

Abstract Text:

1. Purpose

Facial laceration is one of the most common traumas in outpatient plastic surgery. Early postoperative fractional laser treatment has been used to reduce scarring in many institutions, but the most effective energy parameters have not yet been established¹⁻³. This study sought to determine effective parameters in the treatment of facial laceration scars.

2. Methods

From September 2012 to September 2013, 57 patients were enrolled according to the study. To compare the low and high fluence parameters of 1,550-nm fractional erbium-glass laser treatment, we virtually divided the scar of each individual patient in half, and each half was treated with a high(H) and low(L) fluence setting, respectively. A total of four treatment sessions were performed at one-month intervals using the same parameters and clinical photographs were taken at every visit.

3. Results

A total of 57 patients were enrolled. Every patient was evaluated two months after the last treatment session(i.e., 6 months after primary closure). Statistical analyses were conducted using SAS software version 9.3(SAS institute, Cary, NC, USA) with an independent sample t-test, and $p < 0.05$ was considered significant. Because the initial status varied by individual, the difference between pre- and post-treatment scores was used rather than the absolute value for post-treatment score. In every patient, the change observed in the H portion(2.77 ± 1.31) was significantly greater than that seen in the L portion(1.85 ± 1.12) ($p=0.038$), which suggests that more effective scar management was achieved in the H portion. Global assessment value revealed that the difference of the H portion(1.03 ± 0.18) was significantly greater than the difference of the L portion (0.83 ± 0.21) in every patient.

5. Conclusion

Laser therapy is a promising method of scar treatment⁴. Our institution compared the effects of high fluence and low fluence 1,550-nm fractional erbium-glass laser treatment for facial scarring in the early postoperative period and revealed that the high fluence parameter was more effective for scar management. Future studies should investigate the optimal number of sessions or protocols for scars in different locations.

Reference Citations:

1. J.S. Cooper, B.T. Lee, "Treatment of facial scarring: lasers, filler, and nonoperative techniques." *Facial Plastic Surgery*, vol. 25, no. 5, pp. 311-315, 2009.
2. J.H. Choe, Y.L. Park, B.J. Kim et al, "Prevention of thyroidectomy scar using a new 1,550-nm fractional erbium-glass laser." *Dermatologic Surgery*, vol. 35, no.8, pp. 1199-1205, 2009.
3. K.Y. Park, I.Y. Oh, S.J. Seo et al, "Appropriate timing for thyroidectomy scar treatment using a 1,550-nm fractional erbium-glass laser." *Dermatologic Surgery*, vol. 39, no.12, pp. 1827-34, 2013.
4. R.R. Anderson, M.B. Donelan, C. Hivnor et al, "Laser treatment of traumatic scars with an emphasis on ablative fractional laser resurfacing: consensus report." *Journal of the American Medical Association Dermatology*, vol. 150, no. 2, pp. 187-193, 2014.