Fractional laser assisted cutaneous drug delivery

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Therapeutic efficacy of topical drugs depends on their ability to penetrate different skin layers. Topical drugs have a poor total absorption with only 1% - 5% bioavailability. The major rate-limiting step for drug absorption is passage through the stratum corneum, which is impermeable to hydrophilic and large molecules greater than 500 Da. Currently, available strategies that overcome the skin barrier include chemical biomodulation and physical techniques.Physical drug delivery systems include microdermabrasion, microneedling, radiofrequency, sonophoresis, electroporation , iontophoresis, and laser. The most commonly fractional laser systems used in drug delivery include fractional Er:YAG laser 2940 nm, fractional CO2 laser 10600 nm, and fractional Er: glass laser 1550 nm. I show clinical studies that use this facility for multiple indications including non-melanoma skin cancer, onychomycosis, vitiligo, alopecia, scars, warts, infantile haemangiomas and cosmetic purposes. Optimal laser parameters and pharmacokinetics of the drug should be taken into consideration to reach the best results of this modality of drug delivery. Researches in this field are rising; both in dermatologic and systemic scope.

Biography:

Rania Abdulghani Madi, has graduated from faculty of medicine for girls, Al Azhar University, Cairo, and she has fulfilled MD degree in dermatology and venereology from Al Azhar University, in 2014; the thesis was about long pulsed Nd:YAG 1064 nm laser in treatment of hidradenitis suppurativa. She also has fulfilled Diploma degree in medical applications of laser in dermatology from Cairo University in 2013.

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