A preliminary study on the safety and efficacy of a novel fractional CO\textsubscript{2} laser with synchronous radiofrequency delivery.

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Abstract

Building upon the fractional CO\textsubscript{2} technology incorporated into the first generation SmartXide DOT (DEKA / ElEn, SpA, Calenzano, Italy) introduced in the U.S. in 2008, a second generation SmartXide Quadro has recently been introduced. This is a versatile device that has the ability to combine fractional CO\textsubscript{2} laser output for skin resurfacing with the synchronous delivery of bipolar radiofrequency (RF) energy for deeper, more diffuse heating. A pilot study was undertaken to demonstrate the safety and efficacy of the SmartXide Quadro, employing both fractional CO\textsubscript{2} laser output combined with the synchronous delivery of radiofrequency energy for the treatment of facial rhytides and acne scars. Ten patients, all women, six with facial rhytides and four with acne scarring, were treated with the SmartXide Quadro, a variably pulsed CO\textsubscript{2} laser with Pulse Shape Design® technology, a microablative DOT scanner and synchronized bipolar RF emission. Each patient was treated with a single fractional CO\textsubscript{2} laser-RF treatment; laser and RF parameters varied according to the severity of the rhytides or acne scars and were based upon both manufacturer-recommended settings and surgeon experience. Follow-up was at three days, one week, 2 weeks, and one month, three months, and six months after treatment. Results were judged by comparison of preoperative and post-operative photos evaluated by independent physicians, preoperative and post-operative grading by treating physicians, subjective evaluation of results by the patients themselves, and tabulation and categorization of adverse events (AEs). The SmartXide Quadro variably pulsed CO\textsubscript{2} laser with a microablative DOT scanner, with synchronous delivery of bipolar RF energy emission, proved to be both safe and effective in the treatment of facial rhytides and acne scars. The single treatment protocol was well tolerated and recovery was similar to fractional CO\textsubscript{2} laser skin resurfacing alone. The AEs were minimal and no significant complications occurred.

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