Recent advances in anti-aging treatment and the current use of monopolar radiofrequency devices

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Recent advancements in anti-aging treatments have revolutionized the field of dermatology, particularly through the development and widespread utilization of laser and energy-based devices (EBDs), including radiofrequency (RF) devices. RF devices employ electromagnetic radiation to generate an electric current, resulting in dermal heating that induces skin contraction and stimulates collagen synthesis. Noninvasive skin tightening procedures selectively target the deeper dermis and subcutis layers while preserving the integrity of the epidermis and superficial dermis. Precisely controlled application of thermal energy through monopolar RF triggers collagen remodeling and neocollagenesis, as supported by histological analyses revealing augmented collagen production and enhanced dermal density. Molecular investigations further validate the upregulation of collagen-related genes and the expression of heat shock proteins. Clinical trials have demonstrated significant improvements in skin laxity, wrinkle reduction, cellulite mitigation, and scar remodeling. Adverse effects are generally minimal, predominantly transient erythema, edema, and pain. Nonetheless, rigorous efforts have been undertaken by researchers to optimize efficacy in facial lifting while minimizing complications.

Among monopolar radiofrequency devices, Thermage FLX® has garnered widespread recognition for its efficacy in skin tightening. Recently, a novel monopolar RF device named 10Therma has been introduced, boasting identical maximum power (400 watt) and impedance range (75~400Ω) as Thermage FLX®. Its smart temperature cooling (STC) system, combined with an auto impedance matching system, ensures safe and efficient treatments, mitigating the risk of burns and pain. A prospective randomized split-face controlled study comparing the safety and efficacy of 10Therma with Thermage FLX® has been meticulously designed, yielding comparable results at 4 and 8 weeks post-treatment. Further clinical investigations are warranted to refine treatment protocols and ascertain long-term outcomes.

In conclusion, the scientific and experimental evidence overwhelmingly supports the positive impact of monopolar RF devices and underscores the safety and efficacy of the innovative RF device, 10Therma, in anti-aging treatments and skin rejuvenation within the domain of dermatology.

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