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CLINICAL APPLICATIONS OF SANDRO DUAL FOR VARIOUS INDICATIONS

Ashraf Badawi reviews his experience using the Sandro Dual long-pulsed laser system from Wontech

ASHRAF BADAWI, MD, is Visiting professor of Dermatology at Szeged University in Hungary; President elect of the European Society for Cosmetic and Aesthetic Dermatology (ESCAD); Vice president of the European Society for Lasers and energy based Devices 'ESLD'

IN ORDER TO REMOVE unwanted hair, lasers have been widely used at various wavelengths from 694nm ruby to 1064nm Nd:YAG. Among the wavelengths, 755 nm Alexandrite and 1064 nm Nd:YAG are considered to be effective as the gold standard.

Sandro Dual from WONTECH, Co., Ltd. (Daejeon, South Korea) is a smart, long-pulsed laser system with a dual wavelength of 755nm alexandrite and 1064nm Nd:YAG. Sandro Dual is efficient not only for hair removal but also for addressing various aesthetic and medical skin conditions, including benign pigmented lesions, vascular lesions, and skin rejuvenation.

Sandro Dual features a wide range of spot size (up to 20 mm), pulse duration (0.2 ms to 300 ms), fluence, and frequency (up to 10 Hz at 755 nm and 1064 nm). The wide range of spot sizes not only ensures effective and safe treatment of all skin types, but it also helps the clinic gain faster ROI by using a larger spot size and higher frequency to save procedure time and care for more patients.

In addition, SCS (Skin Cooling Spray) is equipped with this system. The order of cryogen spray (pre- or/and post-, and non-) and duration of the cooling spray (up to 25 levels) can be set. It allows the practitioner to considerably adjust the degree of cooling status for each lesion in order to achieve safer and effective clinical results. I generally use pre-cooling for hair removal, post-cooling for pigmented lesions treatment, pre- and post-cooling for vascular lesions treatment, and non-cooling for skin rejuvenation.

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Three wavelength modes

Sandro dual has three modes; 755 nm, 1064 nm and Hybrid mode that is the highlight of this equipment. 755 nm alexandrite has higher melanin absorption coefficient with lower hemoglobin absorption so it has the optimal therapeutic effect on hair removal in skin types up to Fitzpatrick III-IV and pigmented lesions treatment. 1064nm Nd:YAG is absorbed by melanin, hemoglobin and water so can be used for various indications and is considered the safest available laser in dark skin. It is ideal to have a machine delivering both 755 and 1064 nm wavelengths.

In hybrid mode, two different wavelengths, 755nm and 1064nm, can be irradiated sequentially or in reverse order. Due to the use of two wavelengths, relatively lower energy is used than that of a single wavelength-mode. Two different wavelengths complement each other, and when two wavelengths are consecutively irradiated in a short time, the therapeutic effect is higher than when using only a single wavelength.

755 nm is an optimal wavelength for hair removal but its penetration depth is limited to the upper dermis while 1064 nm has deep penetration depth but has a lower absorption rate in melanin. By consecutive irradiation of these two wavelengths, it is possible to treat solar pigmented lesions, vascular lesions, and unwanted hair effectively with lower recurrence rate and dark skin types can be treated safely as well.

It has recently been found that the time interval of 20 ms between the two wavelengths is much more efficient especially in the treatment of pigmented lesions, such as solar lentigines, age spots, and ABNOM (acquired bilateral nevus of Ota-like macules), than the pulse durations longer than 20 ms. In other words, the hybrid mode is considerably advantageous than manually changing the wavelength and irradiating the laser once.

Hair removal

Hair removal is frequently performed with Sandro Dual at my clinic. Patients are satisfied with fast and

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clear results. A common patients' complaint in my practice is trichostasis spinulosa, a skin condition in which one or more hairs are plugged in the follicles and normally appear on the nose. I use this laser with the Alexandrite 755 nm wavelength, sub-milliseconds and moderate fluence for this treatment and get the best results on patients satisfaction with a single treatment. As you can see from *Figure 1*, trichostasis spinulosa is noticeably cleared by a single treatment of Sandro Dual.

