INTERVIEW TRANSCRIPT

DISCUSSIONS WITH WORLD-LEADING EXPERTS

The Migraine Reset: How Pharmacology Helps Rebalance the Brain

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Introduction (00:05): For many people with frequent migraine symptoms, it can feel like the nervous system is permanently on overdrive. Even small triggers can set off big reactions. And while lifestyle or behavioral strategies are often recommended, they don't always work when your system is already on high alert. What if these tools are failing you because your system just isn't ready for them?

Introduction (cont.) (00:25): What if medication isn't just about symptom relief, but about letting the migraine system reset so that other approaches like sleep, exercise, and other supportive measures can finally take effect? Joining us to explain this foundational reset model is Dr. Risa Ravitz. She is a headache specialist board certified in both neurology and pain medicine. Dr. Ravitz, welcome to the Migraine World Summit.

Dr. Ravitz (00:49): Thank you for having me.

Kellie Pokrifka (00:50): You often note the challenge of treating chronic migraine when our brains are already so sensitized. Can you explain what that means in brain science terms, and why it makes it so difficult to try to treat the problem?

Dr. Ravitz (01:02): This is a problem that's not so well understood, honestly. And a lot of this data comes from newer migraine models, but it also comes from pain medicine, where we're starting to learn that the body and the brain and the spinal cord are like a separate — not a separate, but they're almost like a hard drive that interacts with the peripheral system that will have changes within that hard drive that change the threshold for having pain, and will change the baseline, so to speak, of how pain is felt and perceived, and experienced.

Dr. Ravitz (01:50): I think a hard drive is a nice way to think about it, where those signals and the intermediary information processing gets too excitatory and recruits other neurons, and it becomes also, a little bit broken.

Kellie Pokrifka (02:11): Is the overprocessing — does that affect all areas of our brain or is that specifically with the pain pathways?

Dr. Ravitz (02:18): The brain is almost like a muscle, and the circuits that are used more and more get stronger and stronger. Those connections get stronger — the dendrites — they make stronger and stronger connections, so the pain response will get stronger within the spinal cord. That happens, too. We know that in the base of the brain as well, there'll be stronger signaling.

Dr. Ravitz (02:44): And then there are downstream effects with things like migraine, like autonomic-type phenomenon that we see where people have more of those symptoms. And one of the more interesting things that I see is that pain tends to make pain. So if I have a patient who has migraine and starts to become more chronic, other pain that's really far away from the head starts to trigger migraine.

Dr. Ravitz (03:15): For example, they may have back pain, and that pain may be completely separate from migraine, but then as the migraine becomes more chronic and the low back pain becomes more chronic, they seem to feed off each other.

Kellie Pokrifka (03:33): Is that only for chronic pain, or does that also work with acute pain on top of migraine?

Dr. Ravitz (03:37): For acute pain, it shouldn't. The system is … the model is you put your hand on a hot stove, you have a reflex to pull it back, the signal is done, everything goes back to baseline. When you have something that's repeated where there's no injury, or no technical injury, like you break an arm or you have appendicitis or something like that, there's a reason that you're having that pain.

Dr. Ravitz (04:06): With things like chronic migraine, things like chronic low back pain, there isn't often this exact mechanistic reason for it to happen, and it's much more typical that pain tends to make pain over and over.

Kellie Pokrifka (04:24): And so it's not just if we have lower back pain and migraine, it's also if we have migraine and perhaps we're more prone to developing lower back pain or a different area like that?

Dr. Ravitz (04:34): So it's not necessarily prone, but I do think that more chronic pain patients have pain that develops in many places, unfortunately. So like neck pain, low back pain — they have these catchall terms like fibromyalgia and chronic pain syndrome … where we don't understand … where a normal stimulus will just set someone off and they'll have pain for days and days and days. That's way out of the normal reaction to pain.

Kellie Pokrifka (05:08): How exactly does pharmacology act as a reset button for the system?

Dr. Ravitz (05:12): There are different targets. One of the problems is that we don't understand this exactly. We see different places where we can interfere and try to cut off some of those things. But from the periphery, let's say from the hand, or the leg, or the face, or the neck, it goes all the way through the spinal cord and up into the brain. There are many connections that are happening, and there are many different targets that we're trying to hit.

