Treatment of chrono and photoageing with combined light sources


Figure 1: Before.


Figure 2: After.


Figure 3: Before.


Figure 4: After


Figure 5: Before.


Figure 6: After.

Skin ageing depends on various intrinsic (chronological) and extrinsic (ambiental) factors: chrono and photoageing changes include wrinkles, abnormal pigmentation, skin laxity and telangiectasia.

The Nordlys™ system is a multi-platform device that incorporates dual-filtering Selective Waveband Technology (SWT®) and two fractional, non-ablative laser resurfacing technologies – addressing both shallow (Frax 1940™) and deeper (Frax 1550™) resurfacing needs, as well as Nd:YAG 1064. The Candela SWT is a unique technology, defined by a patented dual filter, as well as sub-millisecond pulses. The pioneering SWT delivers a more precisely filtered narrowband of wavelengths, using only those that have a beneficial treatment effect while filtering out other potentially harmful wavelengths [1].

Non-ablative fractional laser therapy is a new concept of treatment, in which arrays of microscopic treatment zones (MTZ) are produced in the dermis, stimulating a therapeutic response around them. Surrounding normal intact epidermis enables accelerated healing after treatments. Many studies have proven that this treatment modality can achieve desirable clinical results without serious adverse effects or longer downtime, which was the major limitation of ablative laser resurfacing [2].

Non-ablative fractional laser therapy at 1550nm is CE-marked for clinical conditions that require dermal remodelling, like skin resurfacing, stretch marks, acne and surgical scars [3].

With the Nordlys system, it is possible to manage chrono and photoaging using the Light and Bright protocol; combining the narrowband, dual filter SWT, 530 or 555 filters, and the Frax 1550 fractional non-ablative handpiece to treat vascular and pigmented lesions and textural irregularities at the same time [3,4].

Case 1

A 46-year-old Caucasian female presented with severe chrono and photoageing, manifesting in hyperpigmentation, vascular lesions and wrinkles (Figures 1 and 2).

She was treated with the Nordlys SWT using a 555nm filter and a double-pulse technique with 4.5ms pulse duration, 10ms delay, and a fluence of 12J/cm². Immediately post SWT session, the patient was also treated by Frax 1550 (three passes, 40mJ, 25%). No topical anaesthetic cream was applied.

One month after the first session, a second combined treatment was performed, using the same sources and parameters.

She was examined 30 days after the second treatment: clinical improvement was clearly demonstrated and the patient was very satisfied (Figure 3 and 4).

Case 2

A 57-year-old Caucasian female, presented with severe photoageing, revealing intense hyperpigmentation, skin irregularities and wrinkles (Figure 5).

She underwent two sessions, one month apart, each using the Nordlys SWT (555nm filter, double-pulse technique with 4.5ms pulse duration, 10ms delay, and a fluence of 12J/cm²) combined with Frax 1550nm (three passes, 40mJ, 25%) at the same time. No topical anaesthetic cream was applied.

Thirty days after the last combined session skin quality had significantly improved and hyperpigmentation had almost disappeared (Figure 6), revealing a brighter, smoother-looking skin. The patient is in follow-up care, using daily topical treatment.

Conclusion

Non-ablative fractionated laser facial resurfacing treatments are increasingly preferred to treat skin ageing. With this approach, selective dermal insult is caused by infrared light, leading to the production of new collagen, while the overlying epidermis remains intact.

In the clinical cases presented above, both patients were treated using the Light and Bright protocol. Combined treatments with SWT (555nm or 530nm filters) and Frax 1550, both available on the Nordlys platform, can lead to impressive results on all components of skin ageing, with reduced downtime and a lower incidence of complications.

References

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