

Pain Management Specialist as Resource and Colleague

An Interview with Ali Ebrahimi, MD

Daniel Alford, MD: Welcome to this special supplemental session on “Pain Management Specialists as a Resource and Colleague.” I would like to welcome my colleague, Dr. Ali Ebrahimi, who has been practicing pain management for nine years in Boston, including, initially, seven years at the Beth Israel Lahey Health, and two years now at Mass General Brigham. He completed his anesthesia residency at the Beth Israel Deaconess Medical Center in Boston, and his fellowship at Northwestern Memorial Hospital in Chicago. Welcome, Ali.

Ali Ebrahimi, MD: Thank you. Thanks for having me.

DA: So, I’m really excited that you’re here. I want to start with a case scenario from my primary care practice, just to kind of set the stage for why we’re having this conversation. So, this is the patient: a 48-year-old male high school teacher and baseball coach with depression, hypertension, and

Case Presentation

- 48 yo male high school teacher and baseball coach with depression, HTN, with severe chronic back pain secondary to spinal stenosis with degenerative lumbar spondylolisthesis
- No red flags by hx or exam (no weakness or GI or GU symptoms)
- Current pain medications:
 - oxycodone 10 mg TID
 - ibuprofen 800 mg TID
 - acetaminophen 1000 mg TID
 - gabapentin 800 mg TID
- He could not tolerate duloxetine or venlafaxine or TCAs
- No improvement with physical therapy, and acupuncture
- His pain remains a 9-10 on a 10-point scale and he remains on leave from his teaching job



severe, chronic low-back pain, secondary to spinal stenosis with degenerative lumbar spondylolisthesis. There are no red flags by his history, or on exam, no weakness, or GI, or GU symptoms.

He’s on oxycodone 10 mg t.i.d., ibuprofen 800 mg t.i.d., acetaminophen 1000 mg t.i.d., and gabapentin 800 mg t.i.d. He was not able to tolerate in the past SNRIs, including duloxetine or venlafaxine, or tricyclic antidepressants. And unfortunately, he really has had no

improvement with physical therapy and acupuncture, and on this current pain regimen he’s got pain scores 9 to 10 on a 10-point scale, and he remains on leave from his teaching job, because of his pain.

So, my current decision point with this patient is: should he be referred to a pain management specialist like you, Ali, or should I send him directly to surgery? So, I’d like to learn more about what you and your colleagues in the pain management specialist field do. Can you describe your subspecialty, that is, the subspecialty of pain medicine, or pain management specialist? What is your training and credentialing?

AE: Well, thanks so much for the great question. Pain management specialty is essentially a physician who did a residency in a primary specialty, and usually that primary specialty is either anesthesiology, neurology, or physiatry. You do an extra year of pain management fellowship, and these fellowships are ACGME accredited.

Now, at the end of that year, there is a standard written board examination that we all do, and it does not matter what your original residency training was in. So, essentially, pain management physicians are double board-certified, and that's fairly standard.

Now, the ABMS is the one that accredits board certification in pain, but as I mentioned earlier, everybody has a primary specialty that they completed a residency in, and so, by nature of that to find your pain management specialist, you may have to go to their individual board certification from which they received their residency training.

DA: OK. Pain is common; it's one of the most common things that I see in primary care. So, why is it so hard to find a pain management specialist to send my patients to?

AE: That's a great question. So, according to most recent surveys, in 2021 there were 6,240 pain management physicians practicing in the US. Now, contrast that against the prevalence of chronic pain, thought to be around 20 to 25 percent of the population. And so, when you think about the numbers, you're talking about roughly 70 million people who live with chronic pain. The incidence of new cases per year is thought to be about 52 per 1,000 people. So, in general, these numbers are growing. And so, when you work out the numbers, one physician out of every 50,000 is not nearly enough to cover all the patients with chronic pain.

One of the issues is that few medical students/medical trainees end up choosing pain management as their specialty of choice. Fewer than one percent of US medical trainees chose pain management as their specialty of choice.

DA: So, if I send this patient that I described to you to you, I'm wondering what's going to be offered to this patient, and what should I tell the patient before they see you? I've been told by pain specialists in the past, "Do not say you're going to the pain specialist to get X, like an injection," since it's really going to depend on what you evaluate the patient to need, and I certainly don't want to set my patients up for disappointment.

AE: Your example tends to be a straightforward case, where the patient has one complaint. Having said that, there are patients out there who have widespread pain. They may have migraines; they may have joint aches; they may have nerve pain; or all of the above. And so, how we address a patient really depends on the number of complaints, and the complexity of the complaint. When a patient comes to see us, the first thing we will do is obviously review all of the medical records that are available.

