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Effective Acute Pain Management Strategies for Adult Patients

Dr. Turck:
Welcome to *Clinician's Roundtable* on ReachMD. I'm Dr. Charles Turck, and joining me to discuss approaches to treating acute pain in adults is Dr. Edward Mariano. He's a Professor and Vice Chair in the Department of Anesthesiology, Perioperative, and Pain Medicine at Stanford University School of Medicine in California.

Dr. Mariano, thanks for being here today.

Dr. Mariano:
Thank you so much, Dr. Turck. It's really great to be part of this podcast. Thank you.

Dr. Turck:
Well, to give us some background, Dr. Mariano, would you explain how patients develop acute pain?

Dr. Mariano:
So this is really an interesting topic that I feel like I've spent my whole career trying to learn more about and investigate and to try to innovate on behalf of our patients. I think it's interesting being an anesthesiologist, a physician who specializes in anesthesia and perioperative care for patients who have surgery, because every single day in operating rooms around the world, we see patients who have this scheduled trauma. And that's what surgery is. It's a trauma. And every time patients undergo surgery—granted, it's not always optional, and we typically perform surgery for decreasing disease burden or improving functional independence for patients— but that process of having surgery really generates a huge amount of injury for our bodies. We know that surgery itself creates tissue damage, we know that there are nerves that get injured during the process of surgery, and we know that these sterile environments that house our organs get interrupted; and that whole process really generates a cascade of neurotransmitter release and inflammatory mediators that then create this inflammatory process that really activates our pain transmission pathways within our bodies. Those signals go from the source. They get processed in our spinal cord, and that shoots right up to our brain where our brains process that information from the injury as well as our own subjective sensation for what they're experiencing at the time, so it's very complex. We call it a biopsychosocial model for pain because there are so many inputs, not just physical, that lead to acute pain after surgery.

Dr. Turck:
With that background in mind, would you review the conventional treatment options we've used in patients who suffer from acute pain?

Dr. Mariano:
When we think about injury—and surgery is obviously one end of the spectrum of trauma—but I think we've all had accidents where we sprained our ankles or banged our elbow on the floor after a fall, and I think that there are certain conservative treatments that we try to apply for any injury. And anytime our bodies are trying to recover from an insult, a trauma—whether small or large injury—we tend to rest; we tend to elevate, especially if it's an extremity, like a foot or a hand or elbow or arm; we also apply ice. All of these things are symptomatic relief because they calm inflammation at the site of injury. And these things, they tend to be protective. These are things that I think often we use even without thinking.

And then, of course, I think if you have over-the-counter remedies, we use acetaminophen; we use anti-inflammatory medications. I think that in the hospital setting, oftentimes we jump to the big guns. We jump to using opioids. And one of the ways that hospitals would get assessed in the early 2000s was how well they addressed all of their patients' pain needs, and one of the easiest ways to do that was by giving intravenous opioids, and I think that this, of course, was really a precursor for what we soon saw as the opioid overprescribing epidemic.

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Dr. Turck:
So something that's gained a lot more attention in recent years is the idea of multimodal approaches to analgesia. What can you tell us about those as compared to opioids alone?

Dr. Mariano:
So I think multimodal has always been out there. I think we use multimodal analgesia or multimodal pain management as a phrase that's now commonly practiced and endorsed by many of our medical societies as an approach to pain; but as I mentioned, I think it's always been there. I think we have always looked at different methods for pain treatment and pain prevention in different categories, and multimodal just means multiple modes. It just means different ways of addressing pain. And I think it also accepts the fact that pain itself is complex. I mentioned the biopsychosocial model. So we know that there are so many factors in different categories that contribute to pain, so it makes sense that we shouldn't rely at least solely on one category. And I think that overprescribing of opioids, obviously, really leans into that sole category of pain treatment.

