

C-D-3

The Use of Laser in the Treatment of Hypertrophic Scar

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Introduction: Hypertrophic scars are common in burn patients especially in oriental. Laser therapy of hypertrophic scars based upon the principle that vascular proliferation plays a key role in the early phase of scar formation. Therefore with the use of the vascular laser, interruption of this increased blood flow may prevent the development of hypertrophic scars. Results however, have been conflicting and most studies did not involve the use of objective parameters to assess the progress after laser therapy.

Methods: 54 patients with a total of 70 scars underwent laser treatment with half treated by pulsed dye laser $8\text{J}/\text{cm}^2$ and the other half used as control. 28 of the scars were less than 6 months old and the rest, more than 6 months old. Patients were assessed using a structured questionnaire for pain and pruritis. Ultrasound and cutometer were used to assess for the degree of thickness and elasticity.

Results: Our preliminary results showed that 61.6% of the patients with older scars had improvement in the symptoms after 3 or more laser treatment. The older scar (6 months or more) also significantly improved in term of viscoelasticity ($p < 0.05$, paired t test). However, younger scar increase rather than decrease in thickness ($p = 0.006$, paired t test).

Conclusion: Our finding suggested that pulsed dye laser should only be used for the treatment rather than prevention of hypertrophic scar.

C-D-4

The Use of Pulsed Dye Laser with Dynamic Cooling Device in the Treatment of Port Wine Stain in Chinese

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Introduction: The development of vascular laser system has revolutionized the treatment of Port wine stain but unlike Caucasians, Asian with high epidermal melanin context is more likely to develop adverse reaction. The use of epidermal cooling in conjunction with laser therapy has been proposed to be useful in reducing the complications, improving efficacy as well as diminish the pain and swelling associated with the laser procedure. There is however, no prospective study that looked at such use among Asian patients.

To establish the importance of epidermal cooling when 585nm pulse dye laser is used for the treatment of port wine stain in Chinese.

Outcome: The following parameters assessed will be patient's satisfaction in term of tolerability to treatment & degree of complications.

Methods: Area of port wine stain was chosen to perform testing and the test area is divided into 2 halves. 33 patients were recruited into the study whereby half of the lesion will be randomized to be treated with 585nm pulse dye laser (PDL) on its own with the other half treated by pulse dye laser in conjunction with the dynamic cooling device (PDL-DCD). Dose testing will first be performed to obtain the optimal fluence which is defined as highest fluence that causes purple discoloration without epidermal damages. Once the optimal fluence is determined, the rest of text area was treated with that fluence. Patients' tolerability was assessed using a questionnaire and a research assistant noted the presence or absence of blister 1 week after treatment.

Results: The average fluence was significantly higher with the use of DCD than PDL alone ($10.1\text{J}/\text{cm}^2$ for PDL-DCD, $6.5\text{J}/\text{cm}^2$ for PDL alone, $p < 0.0001$, student t test), immediate pain was significantly greater for PDL alone ($p = 0.025$, student t test) and blister occurrence was significantly more common on the side treated by PDL than PDL-DCD (37% vs 16%, $p = 0.031$, student t test). Finally, most patients prefer PDL-DCD than PDL alone (80.5% vs 19.5%).

Conclusion: Despite the use of higher fluence, PDL-DCD was better tolerated and associated with less adverse effect than PDL alone.