Abstract

Background/Objectives:

Microneedling has shown satisfactory effects in scar rejuvenation. Comparisons of its results to fractional laser are limited. This study aims to compare the efficacy and safety of automated microneedling versus fractional carbon dioxide (CO_2) laser in treatment of traumatic scars on clinical and histochemical bases.

Materials and methods:

Thirty patients with traumatic facial scars were randomized to treatment with four monthly sessions of either automated microneedling or fractional CO_2 laser. Assessment of scars was done at baseline and three months after the last treatment session, clinically by modified Vancouver scar scale (mVSS) and histochemically by quantitative assessment of collagen and elastic fibers.

Results:

Both groups showed improvement in mVSS, collagen and elastin contents after treatment. Percentage improvement of collagen and elastin content was higher after treatment by laser compared to microneedling, in case of collagen content. Percentage increase in collagen content after treatment was higher in atrophic scars of the laser group than those of the microneedling group.

Conclusion:

In this prospective study, automated microneedling was as safe as fractional CO_2 laser for rejuvenation of traumatic scars with comparable clinical effects. Fractional CO_2 laser is more powerful in stimulating neocollagenesis. Automated microneedling is effective for treatment of hypertrophic scars.

Keywords: Traumatic Scars - Fractional carbon dioxide (CO_2) laser - Automated Microneedling