Pigmented lesions

Q-switched lasers are customarily chosen for treatment of benign pigmented lesions. However, as a double-edged sword, with the good therapeutic outcomes, there is a risk of PIH (post-inflammatory hyperpigmentation) as well. Treatment of a pigment lesion with a long-pulsed laser is comparatively gentle and safe because it delivers photothermal effect to the target and slowly destroys the pigment based on the theory of selective photothermolysis, instead of delivering a photomechanical effect.

When treating a pigmented lesion using a long-pulsed laser, the physician can deliver a more delicate treatment to the patient by adjustment of the pulse duration to account for the size of the pigment and skin type. Moreover, the clinical results can be outstanding as much as Q-switched lasers.

Alternative applications

Another application I use the Sandro Dual is treating warts with the Nd:Yag 1064 nm laser. Instead of using the electro cautery or the ablative lasers with the risk of cross infection due to the plume, I prefer to use the Nd:Yag which leads to photo coagulation of the lesion with safe and effective treatment of the lesions.

This procedure is easy for the physician to operate and convenient for the patient to apply the post-treatment care. Topical anesthesia is not necessary before the treatment, stacking 2–3pulses is done without special handling technique, and there is no bleeding or char remained in the treatment area, which is commonly present after ablative laser treatment.

Skin rejuvenation is another procedure commonly performed in Sandro Dual, known as non-ablative rejuvenation (NAR). Alex toning uses sub-milliseconds at 755 nm and gives the patient a brightening effect as well as a better skin condition for make-up by treating dyschromia on the face during laser irradiation. Genesis is a universal procedure for NAR, but I prefer to use 1064 nm in sub-milliseconds with higher fluence and fewer pulses, which can be called intensive Genesis, to increase treatment effectiveness and reduce procedure time. It stimulates collagen remodelling, making the skin texture much smoother and improving fine lines, wrinkles and skin elasticity.

Facial telangiectasia and leg veins are also treatable using the Sandro Dual system due to haemoglobin absorption in 1064 nm. Flexible adjustment of the pulse duration allows efficient treatment of vascular lesions with various sizes with 10–40ms. Other than that, Sandro Dual can treat warts, onychomycosis, scar, active acne, and many more.

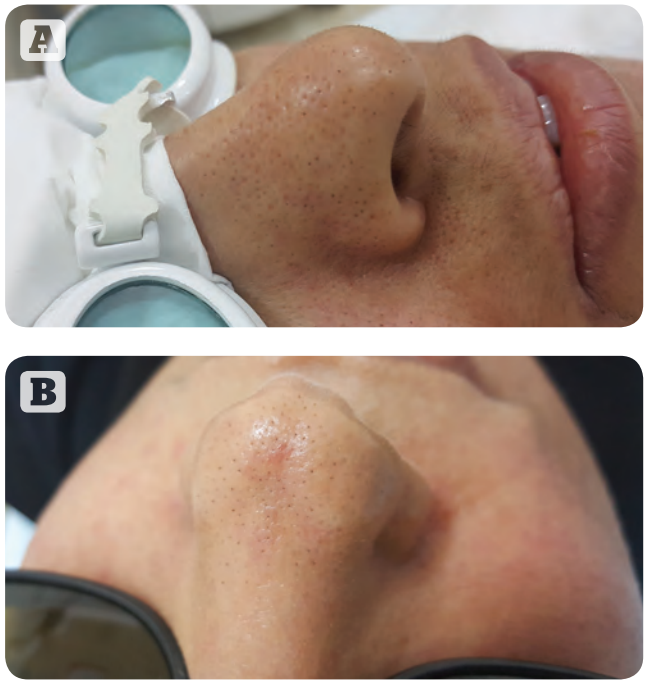

Figure 1 Before and after treatment of thrichostasis spinulosa

Conclusion

When choosing a laser device for aesthetic and medical treatments, there are a few things to consider such as wavelengths to treat various indications, specifications with various settings and durability, efficient and safe outcomes of treatment. And based on my experience with Sandro Dual, this laser system is the one meets all the conditions, and both my patients and I are satisfied.