Once we have an idea of whether or not conservative measures and imaging have been done, then we start to formulate a plan, which may include more conservative care. For example, if the patient has tried physical therapy, but we feel that maybe acupuncture in this case would be more beneficial, we may recommend that at the first visit. Other options include medications, where we may try to tailor a patient's medication regimen. In that case that you provided, it looks like medications have been tried.

Another thing that we may do is offer injections. So, depending on the complaint, and depending on the location of the complaint, and sort of the acuity of the complaint, a patient may benefit from injections or interventions where you can target a very localized problem with an injection.

One other thing that could happen is we may end up referring the patient elsewhere, if we feel they would benefit elsewhere more than they would benefit from us. For example, if it seems that the patient may have a rheumatologic disorder, we may refer them to a rheumatologist, or if we feel that a patient may be better served seeing a surgeon, we may send them to see a surgeon.

Now, I mentioned a few different options, like medications, injections, and referral, but the reality is oftentimes there are multiple things offered to the patient, because it is rare for someone to only need one treatment type for a chronic pain disorder.

Sometimes, if the pain is more superficial and musculoskeletal or soft tissue, we can offer things like trigger point injections, and that ranges from as minimally invasive as that to very invasive procedures, such as spinal cord stimulators, and intrathecal pumps.

DA: Are there pain conditions that are more responsive to your interventions?

AE: If a patient has an acute disc pathology, meaning they remember the minute it started: they lifted a heavy box, and it was less than a year ago; and the pain radiates down their legs, and there's an MRI that confirms exactly the dermatomal pattern that the patient is describing. They're probably going to get a series of injections. These patients tend to do well with our interventions.

Another common problem that tends to do well with treatment is arthritis of the spine, most commonly the neck and low-back, or SI joint arthritis. And finally, another group of patients that tend to do well are post-surgical neuralgias, or post-surgical nerve pain patients.

Another common one is a post-thoracotomy pain, where they have intercostal neuralgia post-thoracotomy, or post-sternotomy pain, or a very common one, patients that have inguinal hernia repair. A subset of patients tend to have residual inguinal neuralgia that just doesn't go away six months to a year after the surgery, and we have some ultrasound-guided techniques that really can help these patients.

DA: As a primary care physician, how can I improve the quality of my referrals to pain specialists?

AE: As I mentioned before, we always review the referral notes, so a good referral note is always helpful for us to better understand what the background is; what we're dealing with; what the issue has been, and what is really disrupting the patient's life. A lot of times, we can make a diagnosis through history and physical.

But based on their description, and based on the physical examination, almost always we can make a diagnosis that day in clinic. Then we can go through the options available in terms of treatment. And that conversation often includes more conservative care, medications, injections, or another referral.

DA: Can you address my earlier question, when I presented my case, about how to decide whether the patient should go directly to surgery versus being sent to a pain specialist?

AE: More often than not, patients should be referred to pain management initially, and the reason for that is pain management can help with not only diagnosis, but also get some treatments, and see if this problem can be solved non-surgically.

In fact, a lot of surgeons will in some cases be disappointed if the patient is sent directly to the surgeon without some sort of workup ahead of time by pain management. The third very important point is most insurance providers will require some degree of conservative care, and in most cases, some injections before they'll approve any spine surgery.

However, there are situations where surgery should be called on the urgent side, and they should be the first ones contacted, and that's when red flags are present. So, if the patient is having severe back pain, and there's an unexplained fever, or unexplained weight loss, that is a red flag. You need to image this patient, and you need to send them to a spine surgeon as quickly as possible.

DA: Thanks. Assuming there are no red flags, can you now review some of the patterns of pain that you see, and how they help you make a diagnosis and come up with a treatment plan?

AE: In a situation where the patient says that their pain is isolated to their back or neck, it doesn't radiate elsewhere, and they're worst in the morning: "First thing in the morning, when I get up out of bed, I have a sharp pain in my back, and it gets better as I start moving around. I take a warm shower, and it starts to feel better," a lot of times, that's arthritis of the spine, and a simple way to figure that out is to do axial loading on the patient. So, what that means is as they're sitting upright, or standing upright, you have them lean backwards towards you, if you're standing behind them. So, when it's the neck, you have them look up at the ceiling, or if it's the low-back, you have them lean. If that elicits pain, and their description matches what I just said, you can feel fairly confident that you're dealing with arthritis of the back.

Now, if the patient says, "My pain radiates; it goes from my back into my leg, into my left leg, or right leg, or both legs," or, "It's in my neck, and it radiates down my shoulder into my fingers," then you're most likely dealing with a disc issue. Disc issues surprisingly tend to get worse with sitting. So, if a patient says, "I sit at a computer all day, and as the day goes on, my leg starts to go numb, or my leg starts to hurt," that's a disc issue, and the same is true with the neck. "As I work, it starts to go down my arm," and so we're dealing with a disc issue here.