Dr. Ravitz (05:44): So each of the ways that we try to use to treat migraine — yes, they're for migraine, but a lot of it is to try to reduce that excitation and reduce that pain signaling.

Kellie Pokrifka (05:59): Why do behavioral and lifestyle changes not often work and sometimes even backfire when we're trying to treat a very highly sensitized system?

Dr. Ravitz (06:10): I have a lot of migraine patients, and I suffer from migraine myself. For a long time — I like to exercise and I like to be active — there were very specific movements that I would do. I like to surf, and there are very specific movements — like even just simple things like putting my wetsuit on and reaching up over my head — sometimes would pull in an area that would just — I knew it was just like, OK, this is going to trigger this thing. So I hear that a lot.

Dr. Ravitz (06:42): Interestingly, a lot of migraine patients are females, but it tends to — I think we have weaker mid- and upper backs. We don't work on that so much. And we tend to do more cardio and yoga and things that don't strengthen our mid- and upper backs. I think that we need to do that before we can do some of the more intensive exercises that are good for migraine.

Dr. Ravitz (07:07): The data shows that cardio is probably the best thing for migraine, like moderate cardio a few days a week. But I've also found that for myself personally, and for my patients, we have to kind of build through and build strength in places that are weak, because a lot of patients will actually get migraines from exercise. So part of it is retraining the musculoskeletal system to support everything so there isn't a pain trigger.

Dr. Ravitz (07:37): And then there's a whole other aspect where I have a lot of patients that when they run up to a certain intensity, they almost always will get a migraine — they can actually tell me what their heart rate is. That I don't understand so much, which is really interesting.

Dr. Ravitz (08:00): But there's, I'm sure — and again, this is me just pontificating — but there's probably an autonomic phenomenon that's happening with heart rate, like when it gets to a certain threshold, it's setting off the sympathetic nervous system — just doing something with catecholamines. And we don't understand that, but I see that a lot, too. So from the exercise perspective, it's great if you can exercise, but a lot of people can't.

Dr. Ravitz (08:25): And a lot of people in chronic pain are in so much pain that they can't take the next step. So it's this vicious cycle of, "I need to lay down in a dark, quiet room," and then I get this pain here, and it lasts for days and days. So it has to work.

Dr. Ravitz (08:42): One of the things I try to do with medicines is give people enough relief that they can start to do these things again and kind of retrain and get back to their lives, or get stronger and build.

Kellie Pokrifka (09:01): I just feel like that's really validating to hear. I feel like exercise especially, and nutrition are — we're constantly told about that. And for someone with daily migraine, where it's really tough to even get out of bed, it sort of adds an extra layer of guilt and shame, and, "Oh, I should be doing more. And how am I possibly supposed to be out exercising?"

Dr. Ravitz (09:26): Yeah. And I think from the food perspective — that's something that people are constantly asking me about — there are some very specific food triggers. They tend to be dehydration, and then there are specific foods like MSG [monosodium glutamate], which is a strong preservative. Sulfites and tannins tend to be in aged meats and wine. So some of those preservatives tend to be very “migraineogenic,” I guess you could call it. But then there are people that tell me, "I've done a food diary," and that causality is so hard to pinpoint. So I obviously tell people, “If every time you eat avocado, you get a headache, maybe avoid avocado.” But the truth is, we don't know if you're craving avocado, and then you eat it and you get a migraine.

Dr. Ravitz (10:20): I've had some patients that have had some success with a ketogenic diet. It's a very hard diet. And I think one of the things that's hard about migraine and lifestyle is that it becomes such a rigid exercise. And I don't like that. I don't like when things get so rigid. It's not sustainable and it's not like living your life. So I try to work with people on that and not have them focus so much on that.

Kellie Pokrifka (10:50): For some patients, it can be intimidating to start a preventative medication because they see it as a life sentence. What advice would you give to them?

Dr. Ravitz (10:55): I have patients that I have to convince them to take medicine. Like maybe they're having eight headache days a month — or eight to 12; that's a common one — of days of headache, not necessarily maybe that many headaches, but headache days. That's pretty significant. And I finally convince them to try something preventative — not forever, just to see if it'll do something.

