Transcript Details
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RF Microneedling Safety: Reframing the Conversation with Leading Experts Ch. 3

Konika Patel Schallen, MD:
We've talked about the unmet needs with regards to the previous generations of radiofrequency microneedling and some of the safety concerns. And so now let's talk about the science behind the safety of the new generation with Matrix. As you mentioned earlier, needle thickness.

James Newman, MD:
Yes. Needle thickness matters, insulation. You can see the significant difference in the different types of technology here. And so the advantage of microneedle radiofrequency in general is that we are creating some channels through the epidermis so that we can further stimulate things and maybe add some regenerative complexes to the skin. And certainly the Matrix from Candela, it has the smallest, most finest needle and it's insulated and that insulation is very important in patients with more darker skin types to prevent post-inflammatory pigmentation. And the fact that multiple depths can be treated with one insertion is less trauma to the patient as well. So the advantages are thinner needles, good insulation, multiple depths with one pass, and that distinguishes the Matrix from all the other technologies.

Konika Patel Schallen, MD:
That really makes a difference in terms of patient comfort, for sure, and all of the adverse events that you described.

Scott Gerrish, DO:
Yeah. I think with just microneedling in general, the needle is the main event, right? When microneedling and radiofrequency combined together, all the needle is is the delivery system. And how does it get the energy where you want it specifically in protecting other areas? So the more invisible that needle is, and the better it's driven, the less pain, the less trauma, the faster the recovery you're going to have. And overall, the better experience.

Konika Patel Schallen, MD:
And this is the finest needle and it's a steel needle. So chances of allergic reactions are minimized as well.

Cameron Rokhsar, MD:
I think also maybe for physician viewers, these sizes may not be that understandable, but maybe we say that this is akin to a 34-gauge needle. think we understand gauges better. I mean, I know when we do Botox injections, the smallest needle that I have availability that I can use in my Botox injection is a 32-gauge needle. So here we are, this is smaller than your Botox needle.

Konika Patel Schallen, MD:
That's a great point. Absolutely. And there's 49 needles, and so you're delivering an array in a centimeter, which, you're able to do a density of placement, which means that you're delivering so many different coagulation zones in a small area. And at the end of the day, it's about all the real estate that you can actually treat. Absolutely.

Gilly Munavalli, MD:
And it's what you're sparing. I mean, bulk RF caused bulk problems back in the day because we weren't sparing any, but fractional by nature, we took advantage of the whole fractional delivery theory that was popularized and applied it now to a much more precise way of delivering energy.

Konika Patel Schallen, MD:

That's absolutely a great point. But in addition to the needles, I think the main, the star of the program here is the impedance and I think it's central. And you have a terrific way of explaining this.

Scott Gerrish, DO:
Yeah. It brings me back to my engineering days, which really makes this so exciting, the technology and what we're doing. And every substance has electrical properties or resistance properties. And so we know that you feel comfortable grabbing an electrical wire when something's plugged in that you're not going to get electrocuted, but you wouldn't do that in water. And so we know that as energy flows through different materials, we can measure that. And so when we're putting radiofrequency into tissue, you can measure the resistance or the pushback to that energy flow and then you know whether you're in collagen, you know whether you're in fat. You can see when the skin's in a dehydrated state. I mean, the target for all of this is water. And so if the skin is dehydrated, then you're going to have increased impedances. And so that allows us to go in almost like ultrasound guided biopsy.

We can go in with the needles and know exactly where we are. And we talked about fat is the gold of your face, right? We want to preserve it, but sometimes we want to get rid of fat in the submental or submandibular region. And so if you're going after fat, it's nice to know that you see those energies going through. And you start with a resistance and then you end with the resistance at the pulse. So not only do you know where you're at, but you know how that energy's going into the tissue. So if you're giving that energy so quickly, you could actually be desiccating the tissue versus coagulating and your impedances will show you that. So it lets you know where you're at and how that energy is being delivered, which is critical to safety and outcomes.

