

**A Split face comparative study between the fractional
carbon dioxide laser and micro-needling in the treatment of
facial photoaging:
Clinical and dermoscopic evaluation.**

Thesis

Submitted for partial fulfilment of

Master Degree of Dermatology, STDs and Andrology

By

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Abstract

Background: Facial photoaging is a complicated biological process and occurs through intrinsic and extrinsic factors. It is characterized by wrinkling, telangiectasia, dyschromia, laxity, and rough texture. Extrinsic aging (photoaging) is mainly influenced by sun exposure, which causes a decrease in the quantity and quality of collagen and elastin fibers in dermis.

Aims: The aim this work was to make a comparison between the effect of the fractional carbon dioxide laser and micro-needling in the treatment of facial photoaging depending on both clinical evaluation by global scale of photoaging (GSP) and dermoscopic evaluation of the results through dermoscopic photoaging scale (DPAS).

Methods: Our study included twenty-six female patients aged (30-69) years old with Mean \pm SD age was 42.19 ± 9.73 . Patients were assessed by both clinical and dermoscopic examination to determine different grades of photoaging. Each patient underwent four sessions of treatment with one month apart. The right side of the face of each patient was treated by fractional CO₂ laser, while the left side of the face was treated by micro-needling during the same session. The patients were collected from the Dermatology, Andrology and STDs outpatient clinic of Fayoum University Hospital.

Results: Our study showed that there was no statistically significant difference between the two face sides at both baseline and follow up GSP results and total DPAS (p value > 0.05). There was a highly statistically significant decrease in follow up mean value (p value < 0.001) of GSP results and total DPAS when compared to baseline values within both right side (laser group) and left side (micro-needling group).

Conclusion: Both fractional CO₂ laser and micro-needling are effective in treatment of facial photoaging. Micro-needling is a valuable alternative to more invasive procedures like fractional CO₂ laser skin resurfacing with nearly equal results and less side effects.

Dermoscopy is a valuable tool in assessing photoaging and evaluation efficacy of different treatment modalities.

Keywords: Photoaging, Fractional carbon dioxide laser, Micro-needling, dermoscopic photoaging scale (DPAS).