Dr. Ravitz (11:20): And what happens in the good cases is they come back to me and they say, "You know what, I had almost no headaches and I forgot what this feels like." So all the behavioral stuff that they were focused on or really rigid about kind of went to the wayside, and now they're feeling better and they're like, "OK, I'm not going to go drinking yet, but I'm going to go try to go back to the gym." So I think it's great if you can do both, but a lot of times people are — the more chronic ones — are already having a lot of trouble.

Kellie Pokrifka (12:02): So we talked a lot about the central versus peripheral system, and in different treatments, some will primarily target one or the other. How big of a difference does this make for us? Like, for example, if we have one treatment that's mostly doing the PNS [peripheral nervous system] and one that is doing the CNS [central nervous system], if we stack them, are they better, or is it not really that direct?

Dr. Ravitz (12:24): Very good question. And there's major controversy, as you guys probably know, between the theory of, is it actually peripherally derived or is it coming from the central nervous system? My feeling is that — and maybe this is not giving an exact answer — is that this signaling is happening, and there are patients that one medicine will work sometimes, or two. I don't make a decision based on peripheral versus central. I make medicine decisions based on tolerability.

Dr. Ravitz (13:03): Maybe if there's some other medical problem that I can kill two birds with one stone with, I'll do. But generally, if patients are not so refractory and maybe having six to eight headaches, they may respond to one, and it may not have to be so directed to the mechanism.

Dr. Ravitz (13:26): The other problem is that a lot of these seizure medicines and even blood pressure medicines, they definitely work centrally, but they may work peripherally as well … or things like Botox [onabotulinumtoxinA]. So Botox, technically we think works peripherally, blocking nerves from passing any message, but now there's some thought that actually it's doing something centrally as well.

Dr. Ravitz (14:01): So it's kind of hard to — first of all, we don't know which is the right answer, and I honestly think it's a combination. I think it's a circuit that is — we're not going to figure that out. Maybe — I don't think in our lifetime we will. I would like to, but I think it's pretty complex. So I think that's a tough question. I don't make medical decisions based on that, but it's a good question.

Kellie Pokrifka (14:32): Could you go over some examples that mostly target the central [nervous system] and mostly target the peripheral [nervous system]?

Dr. Ravitz (14:42): A good example of a medicine that's mostly central targeting is a tricyclic antidepressant. At low doses, these medicines target the spinal neurons more in the base of the brain. There are receptors in those areas that are better — that's the target — and the pain reduction comes from that. So then if you look at something like calcium channel blockers or beta-blockers, there's some idea that they actually work by decreasing excitation in blood vessels in the brain, but they're also doing it in the periphery.

Dr. Ravitz (15:14): So again, is that reducing some sort of autonomic sympathetic response? Probably. Botox is technically delivered peripherally, so the actual place where it's blocking the nerves from talking to each other, from propagating those pain signals, is peripheral. But we think that it's somehow being integrated and doing something to the signaling inside the brain. Is it stopping it right at the scalp? Maybe.

Dr. Ravitz (15:57): The gepants, these newer medicines, tend to be more centrally … Well, actually, they work in the trigeminal nerve, so that's technically peripheral as well. So there are different places that we think those both work. There are a lot of feedback loops within the brain — that's technically central. Those neurons that are deep in the spinal cord in the base of the brain — those are technically central, but there's a lot of overlap. And I think, personally — I know there's a lot of debate about this in the headache world — I don't really care.

Dr. Ravitz (16:33): I know that sounds so flippant, but it doesn't necessarily change medical decision-making, and it's not always well explained by symptomatology or anything like that.

Kellie Pokrifka (16:57): No, that's really helpful. That's exactly what I was asking. Should we investigate into it, or does it not matter?

Dr. Ravitz (17:05): Yeah, it will be investigated for sure, but I just don't know what's going to come of it and how practical it is for treatment right now.

Kellie Pokrifka (17:12): For acute treatments, if someone is really struggling to find a medication that works for them — they have an acute medication that sort of works — what complementary therapies would you suggest adding to that first?

Dr. Ravitz (17:22): Acute's a lot harder. There are definitely some pressure points and acupuncture points. I've seen these little devices that go in the web between the thumb and the index finger. That's

the pressure point that a lot of people use for acupuncture. I have patients that buy the needles or buy clips that just squeeze there. I have patients that have done and had success with that.

