CLINICAL REPORT

No. 2

Jana Melková, M.D.

The significance of Low Level Laser Therapy for ambulatory treatment of burn trauma

Jana Melková, M.D.

Laser & Surgery Center
Jevicko, Czech Republic

Introduction

Burn trauma belongs to rather frequent diagnoses which appear in the surgeon's ambulatory practice.

Factors determining the significance of burn injuries are mechanism, burn extent, burn depth, patient's age, localization of injury, anamnesis.

For the proper first aid it is significant to provide primary classification, urgent solution of frequent complications and a possible transport. If the extent and significance of injury does not require a transport to hospital, the patient remains in the care of an outpatients' department. In such cases it is necessary to diagnose a standard, always individual medical treatment, both medicative and local. Low Level Laser Therapy (LLLT) has been an inseparable component of burn treatment at my surgery for six years.

Method

From 2000 till 2006 I treated 137 patients of different ages, including children, with various levels and extent of burn trauma in my surgery. A part of them (84) were not treated with LLLT, mostly for financial reasons.

The other part, that is 53 patients, were treated with LLLT. Both groups were treated in the same way from the beginning.
A determination of anamnesis and subjective complaints is followed with an assessment of depth and extent of thermic injury, exact localization with a reference to the age, then sampling of bacteriologic material for cultivation, and medication with antibiotics in case of a larger burn extent. Pain killing and daily dressing according to the extent and depth of burn were also significant.

Majority of 84 patients who were not LLLT treated showed worse injury tolerance, higher soreness, more frequent persisting germ infection, longer treatment depends on the deepening of burn surfaces. The average time of treatment for this group was 10 – 14 days longer in comparison with the group treated with LLLT. In addition, the scars were also less favourable.

The patients who were LLLT treated appraised particularly its analgesic effect. There was a quick epithelialization even of larger burns like G II, G II a-b and G II b. For some similar burn extent it was not necessary to apply total antibiotic medication, except for larger burns or polytrauma.

53 patients were daily treated with LLLT combining Linescan 670/30 or Linescan 670/70 and Bioscan 830/450, more recently also CCM Quatro 670/320, with the dose of 2 – 6 J/cm^2 on the area calculated as exactly as possible so that the required dose was really sufficient and effective. For the smaller areas it is possible to combine probes MAESTRO 830/300 and 670/40, and also Quatro CCM 830/320.

Most patients who were LLLT treated appraised positively treatment time reduction, analgesic effect and favourable healing without complication and creation of unfavourable scars.

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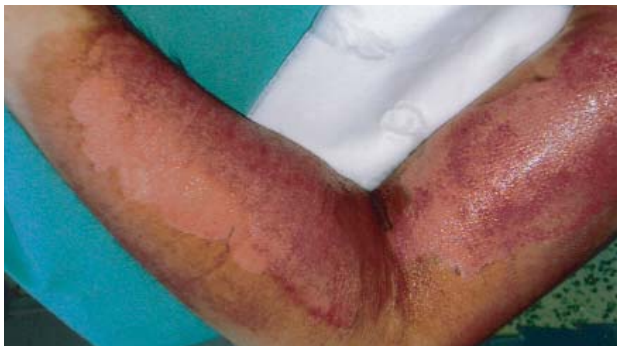
Conclusions

Out of the total 53 observed patients who were treated with LLLT, 80% showed treatment time reduction by 10 – 14 days compared to the group of patients who were not treated with LLLT. The same percentage demonstrated obvious analgesic effect and less frequent germ infection of burn surface.

The very positive effect of LLLT for burns and thermic trauma related scars treatment was observed with the children who were treated with LLLT.

Discussion

I consider the LLLT of burn as very contributive in the surgeon's ambulatory practice, it can be used successfully with children as well. The LLLT as an additional treatment of burns besides the standard methods of treatment is very significant because it reduces the treatment time and it also has analgesic and cosmetic effect, it accelerates epithelialization of burn surface, and it is very important for children treatment.



Pre-treatment

After 14 days, 10 treatments

Pre-treatment

After 10 days, 8 treatments

Pre-treatment

After 56 days, 20 treatments

MediCom, a.s.
Zeniskova 1647,
149 00 Prague
Czech Republic
Tel.: +420 271 001 520
markmed@medicom.cz
www.medicom.cz
www.laserpartner.org