Konika Patel Schallen, MD:
Yeah. I want to emphasize that this device, at every single level, is giving you the starting impedance and the ending impedance. It is measuring the impedance every two milliseconds, which means in some cases, your pulse is measured more than 100 times. And that's an incredible amount of data that you get to see and make a determination in terms of where you are in the skin, but then the device does something to help you and that is alter the pulse duration so that the energy is not delivered too quickly and spike too high and overcoagulate and char the tissue, or too slowly. So two things are happening with the impedance that nothing else does.

Gilly Munavalli, MD:
Yeah. And I would argue three things. It notifies you. That's true. It will stop you. You cannot keep doing a treatment, as you told me long ago. You might think that needles are even entering the skin, you might be bouncing right off the skin. So if you fire this device in the air and you get this crazy impedance, even that doesn't show another device.

Sara Hogan, MD:
Yeah. Well, because you have the visual feedback, you're not pushing the device. So whereas with other devices, you didn't have the feedback on the screen in real time. And I think then you thought, okay, I'll do more passes and then you can end up bulk heating in a negative way. When you're able to treat at three different depths, you can envision, I am treating in a controlled manner in a column and I'm not allowing for additional spread or unnecessary spread. So it gives a controlled treatment that you can feel confident and you don't push that treatment. And there are also two other components of the Matrix RF device that we haven't talked about with the sublime and the sublative. And I think when you have all these three components, you're not pressured to push the entire device because you know, I can fine tune maybe fine lines that are more superficial with the sublative, or if I want to address laxity, I can do the sublime.

Konika Patel Schallen, MD:
Yes, you can treat at every depth in a very controlled fashion.

Cameron Rokhsar, MD:
And I think that this just also continues the tradition of Candela being a scientific company. So for those of us who were in lasers for many, many years, we know can the Candela name was always associated with science, right? I mean, they're the originators of the best pulsed dye laser, the best Nd:YAG laser, right? The best Alexandrite laser, the frontiers of Q-switched lasers, the Alexandrite laser. So here we are, Candela, continuing that tradition of science where we actually see Ohm's Law, which you alluded to, which I love. I love physics and you could see it in your screen. It's the first time that RF microneedling is showing you basic science, Ohm's Law on the screen, as you're measuring the impedance.

Konika Patel Schallen, MD:
And every one of our tissue impedances is going to be different based on so many different factors, right? And the device helps make that treatment consistent because it's helping us make decisions. I think impedance is like a card game. And once you learn the rules, it's really fun to watch. You can actually, right? Tell me, you're laughing. I know you enjoy this too.

Scott Gerrish, DO:
Yeah. Well, and again, like I started off, it was very humbling because I thought I had great technique and what you learn is on areas

that aren't backed by bone, like in the cheek area, the neck area, the skin is very pliable. So if you don't pull the skin tight enough, those needles don't penetrate right away. And so you think you might be at 1.5 millimeters, but 0.7 of that might be in the air, between the skin and the hand piece. And then I just remember the overwhelming guilt I felt for those thousands of patients I treated with other devices and didn't get results. And I was like, "Well, just your skin didn't like the heat, it didn't respond. It built collagen, but you didn't see it in the mirror." No, maybe that was a technique issue that was really limited by technology.

Konika Patel Schallen, MD:
Well, and that's a great point. Some of those needles being in the air is an important point because we talked about hyperpigmentation and being really too close to the DE junction, those needles and delivering energy in that DE junction and therefore doing the wrong thing. And I know you have some thoughts about that.

Sara Hogan, MD:
Well, the insulated needle, I believe it's at 0.6-millimeter depth. When it's controlled, you know you're clearing the DEJ, you have the visual feedback, and then you can be more confident in treating patients with higher Fitzpatrick skin types, which, we all have patients from across the Fitzpatrick scale, but that is one concern they have. And at this point, if you don't have insulated needles, you shouldn't be treating higher skin types with this technology.

Konika Patel Schallen, MD:
Higher skin types, patients with melasma, very safely treated with Matrix because of this feedback.

Well, we know we get the feedback. We know as practitioners what we do with the feedback, but I wanted to talk a little bit about the device and how it adjusts based on the feedback. And this is also very unique. The device is actually making a determination as to how quickly it's emitting the energy and doing it in the softest, smoothest way possible so that there isn't that peak. And it's sort of like we talked about, putting a stake on the grill and charring the tissue. Can you talk a little bit more about tissue char?

