

LUTRONIC LASER AND IMPROVED HAIR REMOVAL

HARNESSING THE full capabilities of familiar 805 nm diode laser technology, the ADVANTAGE Laser System from Lutronic, Inc. (Fremont, Calif., USA) offers excellent efficacy for hair removal in a large range of skin types, including darker-skinned patients. Users will also enjoy the device's ability to improve the appearance of vascular and pigmented lesions. This versatile device received FDA clearance for laser hair removal in early 2012, and is also a recent recipient of CE marking.

Key benefits

'The results with ADVANTAGE are very satisfying for myself and my staff, as well as our patients, and the device is relatively simple to operate,' said Wooseok Koh, MD, director of JMO Dermatology in Seoul, South Korea, and lead investigator for clinical trials with the device. 'Treatment is very easy to customise, so users may adjust parameters to maximise outcomes and more effectively deliver therapeutic energy while managing patient comfort.'

According to Dr. Koh, one key benefit to the ADVANTAGE Laser System is its reliance on solid state engineering and a proven laser technology. 'The 805 nm diode laser is a modality that practitioners around the world are very familiar and comfortable with, both in terms of scientific understanding and clinical use. It can be used on a wide



Preliminary results before (A) and (B) 1 month after three treatments (1x3cm spot, 40ms, 26 J/cm²). Images reproduced courtesy of Dr Wooseok Koh, JMO Dermatology

range of skin types from light to dark skin.' Energy delivery itself is optimised through the use of powerful semiconductor diodes in stacked arrays.

Another benefit is the independent adjustment of fluence and pulse duration. 'Difference of hair thickness between patients is easily overcome by modifying the pulse width,' Dr Koh said. 'To my knowledge, other systems on the market feature fixed pulse duration, or limited & fixed combinations of pulse duration and fluence.'

The mechanism of action with ADVANTAGE for laser hair removal occurs as follows. As the tip compresses skin in the treatment area, blood flow is temporarily displaced and contact cooling

protects the epidermis. Melanin absorbs delivered laser light energy, which is converted into thermal energy and causes thermal damage via the principle of selective photothermolysis, which destroys hair follicles, stem cells, and dermal papillae. The difference is in the efficient delivery of energy, according to Dr Koh.

'With devices operating at a lower peak power, we see heat dissipation at the follicle and reduced efficacy. Treatment requires longer pulse durations and more sessions are required to achieve the final result the patient is hoping for. Lutronic ADVANTAGE Laser System offers a peak power of 2800 watts, which delivers more energy at shorter (but adjustable) pulse durations.



Preliminary results before (A) and (B) 3 months after three treatments (1x3cm spot, 40ms, 26 J/cm²). Images reproduced courtesy of Dr Wooseok Koh, JMO Dermatology

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We see reduced lateral heating, as therapeutic energy is concentrated at the follicle, which should theoretically improve efficacy and reduce treatment time. Further study is required to further enhance our understanding of this relationship.'

Specifications

The ADVANTAGE Laser System features two handpieces: the D1-800 with a 10mm x 10mm spot size, and the D3-800 with its 10mm x 30mm spot for larger areas. Either handpiece is ideal for hair reduction or removal. For vascular or pigmented lesions, users would choose the smaller spot of the D1 handpiece. Contact cooling (3°C) is incorporated into each handpiece.

'The combination of optimised energy delivery, large spot size, and contact cooling work together toward two important ends: reduction of treatment time and improvement of patient comfort, which themselves are linked together,' explained Dr Koh. 'Because of the nature of laser hair removal treatment as we know it today, doctors expect some discomfort. ADVANTAGE allows us to balance patient comfort with energy delivery to provide therapeutic doses safely, within the boundaries of individual patient tolerance.'

For example, as lead investigator for clinical trials with ADVANTAGE, Dr. Koh shared his favorite settings. 'For hair removal in Korea, my staff and I rely on the D3 handpiece delivering between 24 and 27 J/cm² with 40ms pulse duration or 28-30 J/cm² at a pulse duration of 45ms, combinations which we have found to be very effective for hair removal, which is the primary modality associated

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with ADVANTAGE Laser System,' he said.

'In my experience with Asian patients we require fewer treatment sessions than usual to remove unwanted hair, in comparison to systems I have experience with. Data from treatment of the leg and axilla has shown average clearance of 60% of unwanted hair after only three treatments in ongoing studies; we look forward to reporting the full results soon.'

Efficacy and versatility

Given the worldwide variety of skin and hair types, Dr Koh is optimistic that ADVANTAGE Laser System is exceptional because its efficacy is enhanced by its versatility. 'Once a doctor becomes familiar with the versatility of the ADVANTAGE Laser System, they may successfully explore their own favourite protocols because of the adjustability of the device. This is a key benefit around the world, because all populations and skin types experience the desire to remove or reduce unwanted hair. Additionally, the platform is designed to be expandable, so we expect to see the device's capabilities further augmented in the future.'

Furthermore, there are minimal consumables and no disposables associated with the ADVANTAGE Laser System. 'In every clinical setting, regardless of location, it is helpful to both patient and doctor.'

Conclusions

As Lutronic strengthens its position in the global market for aesthetic laser devices, Dr Koh believes its reputation will rest on a few specific points.

'Lutronic devices share some important characteristics,' he began. 'They are very reliable and of high



Treating axilla region with the ADVANTAGE D3-800 handpiece

quality; the company is quick to resolve what few problems may occur. Next, the devices are very easy to use, featuring top-class intuitive touchscreen displays that simple to understand and operate. Most important is that Lutronic devices provide safe and effective treatment. They are high quality devices worthy and capable of workhorse status in the aesthetic practice.'

'I'm a strong proponent of evidence-based medicine,' added Dr Koh, 'and I think Lutronic has worked not only to provide safe and effective devices, it has also laboured to advance the science of treating Asian skin, which is traditionally challenging to treat. The capabilities of ADVANTAGE should be of great benefit to European users as a result of this diligence with regard to science.'