Dr. Ravitz (17:54): Instagram is full of good and bad stuff. There's definitely been some interesting stuff with putting your feet in hot water — all these things that are not going to hurt you, I'm all for it. Ice packs are one of the classic, easy, quick things. It gives good relief. For some people, it really does give good relief and anesthetizes those peripheral skin sensors and can be helpful.

Dr. Ravitz (18:25): I've had mixed results with some of these balms, mixed results with all the stimulators — things like the Cefaly and so forth — I've had mixed [results] with that. And from a pain perspective, the gate [control] theory where you just release a lot of the chemicals and then you get less pain from that is kind of interesting. So if those modalities work, I'm all for that. People love to have a cold cup of Coca-Cola. That's fine, too. Or a coffee. Yeah, those are the ones that come to mind.

Kellie Pokrifka (19:10): All right. I think this is going to add almost all of those that you just listed, but I was going to give you a hypothetical that someone is in a very hard-to-treat attack, and they don't have time to do any deep dives into complementary therapies that are really difficult to implement. They don't have time to get a new prescription. What would you suggest [for] making a really potent migraine cocktail, using just over-the-counter ingredients and easy-to-implement complementary treatments?

Dr. Ravitz (19:46): Got it. I would say ice. Definitely ice is quick, easy, and dirty. I think if there are no contraindications to anti-inflammatories, things like Advil or Aleve, those are always good. Interestingly, I use Benadryl, too. Benadryl is an antihistamine, and histamine is a neurotransmitter that's intimately involved in migraine propagation. It will make you tired, but that's a nice quick cocktail. And then people can add caffeine to that.

Dr. Ravitz (20:16): So you get the tired[ness] plus the caffeine, but caffeine works similarly to the triptans. It will constrict the blood vessels and often help right away. I think those are probably the easiest, quickest, safest, dirtiest ones that often work — that often work.

Kellie Pokrifka (20:38): All right, let's go to migraine prevention. When you're looking to reset the system, which pharmaceutical classes do you tend to start with and which ones are good to combine? And are there other ones that you do not ever want to combine?

Dr. Ravitz (20:51): If there's another medical problem, like high blood pressure or insomnia or depression, maybe I'm going to think about a hypertensive medicine, something that's good for sleep, or something that will help with depression as well — to kill two birds with one stone — and think about that. So many people have insomnia in general; it's like a modern problem. But also, I think when you have migraines, sometimes it's hard to sleep.

Dr. Ravitz (21:24): So sometimes I'll pick something — if that's a big issue, that's probably contributing to the migraines — I may pick something like that first. So I may pick a tricyclic antidepressant or something like gabapentin to cover that. If there's hypertension and it's untreated, or there's room to go up in that, the beta-blockers and calcium channel blockers are good for that.

Dr. Ravitz (21:49): Otherwise, the newer medicines in general are a little bit cleaner than the older ones — just a little bit. They still have their side effects, and some people don't tolerate them. But they tend to not interact with a lot of medications, and they've been pretty effective. So I'll reach for those quickly first, as well. Things like the seizure medicines — those are really good medicines too, but some people react very poorly to those.

Dr. Ravitz (22:21): So it's more like, will the insurance pay for it, is the patient willing to take it, and how many side effects are they going to potentially have? And it's moving — if that doesn't work — moving to the next thing. And those are real practical things. It's sort of, will it be paid for, will they be able to get it, and how well will they tolerate it? So that's sort of how I do it — how I choose things. And over the years, I kind of learned just some patterns.

Dr. Ravitz (22:54): You tend to see a lot of patients and then see patterns. It's interesting. I think things like Topamax and some of these other seizure medicines, they often work in young females, interestingly. I'm not sure why. And same thing with propranolol. Propranolol tends to not be as well tolerated in males. There are some sexual side effects. Also, they feel tired.

Dr. Ravitz (23:18): So there are little tricks that we'll just try — different things — but it's not even close to 100% like a good first try often — it's often trial and error. As far as combining, many of them you can combine, truthfully. There are a few that have some contraindications when you're on other medications, like high doses of antidepressants, for example. But generally, the migraine doses are kind of low, and generally, you can use those for a lot of different things.