Scott Gerrish, DO:
Yeah. I mean, probably just think of it as like a circuit breaker. If you have a huge influx of electricity, you're going to flip the fuse. The goal is a nice, steady state. And so if you give the energy nicely and smoothly, what happens is you coagulate the collagen with the tissue and you get a nice expansion and you get a big coagulative lesion. But if you give it too quick, what happens right away is you just desiccate the tissue, you evaporate all that water and it sticks there. It stops. So you get small lesions and that's when the patient just looks at you and says, "Ow, that hurt." And that was a lot of other devices. And my first device that I used 10, 12 years ago is we were giving these pulse widths, we could control the pulse width. We'd say, "All right, we want 200 milliseconds and we want this much power to go through." And the machine was shutting it off and it wasn't telling us because it was flipping that circuit breaker, essentially.

And we were just desiccating tissue and that's when we found the need to, like, do we have to do local blocks for these patients because it's just a miserable experience? And that's also when you don't see the results, right? So the smoother, and when the device is smart and it can lengthen that pulse width and give it more gently so you get that coagulation, you're just going to get better results.

James Newman, MD:
And that's how I explain to patients that this is actually AI before people knew what AI was. So the artificial intelligence that Candela built into their system is providing that kind of feedback and it really makes all the results more consistent. And so patients understand that having that kind of intelligence built into the system makes their treatments more safe and more consistent. So Candela was way ahead of the curve in the AI world in this.

Konika Patel Schallen, MD:
Well, and that perfect zone of coagulation that Dr. Gerrish described is really the work that you did, the early work with RF microneedling and why we see beautiful volumization.

James Newman, MD:
Correct. And as we've all said, Candela is a company built on science and we helped provide some of that data and science to get to where we are today. And now we're also looking at things in the future to see how we can combine regenerative aspects of certain technologies along with what we're doing with the microneedle radiofrequency. And we'll talk a little bit more about that.

Konika Patel Schallen, MD:
Perfect. The last bit I want to talk about here are those three depths. I think that's so important to emphasize that there are three depths potentially that you can coagulate the tissue in the exact sweet spot, but you can adjust those three depths. And if you make those three depths close together, you can have a zone of coagulation that really is long and large and not charred. And that's the kind of coagulation and tissue tightening you get that's very, very similar to ablative technologies while you're sparing the DE junction totally. So

any thoughts about what's happening in the tissue before we wrap up this section?

Scott Gerrish, DO:
Well, the king of all kings was Profound, right? It was the long pulse and it got such great results. Never has there been a system that can come close to reproducing what we did with Profound. Profound was limited by the fact that we had to inject numb them, right? And so that was a bigger ordeal and patients were a little bit intimidated by that. The needle insertions at a 25-degree angle was brilliant because you got more collagen exposed, but it was very technique dependent and the recovery was four, five, six, seven days. So now when you can reproduce that in a short pulse system with a recovery that ... I think these patients recover better than just traditional microneedling. And I think that goes down to the needle design and the trauma that the needles create from microneedling versus with the matrix, but there is very little recovery.

Topical is enough. And now you're starting to see, with maybe two or three treatments, reproducing what we did with Profound. And that says a lot because Profound was incredible.

Konika Patel Schallen, MD:
That's right. When you can add 147 zones of coagulation, put them together, you have a lot of real estate.

James Newman, MD:
Yes, absolutely. It's all about the density and the amount of tissue that you're treating to get that wonderful result.

Scott Gerrish, DO:
And I'll just add, you have 600 microns of coagulation, but it makes you put 200 microns in between the next coagulative zone. So you're not overstacking coagulative zones. So if you go and do two passes and try to reproduce that with any other device, depending on your pressure, you might be further apart, you might be overstacking. So this is very, very precise in how it lays down those zones.

Konika Patel Schallen, MD:
Well, thank you. That leads us right into our next section, which is really, what does that all mean? Everything we've talked about, all the science that we've talked about.