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Does Laser History Have to Repeat Itself? Laser Resurfacing and the Risk/Recovery/Result Ratio

Letter to the Editor:

I read with interest the scholarly article by Metelista and Alster, “Fractional Laser Skin Resurfacing Treatment Complications: A Review.” Dr. Alster has always been a barometer for laser technology and what is hot and what is not, and her writings generally accurately portend the good, the
bad, and the ugly aspects of laser treatment that will eventually permeate general clinical experience.

This article was hauntingly familiar to her landmark article from 11 years before. This article was also reflective of other recent additions to the literature concerning complications with fractional laser skin resurfacing. Notable is the fact that the scientific literature lags behind clinical experience in the reporting of complications with new therapies. Laser practitioners learned some hard lessons in the late 1990s in terms of overtreatment, especially in the neck and periorbital regions. One would think that the plethora of poor treatment outcomes and legal proceedings that followed the popularity of aggressive carbon dioxide (CO2) laser resurfacing would be enough to temper similar technologies for decades to come, but it appears that we are destined to once again walk down the path of avoidable laser misadventures.

There is no doubt that fractional laser resurfacing is a welcome addition to the armamentarium of the cosmetic surgeon. This advance in technology provides some advantages over previous ablative technologies, but whether these advantages are really significant is a question that remains unanswered in my mind.

The main thrust of current cosmetic surgery technology is to obtain better results with less downtime, which is certainly a desirable goal that represents progress. Unfortunately, industry, the media, and overpromoting doctors have attempted to push the limits of fractional resurfacing in terms of marketing and clinical treatment.

When it comes to skin resurfacing, a patient cannot get something (result) for nothing (minimal or no recovery). All clinical improvement requires a degree of recovery and risk. Currently, the best results require greater risks and longer recovery. I refer to this as the “Risk/Recovery/Result Ratio.” Simply stated, the Result is directly proportional to the Risk and Recovery of current therapies. Traditional aggressive CO2 ablative skin resurfacing has higher risks and longer recovery but has indisputable results. Fractional resurfacing has lower risk and shorter recovery but proportionally less dramatic results. This would seem straightforward, but the reality of the situation is that we are trying to take a procedure with a mild to moderate result and push it (with aggressive settings or passes) to a procedure with a “wow” result. Herein lies the problem. To improve the result, one must increase the risk and recovery, and hence the original paradigm of “less for more” goes out the window.

Dr. Jeffery Dover (who is one of my academic heroes) states in the related commentary that “nonablative fractional lasers produce safe an effective treatment with a series of five to six treatments.” To me, this is a setback and not an advance. Why would any patient consider five or six treatments, each with accompanying 3- to 4-day downtime as advantageous over a single, traditional aggressive ablative CO2 treatment? The only reason that patients accept this is because we lead them to believe that it is new, advanced, and advantageous. Sometimes new is not better. I own a superficial and deep fractional CO2 laser, appreciate the technology, and offer it as a treatment option for a selected group of patients. I have not and will not replace traditional aggressive CO2 resurfacing in my office. Of related interest is the fact that I (and numerous colleagues) am seeing an increase in patients from around my state and out of town who were quite disappointed with the difference between the “marketed expectations” and the actual results of fractional lasers (ablative and nonablative). I am not as excited as Dr. Dover is about this technology but also admittedly have much less experience than he and his group.

Clinicians are pushing the limit and attempting to fortify the result by increasing power, passes, or pulses (stacking). So now we have a laser that is supposed to be gentler and with a shorter recovery being turbocharged to try to emulate lasers that we have had all along. This treatment also changes the Risk/Recovery/Reward Ratio. It is unfortunate that many clinicians seem to have “complication amnesia” when it comes to treating facial and nonfacial areas. Significant complications involving fractional resurfacing overtreatment are beginning to appear in the scientific literature, and...
I still perform a high volume of traditional high-fluence, high-density, multipass CO₂ laser resurfacing and feel that it is still the criterion standard in rhytid and scar effacement and dyschromia reduction. For most experienced practitioners, the severe complications of the late 1990s are rare, and we see sequelae more than complications. Yes, it takes almost 2 weeks to heal, which is not a bad deal to reverse decades of aging. Yes, you will be pink for a while. Again, you get what you pay for in terms of results and recovery. Severe hypopigmentation or burns have become rare with experienced practitioners, and the final results are predictable. Not deburring between passes, using open wound care, and some of the new postlaser treatments such as oxygen mist skin treatments have decreased some of the undesirable sequelae and shortened healing time, making aggressive CO₂ treatment a more desirable option.

Laser science will surely progress, and the Risk/Recovery/Result Ratio will improve with technology.

I can’t wait; it will make my life and that of my patients easier. Someday, we may reminisce about the “old CO₂ ablative days” and how archaic they were, but for now, I still embrace this technology and will continue to do so until there is something better. I just haven’t seen it yet.

References

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Additional Commentary on “Addition of Lidocaine to Fillers”

Letter to the Editor:

As the use of lidocaine premixed using a Luer lock–to–Luer lock connector with dermal filler becomes ever more popular, consideration of the effect of lidocaine administration is warranted. The addition of a diluent by definition alters the original rheological properties of the filler, although it has not been found to alter pH in our studies. The alteration in the rheological properties means that we can change in vivo three-dimensional distribution of the active ingredient without changing the absolute amount. In the case of a high-viscosity filler such as calcium hydroxyapatite (CaHA), lidocaine increases “spreadability” of the product. This characteristic can be useful in areas such as the hands, chest, feet, temporal fossa, and forehead.

The use of lidocaine added using a Luer lock–to–Luer lock connector offers more possibilities for