EARLY INTERVENTION OF FRACTIONAL ABLATIVE LASER FOLLOWED BY 830 nm LED PHOTOTHERAPY vs CONTROL FOR ACUTE BURN INJURIES
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Background: Burn and traumatic hypertrophic scars develop during the proliferation phase of wound healing between 3–7 months after injury. We investigated whether early intervention with fractional ablative laser treatment could improve short and long-term healing leading to improved function and cosmesis of skin while producing negligible local trauma. In addition, LLLT therapy, found to have beneficial effects on injured tissue and to modulate inflammatory responses, was investigated to determine if combination with fractional laser treatment or either alone improves wound healing and decreases hypertrophic scar formation versus untreated areas.

Study: 20 patients ages of 21–55 y.o. with moderate-severe acute burn injury within past 1–3 months of burn injury over at least 5% body surface area. Four similar scar areas were divided into 5 cm x 5 cm by a pre-made grid. Four treatment areas included: 120 micron spot fractional ablative laser & LED treatment site, LED only treatment site, Control – no treatment and 120 micron spot fractional ablative CO₂ laser treatment only site. Laser and LED parameters were kept constant.

Results: Treatments and side effects were well tolerated by all subjects demonstrating good healing capacity considering the trauma to the region. Clinicians blinded graded treatment and control areas using standard scar scales. All treated areas improved versus control scar areas. Combined fractional ablative CO₂ and LED appeared to have the most rapid healing trend.

Conclusion: The observation that a course of fractionated CO₂ and LED laser therapy may facilitate wound healing has obvious important implications for the treatment of the acute traumatically injured patients with laser and light therapy.