Dr. Ravitz (23:54): And then things like Botox — there are very few contraindications to Botox. So that's a good one for somebody who's refractory and also has a lot of medications on board already.

Kellie Pokrifka (24:11): One of the therapies you offer at your clinic is radiofrequency ablation for migraine. Can you explain how that works?

Dr. Ravitz (24:17): So I don't actually do that. I have colleagues that do that. I did a little bit of training in interventional pain procedures, but just didn't make it a part of my practice. But I have colleagues that do it, and I definitely will send patients to get that done as well. Basically, the median facet — there's a nerve that's in the joint between the bones in the spine, and it's a real joint. That nerve can really be activated and cause a lot of pain in the neck.

Dr. Ravitz (24:55): But in the higher part of the neck, it connects up eventually into the occipital nerve up in here. And that nerve is really problematic for chronic neck pain and people that have facet arthropathy, which is very common. It's basically wear and tear in the neck and in the upper back.

Dr. Ravitz (25:14): So what we'll do sometimes is send patients — if they have a lot of neck pain and a lot of facet arthropathy — we'll send them to get epidurals first in that area to see if numbing it will quiet things down. And if that works — even a little bit — we've had some success with higher cervical radiofrequency ablations, where basically they go in and try to just burn that nerve. It can cause soreness and tightness, but it can offer relief.

Dr. Ravitz (25:47): I've had patients that have had relief for six-plus months, which is really awesome. And with the right patients — sometimes with a combination of medicines, sometimes without — it's a really good intervention. That needs to be done under fluoroscopy. So it's guided with X-ray. You have to go to a place [where] they can do that, but it's a reasonable thing to try.

Kellie Pokrifka (26:11): And after that six-month period, are you able to get it done again? Is it sort of like nerve blocks in that respect?

Dr. Ravitz (26:21): Yes, it lasts longer than nerve blocks, but of course the nerves figure out a way to propagate pain — it's interesting — but you could do it every six months. People often have success with it. It's often longer than that, honestly, like once a year maybe. It's a good one. It's definitely a good one.

Kellie Pokrifka (26:42): So with the pharmaceutical reset, so that the behavioral therapies are able to work better, how long would you say that generally lasts? When someone comes to you, they've

probably already tried many things; they're already pretty far along in their journey. How long would it typically take?

Dr. Ravitz (26:59): My line is that forever is a long time. And God willing, that will be a long life. And I do not want people on medicine forever. The patients that are very refractory are so used to being on medicine that it's often a fait accompli, and rotating and adding and layering on prevention.

Dr. Ravitz (27:34): But for other patients that maybe are on one or two preventatives, I usually tell them, “Let's try and get your headaches under control for six months. It's not set in stone. If you hate it, we can stop it.” It's not something we have to do, but I like to have people under good control for a good six months. A year is even better, depending on what they want in their life — when they get pregnant, that kind of thing. But I feel like the longer it's reset, the better off you are. And then I have a whole bunch of different outcomes. It’s interesting.

Dr. Ravitz (28:04): So I have people that maybe will try prevention for a month and then — maybe they had headaches for like a bunch … maybe they got a headache, it lasted for six weeks, let's say, which is seemingly more and more common [that] I'm seeing. So they'll start the prevention, and then they'll feel better in a month, and then we'll stop it. And I don't hear from them until the next time it happens, maybe a year later or two years later.

Dr. Ravitz (28:31): Then there are the people that have had four to six migraines and they just started prevention. Those people, I want it on them for six months, and then we wean and see what happens. I would say a good portion of them don't need to go back on right away. Some of them, it starts to pop through and they're like, "I don't want to have this anymore. I know I lived my life without it and I want to feel better."

Dr. Ravitz (28:57): And then there are some people that do it for longer, and go off the medicine, and then they're headache-free for a while. So it's a very mixed bag and very individualized, and I can almost never predict how it's going to go.

Kellie Pokrifka (29:15): So after the reset is starting to really work, what are some of the most common complementary therapies that you advise first?

Dr. Ravitz (29:27): I want people to get back to their lives. So I want them sleeping, eating, and exercising again … and traveling. I think that's one of the things that is a big problem — you know, like traveling for work I don't love for headache patients in general. But for leisure and being able to stay out one night until 2 in the morning on a weekend — I want them to start to be able to do that.