Now, a common problem is spinal stenosis, and as we age, the space in our spinal column decreases. Typically, with these patients, sitting down relieves it immediately. So, that's a good question to ask: "When you're walking, and you sit down, do you continue to have a dull ache, or do all the problems go away immediately?" And a lot of times they'll say, "It goes away right away. And then, I sit for 30 seconds, and then I get up, and then I can walk another 100 feet, and I have to sit down again." That's very classic stenosis. And almost always the patient will tell you, "When I go to the grocery store, I can walk for miles, because I'm leaning on a shopping cart." And that's another classic presentation of spinal stenosis.

DA: Great review. But now, can we get some specifics about pain conditions, and which interventions you would recommend using for those specific pain conditions?

AE: Yes, definitely. So, there are certain injections that I'm sure you've heard of. A common one is an epidural steroid injection. When a patient has disc-mediated pain, or pain affecting the nerve root, a lot of times what we'll do is we'll try to cool down the area with some corticosteroid. And there are different techniques, different ways of getting the needle to that area. The most traditional way is an interlaminar epidural steroid injection, and this is most commonly used for radicular pain caused by disc issues

So, this is the classic patient with sciatica or radiating pain into the leg, or into the arm. So, commonly we'll do the same procedure in the cervical spine, as well. This is also used for spinal stenosis, so the situation where the central canal is compromised, and it's tighter than it normally is. Sometimes reducing the edema in that area will relieve the patient's pain, just by creating a little bit of space in that area.

Depending on the presenting complaint, these injections can either be permanent relief, or temporary relief. Classically, if a patient has an acute disc, which we were talking about earlier, so the classic patient that lifts something heavy, or twists the wrong way, and suddenly they have this

pain radiating down their leg, they were fine before: most of these patients do really well with an epidural steroid injection.

A lot of times, we'll do between one and three of these. So, what we'll do, and what I do in my practice, is I'll set up the first one, and I'll set some expectations for the patient. What I'll

Summary of Interventional Modalities

| Interventions | Indication |
|------------------------------|--|
| Interlaminar Epidural | Mixed/spondylosis, central canal stenosis |
| Transforaminal Epidural | Unilateral radicular pain, history of surgery |
| Intraarticular Facet steroid | Facet arthritis not amenable to ablation, symptomatic facet cysts |
| Medial Branch Blocks | Strictly a test. Planning and stratification for ablation |
| Radiofrequency Ablation | Medial branch mediated pain |
| Spinal Cord Stimulation | Neuropathic, sympathetic and nociceptive pain syndromes |
| Dorsal Root Stimulation | Neuropathic, sympathetic and nociceptive pain syndromes |
| Peripheral Nerve Stimulation | Chronic neuropathic pain |
| Intrathecal Pump | Intractable nociceptive, neuropathic pain requiring very high dose opioids |

tell them is, "We're going to do the injection, and two weeks after the injection we're going to see how you're feeling. If you feel fine, then we're done. If you feel that you had a big improvement, but we're not quite there yet, we'll do a second one, and sometimes we'll even do a third one. The hope is that with injection, you get closer to where you need to be, but with the overall plan that you'll heal from this issue."

Now, a patient with spinal stenosis or chronic disc herniation, not the acute patient that we just described, but someone who's had this for let's say five to ten years, their situation is a little different. What we're doing in that situation is doing an injection to see, first of all, if they respond or not. If there is a positive response, they feel improvement, then the next step is to see how long they get out of it. And the reason for that is if someone gets a long period of time of relief with this injection and we don't have to do more than two to three of these a year, then it's a great way to keep things under control. Having said that, if we do one and the patient reports one week of pain relief, we're a little less optimistic, because you just can't do these every week. It's not realistic. And so, in the chronic patient, the outcomes are a little more ambiguous, but we have that conversation with the patient, and we say, "Look, this is what you're dealing with. You're dealing with, for example, spinal stenosis, and we're trying to create some space in there, and there's not a whole lot of down-side with this procedure," "But this first injection is a test to see whether or not we can help you, and if we can help you, how long we can help you." And based on that information, we can make a long-term plan.

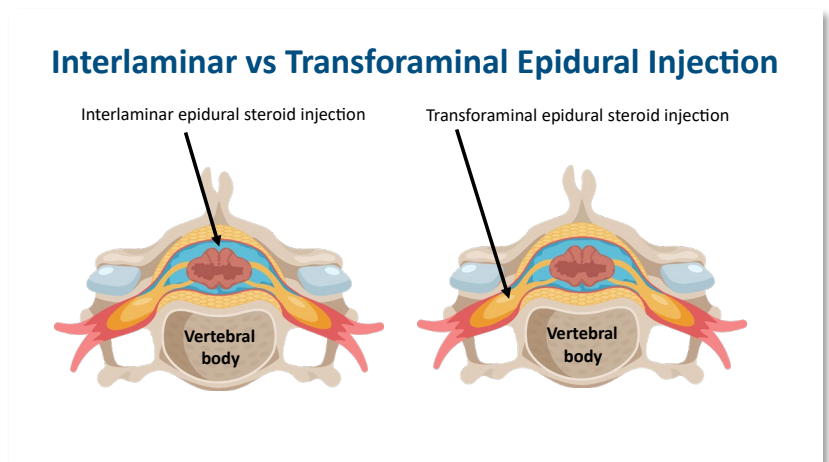
Now, that's an interlaminar epidural steroid injection, which I would describe as going right down the middle. So, what you're doing is you're going down the middle of the back, or the middle of the neck, and the advantage here is you're treating both sides with one injection, because the

