

International Conference on

Clinical and Experimental Dermatology

September 28-29, 2018 | San Antonio, USA

Different thickness split-skin graft use in postraumatic wound management

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A single-center randomized, controlled, parallel-group clinical trial was conducted to compare donor and recipient wound healing after different thickness split-skin grafts (SSG) were used to cover traumatic or postoperative skin defects. We included 84 patients between the age of 18 and 70, with defects that were less than 20 % TBSA and who had no relevant comorbidity or therapy applied that may have delayed wound healing (e.g. uncontrolled diabetes, radiation therapy, etc.). Patients were randomly allocated to three different graft thickness groups: 0.2 mm, 0.3 mm and 0.4 mm. STSG was performed using electric dermatome and the all of the grafts were harvested from anterior portion of upper thigh. Postoperatively on days 3, 7, 14 and 28 days we evaluated pain, epithelialization, secretion, erythema, edema, local temperature and fluctuation. All of the parameters were evaluated on a scale from 0 to 5.

We found that the comparison groups were homogenous by age, gender and wound size in cm². Most of the primary defects were found in lower extremities. Majority of the skin defects were caused by thermal burns (60%), whereas others were post-traumatic (30%) and postoperative (10%). The only significant difference between groups was in epithelialization and pain ($p < 0.05$). The fastest donor and recipient wound epithelialization was identified in 0.2mm STSG group, where donor wounds in 28 patients (93.3%) and recipient wounds in 17 patients (60.7%) were fully epithelialized in 4 weeks. Pain perception was the highest in recipient wound when 0.2mm STSG was used, whereas donor wound pain perception was the highest in 0.4mm STSG group.

We concluded that thickness of the skin graft is a significant factor affecting recipient wound healing parameters. It is necessary to evaluate healing of the donor wound, as well as late outcomes, such as scarring, pigmentation, and esthetic results of skin grafting with different thickness grafts. Hence this study project is continued with the aim to perform a follow up analysis of the patient outcomes 6 months and 12 months after the procedure.

Biography

Inga Guogiene is a PhD candidate working as a plastic and reconstructive surgeon at the Lithuanian University of Health Sciences Kaunas Clinics. She has completed her specialty training in 2013 at the Hospital of Lithuanian University of Health Sciences Kauno Klinikos Department of Plastic and Reconstructive Surgery and underwent fellowship training at the The Université Hospital of Lyon (Lyon, France (2012)) and University Hospital of Bordeaux (Bordeaux, France (2012-2013)). 2013 – 2 month laser practice surgery at doctor's Dominique Boineau centre de medecine esthetique in Bordeaux, Bordeaux, France.

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