Dr. Ravitz (29:55): I want them to be able to exercise. I want them to be able to tolerate acupuncture and things like that because sometimes they can't. I want them sleeping better because usually when the headaches are bad, they're sleeping poorly as well.

Kellie Pokrifka (30:10): You mentioned acupuncture. Is that one you tend to recommend?

Dr. Ravitz (30:16): Yeah, I like acupuncture. It tends to kick the can down the road a little bit. So we'll acutely make the headache maybe less severe, and [it’ll] sort of be underlying, and then maybe the headache will come out a little bit more later. But in general, I think that it calms the body down and helps with sleep and some of those things. So I try to have people do that. And I've had very mixed results with that where some people love it, some people can't stand it, and some people are mixed. And then also, that requires time, money — it's a lot. It’s a lot. If you have to fit that in, it's a lot.

Kellie Pokrifka (30:54): It's exhausting. It's financially and emotionally draining. You get that hope when you try a new therapy that, "Oh, this could be the one; this could be it," and then it's another treatment that fails you. And it's pretty devastating. It's a really hard cycle to be in.

Dr. Ravitz (31:10): Totally, totally.

Kellie Pokrifka (31:12): And also, I've noticed that coordinating care between different providers, when the therapies you're going to them for are very different, can be really hard. Do you have any recommendations for patients who are trying to get a balance of both, and they have providers who aren't really willing to talk about it?

Dr. Ravitz (31:31): In general, I think doctors, as they start to progress through working and seeing patients, it's not black and white at all — not even a little bit. Even things that should be very straightforward, like, "You have an infection; treat it," sometimes they're not so straightforward. And pain is even a wider berth of gray, if that makes sense. So for me, personally, I feel like we really don't know a lot. There's a lot that we know, but there's so much that we don't know.

Dr. Ravitz (31:57): So personally, I have a toolbox of things that I can offer people. And that's what I'm going to offer because that's what I know how to offer. But I am open to other things; the caveat is that they're not harmful. There are certain things I don't like. I don't like aggressive chiropractic adjustment of the neck. I'm a neurologist; I've seen dissections and I've seen strokes from that, so I'm probably biased.

Dr. Ravitz (32:32): I don't like marijuana. This is a whole other conversation, but it's sort of snuck in as a safe, natural treatment. But the truth is it destroys your sleep. It makes you super anxious. For many people, it makes pain and nausea worse, interestingly. And I think it's really bad. There are certain things that I don't like and I say my opinion — and it's just an opinion. That's how I tell my patients. I'm like, "This is my opinion; take it or leave it. I don't know everything. If something is going to work for you, great."

Dr. Ravitz (33:02): I'm open to a lot of these other things if they're going to work, but sometimes what I'll see, too, is that … Functional medicine I'm plus-minus on; I have to do more research. A lot of these things aren't covered by insurance or are very costly. And I hesitate on that, too, because I wonder if it's just a distraction. People are going to get mad when I say stuff like that, but that's OK.

Dr. Ravitz (33:28): Or I get people that are on four pages of supplements and their livers are chewing through this, and it's not good for their liver. And I tell them so, or I think about maybe some of the other things that could happen. But I don't like to be so black-and-white, like, "Can't do this; can't do that." Or, "You should get off all pharmaceuticals." Or, "You should only be doing these complementary things." Because then I think you're not being open, honestly, and not getting all the options, potentially.

Dr. Ravitz (34:15): Even things like marijuana — again, there are people that are super refractory that are on marijuana, opiates, things for years and years. And the truth is, they're probably not going to be able to get off it because they have such a tolerance to these things. It's going to be so hard to get them off. So that's kind of where I'm at. But I do understand the journey of the patient. It's not easy and there's a lot of information available. And also, migraine and pain is not so predictable. It's like, "Oh yes, I did it this time and it worked great," and then it didn't, and I did everything right and I still got it. It's hard.

Dr. Ravitz (34:52): So my goal is, I want patients to know that they have nothing seriously wrong with them, so we do a workup. I want them to know there are things we can do to try to prevent and also treat acutely. And I think there are other lifestyle things they can do that will make their headaches better.