medicine spreads left; it spreads right; it goes up; it goes down, meaning up and down levels of the spine. And so, you get a large area targeted of the spine when you do it in this way. And a lot of times that can be advantageous.

A transforaminal epidural steroid injection is the same concept where you're putting medicine in the epidural space, trying to target the same issue, but this is more for situations where a patient has already had surgery in the middle, and so surgery in the middle will change the anatomy, so the safety changes when structures change.

We are very reliant on feel, and what I would say normal, or presurgical anatomy. And so, if that's disrupted, you can't rely, and it becomes a little less safe, and on top of that, it's a little less predictable how the medicine will spread, and that's due to scarring. So, for that reason, we have a transforaminal approach, where you come down at an angle, either on the left or the right, and get to the same space, but through the neural foramen, rather than through the back.

The other advantage here is by coming from the side, you actually bypass the spinal cord that lives right in the middle, and theoretically, some people will say you can get closer to the disc by doing it that way. Now, when you look at studies that compare the two, they're actually equal in effectiveness. There is no advantage, one or another. So, the reason I would go for a transforaminal over an interlaminar is more for a safety issue, or for some sort of structural change that would necessitate me to come from the side.



DA: Can you now talk about the interventional treatment options for arthritis of the back?

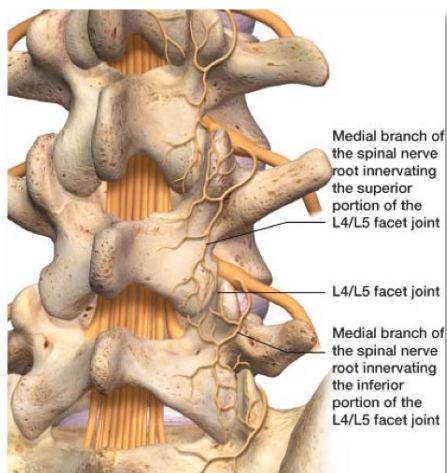
AE: There are two different ways we treat arthritis of the back. I'm going to start with the older method of doing it. It's an intra-articular facet steroid injection. We've come away from doing this a little bit, but it's still commonly employed. So, this is exactly as the name suggests. What we do is we identify the joints of the spine that are arthritic. Usually, it's the bottom joints of the low-back, because they carry the most weight, and in the neck, it could be upper or mid or lower, so based on physical exam, we can identify which facet joints are affected.

And what we do is we use an X-ray to guide a needle into each of these facet joints, usually two to three on each side, and put a little bit of steroid in those joints. The problem here is these joints are so small that it's very difficult to actually get a lot of steroid into the joints. And so, the results are mixed.

DA: Can you now tell me about the use of radiofrequency ablation for back arthritis? What is it and how beneficial is it?

AE: So, radiofrequency ablation is where we use specialized needles that are insulated, and the tips are exposed. They're metallic and exposed. And what we do is we go to the nerves that provide

sensation to these facet joints, and there are two nerves for each facet joint, one that comes from the top, and one that comes from underneath. Those two nerves come together and touch the facet joint, and that's how you feel pain in that joint.



These nerves are called “medial branch nerves,” and they’re a branch of the dorsal ramus. What we can do with these insulated, but exposed needles, if you can get the needle tip right up against those medial branch nerves, and heat up the needle tip, you can – we say “burn the nerve.” That’s not actually what happens. It’s probably more accurate to – what I tell patients is, “When you put food in the microwave, it comes out looking the same. You haven’t done anything. You’ve just heated it up, and that’s what we do with these nerves. We heat them up to 80 degrees Celsius for 90 seconds, and by doing so you’re disrupting the nerve’s ability send a signal. You’re putting it to sleep.

Image from <https://aneskey.com/facet-joint-procedures-facet-joint-injections-medial-branch-blocks-and-radiofrequency-ablation-of-the-medial-branches-of-the-spinal-nerve-roots/> used with permission

So, in an ideal situation what you’re looking for is six to nine months of pain relief, usually not complete pain relief, because there are some aberrant nerves that send a signal, but what you’re looking for is 80 percent pain relief for six to nine months with radiofrequency ablation.

