Fractional CO\textsubscript{2} laser pretreatment to autologous hair transplantation and phototherapy improves perifollicular repigmentation in refractory vitiligo: A randomized, prospective, half-lesion, comparative study

Amir Feily
Jahrom University of Medical Sciences, Iran

**Background:** Fractional CO\textsubscript{2} laser and autologous hair transplantation are independently effective in the treatment of refractory and stable vitiligo.

**Objective:** The author's purpose was to evaluate the therapeutic efficacy of fractional CO\textsubscript{2} laser pretreatment compared with autologous hair transplantation and phototherapy alone for refractory and stable vitiligo.

**Methodology:** A total of 20 patients with refractory and stable vitiligo were enrolled from our clinic. Resistant lesions randomly divided into 2 regions as follows: (1) Part A: Fractional CO\textsubscript{2} laser pretreatment followed by autologous transplantation and phototherapy and (2) Part B: Autologous transplantation and phototherapy alone. Five days after fractional CO\textsubscript{2} laser application to Part A, both treatment regions received a transplant of scalp grafts. On day 11, the entire lesion was exposed to narrow-band UVB phototherapy, twice a week for 12 weeks. The diameter of perifollicular repigmentation was measured monthly with a caliper.

**Results:** Perifollicular repigmentation was detectable surrounding 74% of grafted hair follicles by month 3. Furthermore, Part A demonstrated a significantly greater diameter of repigmentation with $6.6\pm5.8$ mm in Part A compared with $4.3\pm1.8$ mm in Part B ($p\leq0.001$).

**Conclusion:** In this study, our results demonstrate improved efficacy of autologous hair transplantation and narrow-band UVB with fractional CO\textsubscript{2} laser pretreatment in refractory and stable vitiligo.

dr.feily@yahoo.com