



Enhanced Drug Transportation for Treatment of Alopecia Areata

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Introduction:

Alopecia areata is a chronic inflammatory disorder resulting in non-cicatricial hair loss. It can affect hair over the scalp, beard, and eyebrows/eyelashes or can even be generalized. It affects both sexes and all age groups. The etiology of alopecia areata is unknown, but it is regarded as an autoimmune disorder with genetic predisposition. The prognosis of alopecia areata is variable, with some patients having spontaneous regrowth after some time, whereas with others, it may be progressive with a poor prognosis.

Various treatment modalities that have been suggested are corticosteroids (topical or intralesional), contact sensitizers, topical minoxidil, topical tacrolimus, and topical vitamin D analogs. For recalcitrant cases, psoralen with ultraviolet A light, oral cyclosporine, oral corticosteroids, and other immunosuppressants have been used.

The Fotona Erbium:YAG laser is a new modality in regenerative medicine which has shown potential for hair regrowth and follicle stimulation. In Step 1 it has been shown to enhance corneal drug transportation of topically applied corticosteroids through superficial peeling. In Step 2 it is hypothesized that the laser can stimulate a regenerative response triggering the hair follicles to enter anagen.

Laser	Fotona Spectro	
	Step 1	Step 2
Wavelength	2940 nm	2940 nm
Handpiece	PS03	PS03
Fluence	3 J/cm ²	7.75 J/cm ²
Mode	SP	SMOOTH
Frequency	8 Hz	3.3 Hz
Passes	3-4	3-4
Spot size	7 mm	7 mm
Sessions	Four sessions with 3-week intervals	



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CLINICAL CASE:

A 46-year old male came to the clinic with the concern of 2 bald patches over his scalp, which began 3 months earlier. The patches were growing over time, with no itchiness, burning or pain.

A diagnosis of AA was made. The Fotona Er:YAG SP & SMOOTH mode laser was proposed, in addition to topical mometasone furoate application twice a day.

The Fotona SP Spectro Er:YAG laser was used, with the following specifications:

Step 1: wavelength 2940 nm, handpiece PS03, spot size 7 mm, fluence 3J/cm², SP mode, frequency 8 Hz, 3-4 passes.

Step 2: wavelength 2940 nm, handpiece PS03, spot size 7 mm, fluence 7.75 J/cm², SMOOTH mode, frequency 3.3 Hz, 3-4 passes.

Four sessions with the parameters shown above were performed with 3-week intervals. Immediately after each laser session, triamcinolone acetonide 10 mg was applied over the AA affected area.

The photos were taken before the procedure and 3 weeks after the 4th session.



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