In order to justify doing a radiofrequency ablation, what we need to do first is what’s called a “medial branch block,” and you may have heard this term commonly. That’s a procedure where we put needles where those medial branch nerves live, and remember there’s one that comes from above, one from below, and what we do is we put a small – half a cc – we’re talking a really small amount of local anesthetic around the nerve.

And what we do is we give the patient a pain diary. So, we ask them not to take anything they take to normally help their pain. We want them to be sore on the day of their diagnostic block.

And then, 30 minutes after the procedure, the clock starts. And what we want to see is a dramatic drop of their pain for about eight hours after the procedure. The numbing medicine works anywhere from six to 24 hours, depending on the patient’s metabolism, but what we’re really looking for is the dramatic drop of their pain, and then a recurrence of their pain the next day. And if that happens, we know that if we put these nerves to sleep, the patient will probably feel better.

DA: Well, thanks for that wonderful summary. Is there evidence supporting the use of these interventions?

AE: Pain management is a relatively new field, I would say, within medicine. And so, as a result, I would say the evidence at this point is on the weaker side. And what that means is there hasn’t been comprehensive unity of studies where we can hang our hat, and say, “This is proof that what we do works.”

A lot of what we rely on is experience and a lot of it is anecdotal and pattern recognition, where we have a set of tools, and we apply them to patients, and over time, and with experience, you get better and better at managing people's pain. But unfortunately, in terms of strong evidence, it just does not exist as of now in our field. I think with time, that will change. But right now, that's not the case.

DA: Great. And just as kind of a follow-up, with the lack of robust evidence supporting use of these interventions, it is interesting that insurers for the most part cover them, and I'm just wondering is it because of the lower risk, or the avoidance of having patients go to surgery if they actually benefit from these procedures? Am I correct, or are there other reasons?

AE: Yeah. That's a great question. As we said at the beginning, 70 million Americans walk around with chronic pain, and there aren't a lot of good solutions out there. And historically, what we've done is we've sent patients to a surgeon. And it turns out that the evidence there isn't great either. Spine surgery has evolved a lot in the last – I would say – 50 years, and despite the newer technology and the newer equipment that they use, the outcomes are just as unpredictable as in pain management.

So, I think when a patient undergoes surgery, what I typically tell people is, "Whatever happens after that surgery, you're probably stuck with. If it's a good outcome, great. And if it's not a good outcome, or if you feel worse, or if you have a complication, you're often stuck with that outcome."

And so, a lot of times what we try to encourage people to do is start almost like a stepwise approach, where just because we're doing injections, or just because we're trying medications, doesn't mean we're never going to have surgery. We're going to try to avoid it, but ultimately, that option is still there, but it's in your best interest to try options that have fewer negative consequences.

So, when we do these injections, of course, with anything you do there's some risk, and we'll talk a bit about those risks a little bit later, but for the most part, these are very safe procedures.

I think insurers also prefer to try to offer something that may help someone, and solve their problem, or manage their problem, but avoid the costly surgery that a lot of times will then end up in multiple surgeries, or some complications, and the costs just increases with each of these complications and each of these surgeries.

DA: I wonder if you can dive in a little bit more about the potential benefits and the potential risks for a patient like the one I described, if I send them to you, and they have an injection? And also, what should I say to the patient before they go and see you?

AE: The benefits of injections, if we're able to identify an injection that works for you, let's say you have chronic back pain, and the injection ends up helping you for five months at a time, and you come and see me two to three times a year, you're better able to function in that time period. That's the goal. So, what we do is we try to treat the pain with an injection, or with medications, and then use something like physical therapy and their services to increase your independence and increase your movement. And by doing so, you're breaking the cycle. When people are stagnant, their pain gets worse. There's no question, when people move, they feel better, but there's that hesitancy, the barrier of having pain stops people. And so, if we're able to get that under control, then we

break that negative cycle that's been created.

DA: You mentioned that these procedures are generally safe, but can you now address some of the risks involved?

AE: So, the biggest risk I would say is sometimes the injection doesn't work. So, you need to be upfront with the patient about that. And even if it does work, sometimes it doesn't last very long. So, these are some of the risks that we've already talked about. I don't have an exact stat on this, but I would say out of every 20 to 25 injections that I do, one patient will call the next day and say, their pain is worse than prior to the injection just for a day or two, and this is a flare. And we call it a "flare."

And sometimes what I tell people is if there's a sore spot, sometimes just putting a needle in a sore spot will make it more sore before it helps. And the corticosteroid typically takes three to five days to work, so there's that sort of in between time period, where they may feel a flare. I would say it's less than 5 percent of the time, but it can happen. And you talk to the patient about that, so they don't get alarmed when it does happen.