Dr. Ravitz (35:20): So offering the whole gamut is where I'm at, but it's starting to encompass things that I have to do more research on and I'm not sure about. Things like extensive functional medicine testing, ketamine, mushrooms — there are so many questions I'm getting now that we don't have studies on, and I'm not sure that it's not really harmful. Marijuana — I'm not sure. And I do worry that it's potentially harmful.

Kellie Pokrifka (35:48): I want to get your perspective, as you're board certified in both neurology and pain medicine. How closely do you see migraine as a chronic pain condition? And especially when you're trying to reset the system through pharmaceuticals, is treating migraine almost exactly like treating general chronic pain?

Dr. Ravitz (36:11): Yes. The answer to that in my mind is yes. I think it is very much like a chronic pain thing. I think what's interesting is how it evolved. It kind of was not in the pain realm. When you study pain, the way that that evolved was through anesthesia, basically; they did a lot of the studies, interestingly, which is really cool.

Dr. Ravitz (36:31): And they were working on things like blocks. In trauma patients, they would do these blocks, and then they would start on complex regional pain — things that were post-traumatic that became chronic that we didn't understand why. And then you have neurology, which had a totally different kind of evolution. And migraine was barely even recognized in the '60s as like … then there were these auras, and "hysteria," and all these things.

Dr. Ravitz (37:06): So it was sort of like they were evolving separately. But the truth is, I think, that they're actually very similar. And whether this becomes peripheral or central, how it manifests, is another pain thing — another pain process.

Dr. Ravitz (37:22): So what I'm seeing now is that a lot of pain doctors are treating migraine, which is great. They're doing radiofrequency ablations, they're doing Botox, they're doing a lot of the pain medicines that will cover both — you know, chronic pain — things like tricyclic antidepressants, nerve pain medicines, SNRIs [serotonin-norepinephrine reuptake inhibitors], like those types of medicines — they're using a lot of those. They're a little less comfortable, maybe, with the seizure medicines, but there are good doctors that are learning, and they're using the new medicines as well. So I'm seeing a lot of people treating migraine patients. And the truth is, a lot of chronic pain patients have migraine.

Dr. Ravitz (38:09): Many of them will try to treat the headaches. It's not true the other way around, interestingly. A lot of neurologists become headache specialists and they won't deal with other pain. They'll think about it if the person has neck pain or they can't sleep — they might think of something that might work — but they're not going to get into the nitty-gritty of it.

Dr. Ravitz (38:28): And when you go to the different societies to take the tests and learning, it's still a different — it's not completely different, but the science is not totally coalesced yet. But I think it's very similar, looking at both.

Kellie Pokrifka (38:52): What do you tell patients who feel like nothing works, they've been chronic for decades, and they feel like their system is too broken to ever be able to fix?

Dr. Ravitz (39:00): For that portion of my practice, I try to be optimistic and I try to say, "OK, I have treated patients like you [where] we try some of the same things, or try to layer on prevention and see where we can get." I encourage them to go to some of these centers where maybe they can get DHE [dihydroergotamine] and have the headache broken, and have a multidisciplinary approach — have psychiatry involved, probably pain medicine as well — and just try to get to a place that's maybe not no pain, but functional — better.

Kellie Pokrifka (39:40): Are there any new studies or research or areas that you are really excited for, for patients who want to do a more holistic approach to migraine?

Dr. Ravitz (39:48): I like this whole notion of building mid- and upper back strength and working through pain. I like the idea of exercise through pain. It creates its own natural pain fighters and will also help to reset an imprint in the brain. So I like that a lot, and I work closely with some physical therapists. I'm excited about that. It's just, will patients do it? Will the insurance pay for it? All the normal stuff, but that's probably what I'm most excited about.

Kellie Pokrifka (40:34): Where can we follow your work and learn more about what you're doing?

Dr. Ravitz (40:40): I don't really write anything. I actually was thinking — I was doing a little bit of a podcast, which — no time — but it's called *The Ravitz Way*. There are a couple [of] episodes on there that are kind of interesting. It's on YouTube and Spotify, but I don't have any other thing in the works right now.

Kellie Pokrifka (40:50): All right, great. Well, Dr. Ravitz, thank you so much for being on the Migraine World Summit.

Dr. Ravitz (40:55): Thank you for having me. Hope it was helpful.

Kellie Pokrifka (40:58): Definitely was.