cardiologist has clearly indicated that clopidogrel cannot be stopped. Therefore, there is no dilemma, the AC must be continued, and we are left only with the options of (1) performing the CESI while the patient continues to take clopidogrel or (2) not injecting at all. In this case, the patient has clear functional deficits and wants pain relief. Hence, our obvious choice is to proceed with the injection. The patient

PM&R
1934-1482/14/$36.00
Printed in U.S.A.

Vol. 6, 442-450, May 2014
http://dx.doi.org/10.1016/j.pmrj.2014.04.012

will be included in the decision-making process and be properly educated about the potential increased procedural bleeding risks associated with ACs.

Until just recently, the approach to preprocedural AC management was more simplistic. The methodology was merely to ask, "How long do I hold each AC medication preprocedure?" It was and still is common practice to reference a table that lists various ACs with their respective preprocedure hold time based on medication half-lives [2,3]. However, this approach is too simplistic because it ignores the potential risks associated with holding ACs. Instead, we suggest a logical approach based on each patient's unique medical and procedural situation.

Although ISIS recommends consulting with the prescribing physician, we need to balance the practitioner's understanding of the AC necessity with our knowledge of the contemplated interventional options. The "risk versus risk assessment" needs to be clearly understood and balanced with the benefits, if any, of the considered spinal interventions. (The risk of holding the AC medication must be clearly identified and assessed compared with the bleeding or complication risk of performing the procedure while the patient is on the AC medication.) We must truly understand the rationale behind the cardiologist's, internist's, or primary care provider's recommendations when he or she suggests that the AC can or cannot be stopped. Just as we may not understand all of the potential coagulation ramifications, the physician prescribing the AC does not necessarily appreciate our spinal interventional risks, benefits, and associated complications.

We respect the ISIS recommendations to defer some decisions to the prescribing physician. However, either the prescribing physician must know the details of interventional spine medicine or the injecting physician must recognize the risk of ceasing AC medications of patients at high risk; not all physicians truly understand the risks of stopping the AC medications. We have personal experience with some prescribing practitioners who recommend stopping ACs in patients with a very high clotting risk (such as those with mechanical valves), despite receiving an injection with a low risk for bleeding (eg, a lumbar medial branch block). Because most of the prescribing providers do not completely understand the nuances of our spinal interventions, it is incumbent upon the interventionalist to completely understand the risks of both stopping the AC and performing the spinal injection procedure.

In the scenario as outlined above as well as many other scenarios, similar dilemmas arise. In the clinical setting of general musculoskeletal and spine medicine, it is always important to approach this clinical scenario with a logical approach. For each AC case, we suggest addressing it within the context of asking ourselves 3 questions, which are presented below. After offering these, we will address the presented scenario within this logical construct.

Why Is the Patient Receiving the AC, and What Is the Risk of Stopping It?. ACs are prescribed to prevent embolic and/or ischemic events. There are many potential reasons, including, but not limited to, a history of deep vein thrombosis, pulmonary embolus, or cerebral vascular accident. Some patients have artificial mechanical cardiac valves or cardiac stents, or have atrial fibrillation. For those patients with recent stent placement or those with mechanical heart valves, the acute risk of stopping the ACs is extremely high. For others, such as those with atrial fibrillation, short-term AC cessation risk is much lower. For those patients taking medications such as warfarin, appropriate prothrombin time and international normalized ratio or other measurable target ranges and values should clearly be known before the procedure. For medications that are held, the interventionalist must be aware of their therapeutic half-lives so that they are withheld appropriately [3].

In the presented case, the patient had a recent cardiac stent and is taking clopidogrel. Current cardiac guidelines typically recommend AC therapy 12 months after stent placement [4]. AC discontinuation can potentially lead to a life-threatening event such as myocardial infarction [5]. Also, the risk can be as high as 2-3 fold for stroke and 5-6 fold for other major vascular events within the first 30 days of cessation of AC medications [6]. There also is evidence that platelet inhibition can begin to reverse in as little as 3-5 days, thereby increasing the risk for thrombosis in the short term [7,8]. In the near future, as drug-eluting stents (DES) gain popularity, clopidogrel may only be needed for shorter amounts of time; however, these data are still limited [9].

We also need to consider that administering corticosteroids to a patient who was anticoagulated and who has recently had ACs stopped may result in an even greater tendency for a hypercoagulable state [10]. When combining this with the fact that many of these patients are immobile because of pain, the risk for thrombus is even greater. In combination with these data, there is some evidence for a prothrombotic and proinflammatory rebound effect with the discontinuation of antiplatelet medication [6]. All of these factors theoretically compound the risk of thrombus formation when ceasing ACs.

The cardiologist in this case appropriately advised that the clopidogrel be continued. However, there are times when primary care providers may misunderstand the coagulation versus procedural risks and suggest stopping the AC. We propose that it is still incumbent on the injectionist to understand the relative risks and continue the AC anyway, when appropriate. Therefore, consideration of the medical indication for AC needs to be respected for the various clinical scenarios. We are qualified to understand this risk and make this determination. If we choose to stop the AC, then we are potentially putting our patients at substantial risk of a major adverse event compared with a potentially smaller risk when performing the procedure without holding the AC.