© Skin Research and Technology. 2019 Mar;25(2):171-178.

Interactive thermal tissue reactions of 7-MHz intense focused ultrasound and 1-MHz and 6-MHz radiofrequency on cadaveric skin

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Background: Intense focused ultrasound (IFU) and radiofrequency (RF) systems generate thermal tissue reactions in multiple zones in the skin, with the microscopic features thereof varying according to energy sources and treatment parameters.

Objective: To evaluate interactive thermal tissue reactions of IFU and RF in cadaveric skin.

Methods: Thermal reaction patterns generated by IFU, invasive bipolar RF, and non-invasive monopolar RF treatments were analyzed in cadaveric skin of the inner thigh. Additionally, combination treatment, including IFU and invasive bipolar RF, IFU and non-invasive monopolar RF, invasive bipolar RF and IFU, and non-invasive monopolar RF and IFU, was delivered to cadaveric skin and microscopically evaluated.

Results: Combination treatment with 1.5-mm IFU followed by 1.5-mm invasive RF elicited multiple thermal injury zones of coagulation and ablation in the mid to lower dermis. Therein, IFU-induced thermal reactions were indistinguishable from RF-induced thermal reactions. Non-invasive RF treatment on IFU-pretreated cadaveric tissue specimens exhibited greater degrees of thermal injury, with wider and deeper penetration, compared to non-invasive RF treatment alone. Furthermore, RF-pretreated tissues showed marked differences in the patterns of IFU-induced thermal tissue reactions.

Conclusion: Our data suggest that combination treatments with IFU and RF elicit various patterns of interactive thermal tissue reactions.

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All findings on medical high-frequency ULTRAcel, a combination of high frequency and HIFU

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The fever for needle RF in the domestic cosmetic medical device market that began several years ago seems to have persisted until recently. As nobody can forget their first meeting, this writer also cannot forget INTRAcel, which I saw for the first time among needle RF devices. Because I am still using it, I believe the meeting was successful despite it being the first meeting.

ULTRAcel, which was recently released by Jeisys, the company that made INTRAcel, is attracting attention from the public again as it was released in the form of a device that combined needle RF, HIFU, and the high frequency device IntraGen. Although this writer had no opportunity to upgrade INTRAcel into ULTRAcel because our clinic already has five other needle RF devices in addition to INTRAcel, two HIFU devices, and five high-frequency devices for elasticity procedures, this writer always had an interest in ULTRAcel.

First, ULTRAcel was designed to have a slimmer shape compared to INTRAcel. The height and size were changed to be much more compact, but its functions can be said to have been improved dramatically as three handpieces were installed. When only the needle RF device is compared, no particular difference in use is found. However, because it is said that the tips are not compatible with existing tips, users considering an upgrade may want to refer to this.

The IntraGen high-frequency device is a newly added device in a monopolar form that emits high-frequency waves on the surface, as with Thermage. This is said to be used for the improvement of the elasticity of the epidermis and upper dermis and is thought to be capable of showing more synergy effects if it is used in combination with needle RF. Unlike other products, HIFU has vertically designed handpieces. This seems to be more convenient for securing the visual field and handling during procedures. This device was tested using a phantom provided by the manufacturer and it could be identified that the thermocoagulation points (TCPs) were formed accurately at uniform depths. This device is thought to be usable without any problem in actual application.

The manufacturer Jeisys is a leading company in the area of high-frequency devices, including INTRAcel, and is known to make considerable investments in research and development. This writer expects that this company will do good job in other areas too, including HIFU.

*Source : Ovs_2015-08-26_ULTRAcel-2015-DPS-All-findin.pdf (aesteemclinic.sg) VIEW ▶

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ULTRAcel Combines Three Proven Technologies in One System

Ayako Ito, M.D., Ph.D.
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Raising the bar in state-of-the-art skin rejuvenation treatments, Jeisys Medical, Inc. (Seoul, Korea) proudly introduces the ULTRAcel, an innovative device that combines the therapeutic power of three proven technologies, allowing clinicians to quickly and painlessly lift and tighten loose and sagging skin, all from a single platform.

The integration of Grid Fractional Radiofrequency (GFR), Focused Ultrasound (FUS) and Fractional Radiofrequency Microneedling/Superficial Radiofrequency Rejuvenation (FRM/SRR) modalities in the ULTRAcel platform has been widely viewed as a breakthrough in skin rejuvenation therapy, enabling clinicians to effectively treat the full thickness of skin from the epidermis down to the superficial muscular aponeurotic system (SMAS).

