

CO₂ laser excision of thermal burns with immediate autograft closure

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A 5–20 Kw/cm² CO₂ focused laser beam was used in 100 procedures to excise 3° total body surface (TBS) burns ranging from 7–90%. The excisions (10–25% TBS) were performed between the 4th–23rd post-burn day (PBD), and performed deep to the burn eschar of the trunk and extremities. The wounds were closed immediately with primary sutures closure in small defects; sheet grafts over joints and tendons; but mainly with expanded 3:1 mesh autografts. Allografts and 6:1 expanded autografts were used in 80–90% TBS burns. A comparative series revealed an average of 3.9 ml (median 3.4 ml) of blood loss in the cold-knife control area to each 1 ml lost in the laser area. A second series revealed an average of 3.5 ml (median 2.3 ml) blood loss in an electric-knife control area to each 1 ml lost in the laser area. The laser procedures required 1.5 min and 1.2 min for each 1.0 min spent with the cold knife or electric knife respectively. The modality used did not alter the take, survival or cosmetic appearance of the grafts. The use of the CO₂ laser decreased blood loss and hospital stay with no difference in skin graft take and survival.

用 CO₂ 激光切除烧伤表面而自体移植迅速闭合

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在 100 次手续中采用功率密度为 5–20 千瓦/厘米² 的聚焦 CO₂ 激光束切除了 3% 的总体表皮 (TBS) (烧伤面积为 7–90%)。切除手术 (10–25% TBS) 是在烧伤后 (PBD) 第 4 到第 23 天进行的, 并深入到躯干及四肢的烧伤焦痂处。伤口迅速闭合, 主缝线愈合处只有很小缺损; 关节与腱处有片状移植植物; 但大部分是扩散的 3:1 网状自体移植植物。在 80–90% TBS 烧伤中采用紧密相联的移植植物及自体移植植物。大量手术表明在冷刀控制区平均失血量为 3.9 毫升 (中等为 3.4 毫升), 而在激光区域内只有 1 毫升。第二阶段试验表明电刀控制区平均出血量为 3.5 毫升 (中等为 2.3 毫升), 而激光区失血量每次为 1 毫升。激光手续需要 1.5 分钟, 用冷刀或电刀分别需要 1.2 分钟和 1.0 分钟。采用的用药程式不会影响移植植物的愈合, 生存及外貌。采用 CO₂ 激光器使出血量减少, 缩短住院期, 对皮肤移植植物的愈合及生存无影响。