The important thing, if you get a phone call, let's say I do an injection, and they call your office, instead of my office, and they say, "Hey, I had a neck injection, and things are worse," and it's one or two days after. I think the most important thing I would do as a provider is ask about those red flag symptoms that we talked about. So, saddle anesthesia, new numbness, new falls, new weakness, and incontinence, so bladder or bowel incontinence. These are all signs that there is compression on a nerve root, or the spinal cord, and this should be addressed on the more urgent side. If they've been numb for 20 years, and they're still numb, that's okay. But if it's a new symptom, then it's better safe than sorry. They should be evaluated at the urgent care, or at the emergency room.

So, the big risks that we worry about, the ones that should be in the back of your mind that are very rare, but things to think about. We worry about epidural hematomas, and we think about epidural abscesses.

An epidural hematoma typically will happen within a day or two of the injection. So, not only are they having pain at the injection site, but they're having progressive neurological symptoms. So, there's numbness, and the numbness is spreading. As the hematoma grows, the effect will mimic that, so then it progresses to weakness, or incontinence, or falls. So, if you get that sort of report within a day or two, they should be sent to the emergency room.

An abscess is obviously an infection in that area. Again, very rare, but something to think about. That takes seven to ten days to develop. You have to think bleeding immediate, but bacterial growth will take time. Again, these are quite rare. Data will say one in 100,000. It's something you might come across in a case report, but again, very rare.

DA: That's reassuring, but are there patients that are higher risk for complications?

AE: There are certain patients where they're at more risk. So, if your patient's on an anticoagulant. Now, we hold anticoagulants for these procedures, and we talk to the cardiologist, or the prescriber, whoever the prescriber is, and have a conversation before we do the injection. And then

for abscess, obviously if they're a smoker or they have a history of infections, or diabetic, again, something to think about, but again, these numbers are quite rare.

Let's talk a bit about nerve damage, because this is actually a hot topic a little bit right now in the pain management world. So, now that we use imaging, these sorts of complications are very rare. But there are case reports out there of people having sudden paralysis right after the injection, before they get off the table, paralysis, things of that nature, very serious things.

Those are the big things we think about. And then there's of course, the side effect of the steroid itself, which is much less common than oral prednisone, or oral steroid, but I'll tell patients, "You might feel flushed. You might have trouble sleeping for a day or two. If you're diabetic, we want to watch your sugar." But more often than not, people do not have any side effects from the steroid.

Actually, another one that I have seen that's important to note is sometimes postmenopausal women will report spotting. And so, that can be very alarming, obviously, and so, that's an important one to touch on with the patient, as well, that this could happen.

DA: So, if the intervention, such an epidural steroid injection fails to give the patient adequate or even sustained benefit, what are the next steps for managing a patient's chronic pain in your world?

AE: Actually, this is quite common. It's important for the patient to follow up with us first of all, and tell us that that's the case. So, if they call your office, and they say, "Hey, I went, and the shot didn't help. What now?" Definitely follow-up with your pain management specialist, because they have a lot of tools in their toolbox in terms of how to approach this. In fact, sometimes a failed injection is helpful. It helps with diagnosis; it helps to point us away from what we just targeted, and now, something else becomes more obvious as the predominant diagnosis. Nothing is ever clearcut.

As a good pain management specialist, the pain management specialist should preemptively tell the patient, "Sometimes these fail, and there are back-up plans." But in a situation where that happens and the patient was not aware that that could happen, I think it's very important that you tell them to follow up with their pain management specialist, because there is an array of other things that can be done.

DA: So, at this point, you please discuss some of those other treatment options that you can offer?

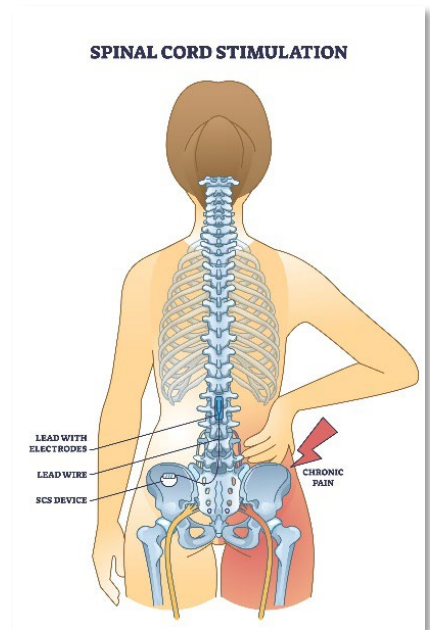
AE: Now, even beyond our traditional injections, there are some more advanced techniques that we employ. They're more rarely used, but they are available for situations where all else is failing.

Probably the most common on this list is a spinal cord stimulator. It's an electrical wire that sits on the dorsum of the spinal cord in the thoracic spine, usually. It can be in the cervical spine, as well.

What this will do is it will, possibly using the descending inhibitory pathway, which is basically – and I'll keep this sort of brief – but when we think of pain, we think, okay, you stub your toe, and the signal goes from the toe to the leg, up into the spine, up to the brain, and you say, "Ouch!"