But ice and elevation, these are nonpharmacologic treatments, and we still use them for surgical patients. And we have other nonpharmacologic treatment options that I think are hugely successful for some. I think cognitive behavioral therapy, patient education and preparation, and we even use complementary therapies, like acupuncture in the acute setting, and we know that those are nonpharmacologic but also help.

In our categories of pharmacologic pain relief, opioids are one. They are an important pain medicine category still, but we know that they are very limited because they only work on pain transmission really at the source of the spinal cord and brain. But anti-inflammatory medications or nonsteroidals act in the periphery as well as centrally to decrease inflammation. We know that acetaminophen works in the brain to help with pain processing at really the ultimate site, which is where our brains always have to digest all of this input and information that our bodies are sending us. I mean, those are very effective. Local anesthetics we know are extremely effective because they really address pain at the site and also at the source of the peripheral nerve. We know that local anesthetics block transmission, and while your body is healing in those first few days, sometimes decreasing that noxious stimulus by blocking transmission is what our bodies need to really heal and get more active.

The advantage of multimodal is that you're using specific categories for specific reasons, but they're attacking the pain pathway in all of these different points that makes it much more effective overall and also decreases the over-reliance on any sole category, specifically opioids.

Dr. Turck:
For those just tuning in, you're listening to *Clinician's Roundtable* on ReachMD. I'm Dr. Charles Turck, and I'm speaking with Dr. Edward Mariano about how we can manage acute pain in adults.

Now digging a bit deeper into what you were just discussing and if we zero in on perioperative acute pain management, Dr. Mariano, how do you decide when to use acetaminophen, NSAIDs, other systemic meds, or local or regional techniques? What do you take into account?

Dr. Mariano:
So I think because we have so many options to choose from, sometimes it can be very intimidating, especially for the physicians at the bedside who are looking at the patient in front of them and trying to decide, well, what's the right combination of medications that really help in terms of managing their patient's pain after having surgery? And thankfully, we have some guidance. I've been very fortunate within our American Society of Anesthesiologists. I had the chance to co-chair a pain summit that involved the ASA as well as 13 other medical societies, which included the American Medical Association, American College of Surgeons, and many of the subspecialty surgical societies like American College of Obstetrics and Gynecology and American Hospital Association amongst those 14, and we actually were able to agree on seven principles of pain management. Multimodal was one of them, but there are others that were also very important, like the assessment of pain and patient education related to pain access to pain specialists and good preoperative evaluation. These are all important principles, and the fact that you can get anyone to agree on anything in medicine I think is a miracle, but to have 14 societies' representatives agree I think says something. And what we agreed on in terms of multimodal pain management is that rather than trying to choose for every single patient which element or which category or which medication we need to use for every situation, we should almost think the opposite and say, "Well, are there some basic pain management modalities that we should use for everyone?" as long as there are no contraindications.

And so it's really changed the way that I think about pain management for the surgical patient because whether you have what we might consider historically a minor surgery or a major surgery, these obviously are subjective in the eye of the patient but I'd say, "Well, are there any reasons not to give acetaminophen or an anti-inflammatory, a nonsteroidal anti-inflammatory drug like ibuprofen?" or "Is there

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a reason not to use ice, elevation for that patient? Are there other modalities that I think are less invasive?" Is there any reason not to do them?" And sometimes there are. Yeah, of course, if patients have chronic kidney disease, then perhaps we would not use a nonsteroidal anti-inflammatory drug. If a patient has liver disease, then maybe we adjust the acetaminophen dose or even avoid it in case of end-stage liver disease. But for the most part, you can argue that these should be routine medications at least on the pharmacologic side that we use for everyone.

And local anesthetics are the same thing. There are very few people who actually have a true allergy to local anesthetic. And local anesthetics, when injected around the site of the surgery for the immediate site of pain, or local anesthetics injected as part of a regional block to decrease nerve transmission, these medications are very powerful in terms of their targeting and with very few systemic side effects because they don't interact with other medications. They really act just in the site and area of pain so are there any reasons not to use local anesthetics? And I would say it's very difficult to find those exceptions where you'd say, "Well, local anesthetics really shouldn't be given."

