



Clinical Analysis on the New HIFU Treatment

ULTRAcel Q+ Linear
SYSTEM

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In the recent domestic aesthetic market, HIFU prevalence has been fully phenomenal. Various celebrities have received the HIFU lifting treatment and words have spread to the general consumers to seek it. The HIFU equipment, originally developed for lifting purposes, has led to emerging indications as more and more people began adopting it. Many people had experienced brightened skin tone and fat reduction with HIFU treatment. In order to maximize these effects, Jeisys Medical Inc. introduced an upgraded version of the ULTRAcel Q+, which is a HIFU-based device by adding a treatment with Linear function. Linear function is a novel technology to HIFU that distinguishes itself from the conventional Dot function. It can be applied not only for lifting purpose but also for skin brightening and double chin reduction. The upgraded ULTRAcel Q+ includes new Linear 2.0 and Linear 4.5 cartridges in addition to the existing Q1.5, QS2.0, Q3.0, Q4.5, Q6.0, Q9.0, Q11.0 and Q13.0. Moreover, treatment duration has been shortened in the new version and takes about 3 minutes to perform 300 shots.

The aim of this report is to demonstrate the clinical effect of skin brightening and fat reduction of the Linear function of the ULTRAcel Q+.

Purpose:

1. Examine the skin whitening effect of the Linear cartridge 2.0mm 7MHz.
2. Examine the fat reduction effect of the Linear cartridge 4.5mm 4MHz.

Methods:

1. HIFU was applied two sessions every 1 to 2 weeks depending on the patient's condition by approximately 400S with 0.2 ~ 0.3J energy without applying anesthetic

cream over whole face, and observed its effect with a digital camera and facial analyzer.

2. For patients with double chin, treatment was performed two sessions every 2 weeks with approximately 150S, 0.4J by irradiating intensively on the lower mandible, and its effect was examined using a digital camera.

Results:

1. With Linear cartridge 2.0mm, facial analysis revealed brightening of the skin and increased skin elasticity for all patients, showing consistent results with the self-report questionnaire. During 250 ~ 400S treatment, there were no side effects such as folliculitis, PIH, swelling, bruising, or blisters after treatment.

2. All patients with double chin treated with a Linear cartridge 4.5 mm showed significant improvement of contour and volume reduction. There were no side effects of PIH, swelling, bruising, folliculitis, or burn during treatment.

Conclusion:

In the cases of skin whitening treatment with the Linear cartridge 2.0mm 7MHz, its rapidity was impressive. Even though its reason is not certainly from that short treatment time, but it is sure that patients did not feel any pain during the treatment to an extent in which no pre-treatment with the anesthetic cream was necessary. As anesthesia was not needed, it reduced treatment preparation time and minimized patient's psychological burden. Such treatment could be an alternative to patients who fear laser procedures and use of anesthetic cream, which are often linked to the general concept that they involve painful procedures.

The skin whitening effect with the Linear cartridge 2.0mm 7MHz (strictly speaking, brightening effect) was visible to the practitioner during the treatment. The patient did not feel any discomfort throughout the entire treatment.

Both the practitioner and patient could recognize the brightened skin after undergoing the skin whitening treatment with Linear cartridge 2.0mm 7MHz.

However, the effectiveness of whitening or brightening did not go further at the second trial, which implies that there is no directly proportional relationship between number of trials and effect.

It is assumed that this skin brightening is the direct result arisen from the thermo-coagulation and pigment degradation in melanin-melanosome by the focused ultrasound-generated heat, in which confined in the layers under basement membrane to upper dermis. The reasoning rationale is that, the brightening effect of photomechanical-photothermal of QSNL is stood out even immediately after the treatment - unlike scattering of BM layer melanosome, melanocyte dendrectomy and melanocytic suicidal hypothesis process.

Short treatment duration has been highlighted as a big benefit for the treatment using Linear cartridge 4.5mm ULTRAcel Q+ for lifting or fat reduction. A special care should be taken when treating areas such as mandible lower border or body since stronger pain can be felt from bones and surrounding area. Linear cartridge requires more attention during stacking than the Dot cartridge because it can cause PIH more easily.

The lifting or skin tightening effect was less effective than the conventional Dot type method. It may be due to cylindrical TCP having a wider surface area than the conventional Dot type TCP. Hence, duration to sustain the temperature for effective shrinking (critical temperature) is reduced as the thermal diffusion for surrounding tissues is increased.

On the other hand, the Linear cartridge had improved fat reduction effect than the Dot cartridge as more heat is absorbed by the increased surface area. For obvious reasons, the effect is more noticeable in areas where the subcutaneous fat layer is thin.

Side effects

During 250~400S treatment with Linear cartridge 2.0mm, there were no side effects such as folliculitis, PIH, swelling, bruising, blisters, etc.

Likewise, there were no side effects of PIH, swelling, bruising, folliculitis and burn during double chin treatment with 180~250S. However, when combining tumescent sol with Linear cartridge, the treatment should follow sequentially crossed matrix procedural design to avoid PIH or local fat atrophy.

Linear cartridge is shown to be robust for sole treatment but seems to have a complementarily additive effect when combined with another whitening laser treatment. Further research is required to investigate whether it also has a synergistic effect.

Besides, the new treatment leaves promising future outcomes for various clinical trials as the method do not involve pain and is conducted promptly.

