Transcript Details
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Dr. Rox Anderson Forecasts 'Multiple Revolutions' in Lasers

Jill Waibel:
Hello everyone. We have the world's most knowledgeable and influential laser leader here, and we're excited for his perspective and looking forward to insights that Dr. Rox Anderson will bring to us today. What innovations, and you started with yours, will mark the next true revolution since you created the last with selective photothermolysis and then fractional photothermolysis and then expanding the chromophores from hair to tattoo to scars to wrinkles. What will be next? Will there be another revolution or will it just be incremental changes with technology?

Rox Anderson:
No, you bet you there's going to be multiple revolutions.

Jill Waibel:
Good.

Rox Anderson:
Revolutions happen when things get to a tipping point where you can predict. So the basic science is necessary, but at some point you understand something well enough that you could really design things. So it's actually the engineering. We don't usually talk about engineers, but that's what really creates new capability. I think we look at the world we live in now. We have imaging, digital computing and AI at our fingertips. And the selective photothermolysis is nice, but it's limited to targets that absorb light selectively. And we've pretty much, it's not completely done, but we've plumbed that pretty well. And I think the ability to do the targeting with laser microbeams in an intelligent imaging system just kicks the door wide open, wide open. Anything in the tissue that you can see, you can treat in a drug-free fashion. I mean, that's to me, the next big revolution is image-guided microbeam laser treatment.

Jill Waibel:
And not just in the skin. I mean, all over. Yeah, every organ. That would fix a lot of problems.

Rox Anderson:
And I want to do that for skin cancer because I think right now in dermatology, we're the only people that really do microscopically guided tumor surgery. But the reason we are the only people that do it is our patients are awake. We don't need general anesthesia. So an operating room costs thousands of dollars an hour no matter what you do. If you could just do cancer surgery really fast with microscopic control, you would blow wide open opportunities in surgical oncology to be faster and more precise. And I believe that we in dermatology can do that and then let the process go from there. There's other revolutions, Jill. We're living in an era now of molecular and genetic medicine that I think the ablative fractional laser's ability to deliver topical molecules is impressive. And you yourself have studied that. If you put that together with the idea of an image-guided selective targeting, that means I can put any drug I want into the skin at any structure I want to target.

You see that? That's another leapfrog beyond the first one, but I think we can do it. And I'm very excited by that. The other thing I have to tell you is it's not all about lasers and light. When we came up with fat removal by cold, it really taught me that what we're good at and can really make a difference is any form of energy transfer like physics and biology mixed together. And we're working right now. For some reason, we don't understand it completely. Melanocytes are cold sensitive cells. And many of the pigmented lesions that we face in dermatology are tough to treat with lasers. If you look at giant congenital melanocytic nevi. Yeah we don’t do that well. So in the lab right now, working with colleagues to actively understand that, and we're seeing already some really excellent clinical results as well. So

I think the use of cold as a selective tool is a good one. And then in the laser side, I have to add that our colleagues in ophthalmology, they love femtosecond lasers and we don't use them at all in derm. And that is, to me, an opportunity. So they do things you cannot do with anything else. You can do multiphoton photochemistry. You can make extremely precise cuts. That's why they're used in the corneal surgery so much. So anyway, I don't know. These are-

Jill Waibel:
No, that's perfect. The other thing I was going to add is I round every morning at 4:30 in the morning at my hospital. And I see ... I know, but I actually enjoy it. I see a lot of cancer patients and a lot of them have stage four and they got completely appropriate care by top doctors. One cell got out. So back to your solving the problem with cancer, the margin control. If you could ... I mean, to me, making it faster, less expensive, not in the OR, but just having true margin control on that breast cancer, on that liver cancer is going to save a lot of lives. So I'd put that one at the top of your heap to solve.

Rox Anderson:
Oh, good. Thank you. Isn't it cool that our efforts in aesthetic dermatology could change the way you treat cancer?

Jill Waibel:
It is, but I tell all my patients, I don't do aesthetic medicine. I mean, think of lasers. You started it for birthmarks. And I mean, I do, but that's not ... I mean, really lasers started in the medical arena, and then they went to the aesthetic, right? Am I wrong?

Rox Anderson:
No, no, you're right. I mean, lasers actually were just a wacky invention in 1960. And then by 1970, the first era of lasers was people didn't know what they were doing and they just tried things pioneering. That pulsed eye laser we talked about a minute ago was the first example of a laser built for medicine. Before that, the lasers were being used for welding and astronomy.