According to experts in the field, treatments with ULTRAcel can help patients achieve excellent skin tightening and lifting outcomes similar to those once only attainable with more invasive face-lifting procedures and techniques.

"We often encounter diverse aesthetic issues from our patients such as progressive facial skin laxity as well as a less prominent appearance of the eyelids," said Ayako Ito, M.D., Ph.D., a plastic surgeon and head of the Ayako Ito Clinic in Tokyo, Japan. "Facial skin sags as we age, partly as a result of volume loss. Inevitably, over time, the width of the eyelids will appear narrower and the supraorbital region becomes indented, even with the presence of subcutaneous fat around the area. Offering GFR (IntraGen), FUS (HIFU) and FRM/SRR (INTRAcel) in one system, we rely on ULTRAcel to help resolve various skin problems."

ULTRAcel effectively targets all layers of the epidermis and dermis, from superficial to deep, for optimal tightening and lifting of the skin, returning a more youthful looking appearance. While SRR, GFR and FRM technologies target the epidermis, upper dermis and dermis, respectively, the focused ultrasonic waves of FUS focus on the SMAS layer for a more profound effect. Unlike other, conventional aesthetic devices on the market today, Dr. Ito explained that the ULTRAcel device impacts the mimic muscles and fascia directly. The HIFU technology improves the sagging skin by delivering thermal heat to the SMAS layer, resulting in a lifting and tightening of the jowls, neck and cheeks to a higher, more youthful position.

Depending on the severity of symptoms and skin aging, the focused ultrasonic waves of HIFU can often have an immediate effect on the targeted tissues. According to Dr. Ito, the eyes become more defined and wider after treatment, and the skin as a whole, appears tighter and aesthetically lifted.

"In my experience, the clinical effects of ULTRAcel therapy continue for at least six months after the procedure, with many patients seeing improvement in their clinical result up to 12 months post treatment. Since the visual result of lifting is very natural, the patient will definitely look younger and be happier with the fact that there are no physical signs of treatment," Dr. Ito said.

*Source : The-Asian-Aesthetic-Guide.pdf (jeisys.com) VIEW ▶

Interview with Dr Gerhard Sattler

Dr Gerhard Sattler
Rosenpark Klinik, Darmstadt, Germany

It has been some time since I bought the INTRAcel device and I bought the special new ULTRAcel equipment recently to complement the minimally invasive therapy which was dominant.

Long before we opened here, I was a resident in a public health care hospital for dermatology and I started doing liposuction in late 1989, which marked a new era for me. I personally have done more than 12,000 liposuctions. And that gave me experience with a lot of aesthetic patients and I was always very much touched by aesthetic matters. I have done aesthetic surgery for more than 26-28 years and these experiences have allowed me to become the doctor I am today.

But as time passed, there have been new requests from patients for new aesthetic techniques, and the invasive needle techniques such as Botox have actually been overruling my main liposuction expertise. In Europe you don't really need lasers so much anymore because new injection techniques like Botox have been really very convincing.

But now today with new HIFU and radiofrequency technologies and also the ULTRAcel device with combined technologies of micro-needling and radiofrequency, they will open a new era after injection therapy for the aesthetic market in Europe. As these technologies are more effective in Caucasian skin, which is thinner than that of Asians, these will complement injection treatments such as Botox.

Of course the more you do, the more you see the limit of what you can actually achieve. I want to equip more devices to complement this, but there is a limit in space. As I said earlier, I am very happy to have ULTRAcel, which is relatively very small with various functions in my clinic.

Due to ULTRAcel, I have everything in hand and so I can precisely individualize treatments for my patients. The device is highly effectively at a relatively low cost. Three functions in one machine are very impressive and I think this is the best machine. I think this machine with three functions will be positioned as an excellent device in each clinic that provides individualized treatment for upper-class patients.

So instead of performing radiofrequency in this room, micro-needling in that room and grid radiofrequency in another room, I can perform everything in one room and be with the patient continuously all the way through ULTRAcel. I have paid a lot for 2-3 or 4-5 years to get new devices. In that regard, ULTRAcel is especially new equipment.

*Source : Microsoft Word - Dr Gerhard Sattler Interview_ENG_Revised (jeisys.com) VIEW ▶