And that is true, but there's a second signal that goes from the brain back to the toe, and it says, "Oh, okay. That hurt, and I learned something from it, but I don't need to keep feeling pain. I'm going to shut that signal down." And you gradually feel less and less pain until it goes away. So, there's a descending inhibitory pathway that's a really interesting concept in pain management right now, and it turns out that spinal cord stimulators may be influencing that part of the signal.

Peripheral nerve stimulation. This is used commonly for chronic shoulder pain, the patient that's 85-90, cannot have a shoulder replacement. It's too painful. They would not do well. So, there's a branch of the C4 nerve called the "suprascapular nerve" that provides about 80 percent pain perception from the shoulder joint. And you can dull it down; you can reduce the pain by putting one of these stimulators along the suprascapular nerve, and people with shoulder pain do well with this. And it's a good alternative option for someone who's not a good surgical candidate.



We have minimally invasive spinal spacers. These are used for a classic spinal stenosis. There are very specific diagnostic criteria for these, because they're minimally invasive, and they work really well, but you have to meet and match certain criteria to be a good candidate for these, but it is an option for people with lumbar spinal stenosis.

Intrathecal pump is losing some of its favorability in the last decade or so. This was most commonly used for cancer patients with severe intractable cancer pain. And then, it started to be used for people on very high-dose opioids, and the advantage there was you were able to give the patient high-dose opioids without actually physically giving them high-dose opioids to keep in their medicine cabinet, because there's always a risk with that.

DA: Now, I've heard about dorsal root stimulators. Can you now talk about that?

AE: So, this is very similar to spinal cord stimulation, except instead of the wire sitting on the dorsum, or on the back of the spinal cord, it sits on a very specific nerve group. This is very useful in – I'll give you an example.

So, if someone gets shingles, and they have post-herpetic neuralgia, I think we've all seen at least one patient with horrible post-herpetic neuralgia that doesn't respond to anything – medications, even steroid injections, but in situations where it just does not respond to any of these treatments, you could do a dorsal root stimulation. So, you put the wire on the nerve root that's affected by post-herpetic neuralgia.

Another common one is knee pain, so isolated knee pain that's refractory to surgery, injections, topical agents, every treatment you can think of, you can put a dorsal root stimulator on L3 and control that patient's pain. This is not commonly used, but in very refractory cases, where the patient's pain is severe, it is an option.

DA: So what is the efficacy of implanting a spinal stimulator and are there any drawbacks?

AE: There is a high failure rate of these, probably close to 20 to 30 percent, but in the other situations, people do get good outcomes with this. The only drawback is that it comes with a battery, very similar to a pacemaker battery that sits in the back, as opposed to the chest. But the point is the patient is now committed to this product. So, if it's implanted, then it's probably going to be there forever. There are situations where it can be removed, but that's not ideal. So, you want to make sure it's MRI compatible, and they do have those now.

Arachnoiditis is another one. And then, hypoperfusion pain. So, in Europe, these devices are used most commonly for this. So, if you think about patients with vascular issues in their lower extremities, or upper extremities, it turns out that these devices cause vasodilation and help with the perfusion. So, cardiologists are really starting to become interested in spinal cord stimulation for cardiac perfusion, and so, there's some research going on there. But in North America it's mostly used for failed back surgery syndrome, and sort of neuropathy.

DA: Great, thanks. So, obviously, the ease or difficulty of getting a pain management specialist consultation is going to depend on where you live, but that being said, can you give some just general advice on when and how a primary care clinician should obtain a pain specialist consultation?

AE: Yeah. That's a great question, and it's one that I'm sure comes up a lot. So, we touched on the numbers earlier, so it's sometimes difficult to get someone in with pain management, and just sheerly because of lack of availability. There are certain situations where a pain management consult is very warranted. I would say if you have a patient that develops a pain and you've ruled out major issues – a lot of aches and pains, as we all know, will subside on their own, and the general rule of thumb, and depending on which definition you look at some people would say six weeks is where acute becomes subacute or chronic, and some would say eight weeks, and some would say 12 weeks. But somewhere in that ballpark is where most people should be better.

So, if the patient has waited eight weeks, I would say, and the pain is not improving, because if it's improving, I would give it a little more time, but if it's not improving, and it's been eight weeks, and they've tried stretching, and they've tried resting, and they've tried doing general conservative things, that's good time to get pain management involved, because there's a sign that this is struggling to heal for whatever reason, and what you don't want is for it to persist for too long.

DA: So, would you recommend imaging studies before the patient is sent to a pain specialist?

AE: This is a difficult question to answer, because I think it depends on the pain management specialist. Some people prefer imaging before they see the patient, and others it's not as necessary. Now, I did touch on some red flag symptoms earlier, where if any of those are present, no question. There should be imaging.

