Commentary
Volume 7:2, 2022

Journal of Molecular Histology and Medical Physiology

ISSN: 2684-494X **Open Access**

Histological Validity and Clinical Evidence for Fractional Laser Treatment of Acne Scars

Veena Madhuri*

Cutis Skin and Laser Institute, Srinagar, Jammu and Kashmir, India

Description

Acne scars are common and can be unsightly. There are numerous treatment options for acne scars, including dermabrasion, chemical peeling, and fillers, but the introduction of laser technology has greatly improved acne scar treatment. Although several laser systems are available, there have been few studies comparing their efficacy.

Though numerous classifications of acne scars have been proposed, the most basic distinction is between hypertrophic and atrophic scars. Atrophic scars are the most commonly treated with fractional lasers. The clinical significance of laser depth of penetration is especially important in treating acne scars. The formation of rolling scars is caused by the destruction of subcuticular fat, which results in abnormal fibrous anchoring of the dermis to the subcutis. Clinical evidence suggests that they are susceptible to lasers that penetrate all the way to the papillary dermis.

The fractional lasers are broadly classified into two types: NAFR lasers and AFR lasers. We will primarily concentrate on three commonly used lasers: Er:glass (1550 nm, 1540 nm), Er:YAG (2940 nm), and CO_2 (10,600 nm). Despite the lack of well-conducted comparative studies, it is widely assumed that the AFR is superior to the NAFR for acne scars.

Fractional lasers, both ablative and non-ablative, are based on the well-established concept of fractional skin damage, which allows for faster healing than traditional ablative lasers because the intervening skin is intact for the reparative process. A secondary effect is the dermal remodelling caused by fractional lasers beyond the narrow zone of coagulation. Though fractional lasers are widely used to treat acne scars, there is very little clinical or histological data available based on objective clinical assessment or the depth of laser penetration on *in vivo* facial tissue.

Because acne scars are typically a combination of ice pick, boxcar, and rolling scars, the final effect of fractional lasers would be heavily influenced by the predominant scars as well as the type of laser used. Most fractional lasers have a depth-width ratio (DWR) of about 4-5. The greater the dermal volume that can be thermally damaged, the greater the DWR. Because the width of most fractional lasers is nearly identical due to the inherent quality of fractional 'technology,' the depth is the variable factor that may play a dominant role in fractional laser efficacy.

Further research is needed to determine the optimal balance of wound healing, neo-collagenesis, coagulation, and remodelling for optimal skin tightening and rejuvenation with fractional technology. Higher density settings at low microbeam energies can cause bulk damage, as can low microbeam energies at high densities. To achieve an equivalent energy, it has been proven that increasing the dose/microbeam is preferable to increasing the density in Asian skin.

The clinicohistological correlation based on the lasers used has numerous flaws and requires standardisation in terms of histological evaluation and laser parameter uniformity. Furthermore, not all laser brands have studies to back up their claims. The variation in AFR (10600 nm, 2940 nm) in terms of spot sizes, pulse durations, and intensity ranges makes comparing histological data difficult. *Ex vivo* data is difficult to extrapolate to standard clinical settings because tissue response varies more on the face [1-5].

Conflict of Interest

None.

References

1. Huzaira, Misbah, Anderson R.R, Sink K, and Manstein D. "Intradermal focusing of near-infrared optical pulses: a new approach for non-ablative laser therapy." *Lasers Surg Med* (2003): pp.21.
2. Khan, Misbah Huzaira, Kehl Sink R, Dieter Manstein, and David Eimerl, et al. "Intradermally focused infrared laser pulses: thermal effects at defined tissue depths." *Lasers Surg Med*: *Offc J Am Soc Laser Med Surg* 36 (2005): 270-280.
3. Manstein, Dieter, Scott Herron, Kehl Sink G, and Heather Tanner R, et al. "Fractional photothermolysis: A new concept for cutaneous remodeling using microscopic patterns of thermal injury." *Lasers Surg Med*: *Offc J Am Soc Laser Med Surg* 34 (2004): 426-438.
4. Laubach, Hans-Joachim, Zeina Tannous, Rox Anderson R, and Dieter Manstein. "Skin responses to fractional photothermolysis." Lasers in Surgery and Medicine: *Lasers Surg Med*: *Offc J Am Soc Laser Med Surg* 38 (2006): 142-149.
5. Hantash, Basil M, Vikramaditya P. Bedi, Vasanthi Sudireddy, and Steven K. Struck, et al. "Laser-induced transepidermal elimination of dermal content by fractional photothermolysis." *J Biomed Optics* 11 (2006): 041115.

How to cite this article: Madhuri, Veena. "Histological Validity and Clinical Evidence for Fractional Laser Treatment of Acne Scars." J Mol Hist Med Phys 7 (2022): 32

***Address for Correspondence:** Veena Madhuri, Cutis Skin and Laser Institute, Srinagar, Jammu and Kashmir, India, E-mail: veena_m@gmail.com*

Received: 03 March, 2022; Manuscript No: jmhmp-22-68053; **Editor assigned:** 05 March, 2022, PreQC No: P-68053; **Reviewed:** 17 March, 2022, QC No: Q-68053; **Revised:** 22 March, 2022, Manuscript No: R-68053; **Published:** 29 March, 2022, DOI: 10.37421/2684-494X.2022.7.32