Regenerative Epidermal Suspension as an adjunct to STSG in closing massive lower extremity wounds

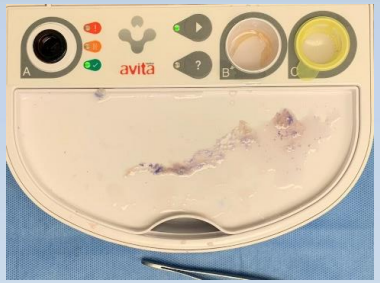
Callie Horn MD, Denise Alabi BS, Chad Saintsing, John C Lantis II MD, Department of Surgery
Division of Vascular Surgery, Mount Sinai West, New York, NY, USA

Introduction

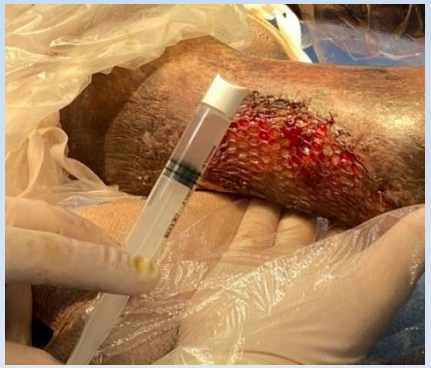
This group has previously written extensively on skin grafting massive (>100 sq cm) lower extremity wounds, such wounds require very large donor sites. In an attempt to decrease the donor site morbidity and increase the percentage to graft "take" we explored a autologous spray on skin system.

Methods

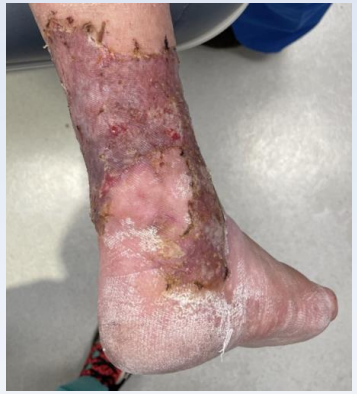
5 limbs in 3 patients were treated - one wound had undergone debridement & one week of NPWT with instillation while the other four wounds had placement of fetal bovine dermis 1 month or greater prior with 4 days of NPWT. All wounds were pulse irrigated and STSG 1:3 was applied. The RECELL ®Autologous Cell Harvesting system (ACHS) was used to provide a point of care autologous Regenerative Epidermal Suspension (RES) applied directly to the wound bed followed by Telfa®clear, multilayer compression & 4 days immobilization. The RES was applied to the donor site as well. Wounds were inspected every 7 days.



Preparation



Application



10 day post-op

Results

The five wounds had a mean area of 178 sq cm (84 sq cm, 420 sq cm, 120sq cm, 120 sq cm, 144 sq cm). Two of the wounds were rheumatologic, two of the wounds are hematologic, one wound was secondary to venous incompetence. Three of the five wounds had > 95% take at 7 days, and fundamentally 100% closure at 28 days. Two wounds in one patient (hematologic) had less than 50% closure at 7 and 28 days. All donor sites were healed at 21 days.

Conclusion

RES filled in the interstices of the meshed STSG & appeared to aid in healing. In addition, the area needed to harvest was reduced by 25%. The one patient failure is likely attributable to suboptimal wound bed prep & patient immobilization. For this therapy to gain broader acceptance two things must occur; the cost of the ACHS needs to be reduced to fit with the chronic wound DRGs, and a controlled prospective trial needs to be carried out that will be dependent upon adequate wound bed preparation.