So those make three great basic categories of pharmacologic agents to add to some of the other nonpharmacologic interventions that we use, so I think for most patients having surgery, or all, especially if you work in a scenario or a facility where you have those available, I would argue "Why not?"

Dr. Turck:
And how do you approach postoperative monitoring and adjusting care plans to ensure sustained and effective pain relief and minimal side effects?

Dr. Mariano:
I think this is a really important area for us in terms of research only because if you think, "Well, how do you come up with interventions?" and typically, we come up with interventions based on great observational data. We tend to see what's happening with your patients in various clinical settings, and then you design interventions that actually match what the patients need.

In postoperative pain, this is actually one of the biggest issues I have with some of our current research interests. I think we're missing a lot of data, and I think the data that we're missing are really how long severe pain lasts in patients having certain types of surgery. We don't have observational data that lasts for the true trajectory or resolution trajectory for pain after most surgeries. We have data for some surgeries. We collect a lot of data for patients who have lower extremity arthroplasty, knee replacement, and hip replacement, but we have very little data on patients who have surgeries and go home.

And I think that the data that we do have are extremely limited. We tend to ask for a numeric rating scale pain score, 0 to 10. What does that even mean? I mean, you ask someone "What's your pain score?" and do they ask you, "Well, right now?" "Is it over the last 24 hours?" "Is it the last eight hours?" "Is it at rest?" "Is it with movement?" "Is it with deep breathing?" "Is it when I'm actually trying to do physical therapy?" I mean, these are all factors that affect pain intensity. And the questions that we don't answer or get answers to because we don't ask them are really the critical ones. Well, it's not just how intense is your pain. It's "What is pain doing?" "Is pain interfering with your sleep?" "If so, how much?" "Is it interfering with your activity?" "Are you not able to take care of yourself?" I mean, these are the things that we really need to know about pain. "Is it affecting your mood or stress?" I mean, these are all other factors that really influence the recovery trajectory for patients after surgery, and we don't monitor those things, so I think we need to get better about that.

Dr. Turck:
Now you started to get a little bit into communication with patients but would you tell us about the importance of patient education and shared decision-making?

Dr. Mariano:
Well, I think this is really critical. And as I mentioned, it would be wonderful if we had all of the data we need, and we don't have it, and that's a simple answer. I think that we are working on it. I think we're working to try to collect better information in order to advise patients what their full experience of surgery will be like, and I think that armed with that information, I think it's really helpful. I actually think that patients can learn a lot from their peers as well, so having even patient navigators. There are some innovative systems that have patients who have had certain surgeries that are willing to essentially be coaches for patients who are scheduled for surgery. I mean, that's great information to be able to get it from the patient perspective.

But from our end as physicians, I think that we have an opportunity to at least let patients know, well, the best data we have suggests that when I look at your records in front of me and we have talked and we've done our history and physical to be able to tell those patients, "Well, these are certain factors that may contribute to greater than expected acute pain." And we do have some information that can help us there. Well, I think that that really helps patients understand that one, you've paid attention to their history, that you've

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listened to them in terms of their experiences with prior surgery, and you've tried to design a plan for them around the perioperative period that really helps address and anticipates what their pain management needs are going to be. That's really critical. And I think that information that patients give us I think really affects the way that we design those pain management plans. And they are active participants, as you mentioned. I mean, they're part of our team.

Dr. Turck:
Well, with those final thoughts in mind, I want to thank my guest, Dr. Edward Mariano, for joining me to discuss approaches to acute pain management in adults. Dr. Mariano, it was great having you on the program.

Dr. Mariano:
Dr. Turck, thank you so much. It was a pleasure.

Dr. Turck:
For ReachMD, I'm Dr. Charles Turck. To access this and other episodes in our series, visit *Clinician's Roundtable* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening.

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