But, in general, if it's a chronic pain, the patient is a carpenter, and they've had neck pain for eight years, I don't necessarily need imaging. Would it be helpful if I had it? Yeah, probably, but I wouldn't withhold sending that patient to me, and delaying that referral, just to get an MRI, just because you're worried that maybe I would want one first.

I think in the surgery world, they definitely want imaging beforehand, because they need to see physically what they're dealing with, if surgery is going to be considered. But from a pain management perspective, it's hit or miss. It's very provider specific.

DA: So where do opioids fit in? What is the role of pain management specialists and opioid therapy?

AE: Opioids is an interesting topic; so I think as a general pattern, and as a general rule, most pain providers won't take over opioid prescriptions permanently. Now, having said that, do I help navigate how to prescribe opioids, what the best next step is, are there better options, things like that? Most pain providers should be willing and happy to do that and help navigate how to optimize medications. But I think, as a general rule, it's hard to find a pain management provider that will take over opioids.

DA: If you can think about the patient I presented with chronic low back pain, can you tell me what I tell my patient before sending them to a pain specialist and what should I monitor when they return to me?

AE: What I would say is, "There are a lot of different options that can be offered, and your pain management specialist will evaluate your pain, order any tests that are necessary; try to pinpoint where the pain is coming from, and then offer you different treatment options for it."

And I think it's important not to focus on any one treatment option, but tell them there are treatment options out there, and that would be a good conversation to have with the pain management specialist, rather than say, "They're going to do injections," or, "They're going to give you medications," because that might not be the path that actually is taken. So, I think that's how I would navigate that.

So, when they come back to you, depending on when they see you, ultimately, my goal is that they will be following up with me by then, ideally every six to nine months. And either they're receiving some sort of epidural shot, or a radiofrequency every six to nine months, depending on which one works better for them.

And then, obviously, if they follow up with you, and for some reason they're not responding the way we had hoped, it's not lasting as long as we had hoped, I would hope that you would contact me, and let me know that you saw the patient, and for some reason this last injection just didn't work, or you would encourage the patient to give me a call, and say, "Hey, normally I get four to nine months of relief, and this time it just didn't work." And so, I'd have them come back into the clinic, and we reformulate what we're going to do next.

DA: Ali, thanks so much for spending time with us, and giving us such useful and practical information, and really giving us some insight into the world of pain management specialists. And at this time, could I just ask you to give us an overall summary of what you've told us?

Summary

- Are typically dual-board certified sub-specialty physicians
- Are in short supply relative to demand
- Typically function in a consultative or “episode of care” model
- Most do not prescribe opioids, but are happy to help evaluate patients and offer potential solutions to complex pharmacologic management. Some are willing to “sign off” on a patient’s current opioid regimen.
- Can offer a very broad range of help to patients, including expert evaluation, formulation and treatment
- Offer a multimodal plan of care, though typically not all at once, and not all personally
- Are best able to intervene when the patient has already had initial evaluation and likely a trial of conservative care
- Rely on referring provider to “set the stage” with validation and patient education to help dispel fear and misinformation, as well as permit decision-making autonomy

AE: Yes, definitely. And it really was a pleasure to be here, and thanks for having me, once again. To summarize: So, we touched a bit about what a pain management specialist is, and often they’re dual board-certified physicians that primarily focus on pain. We talked about how there’s a short supply of pain management specialists, and there’s such a large demand, and there seems to be an ongoing problem with access.

A lot of times, the pain management specialist will act as a consultant, and will take and stabilize sort of the patient’s pain. That process usually takes about six months to a year, and then, once the patient is stable, oftentimes they’ll continue that regimen, and sort of hover, and monitor the patient. But a lot of times we’ll rely on the primary care to reach out to us, if something changes over time, if they’re no longer responding, or something has changed, or evolved.

We talked about how most pain management specialists usually don’t take over opioids, but usually will offer to help or optimize medications, optimize opioid medications, and give recommendations based on the particular patient’s needs.

There are a large amount of options available for patients, and a lot of times there’s some trial and error involved. And so, it’s best not to set them up for expectation of anything, in particular, but sort of leave it open-ended and say that we’ll have a conversation with them and come up with a plan that’s best for their individual needs.

And a lot of times this is a multimodal plan, where there might be conservative measures, or there might be injections, or there might be change in medications, or we might get another specialist involved, such as a surgeon, or a rheumatologist. And a lot of times it’s all of the above, or more than one of these that we employ to get someone’s pain under control.

We touched on that the communication between the primary care provider and the pain management provider is very important. A good referral note can really help with the evaluation, just sort of an idea of what’s been done, what the questions are, what sort of the background is on the current situation.

And we really rely on our primary care colleagues to sort of set the stage and set the stage in terms of dispelling any fear or misinformation and allowing for us to evaluate the patient without any sort of preconceived notions.

So, with that, I appreciate the time.

DA: Thank you so much.