A 21-year-old female sustained a 53% TBSA mixed depth thermal burn injury.

RES™ was applied over 2:1 mesh grafted area on right thigh and the graft donor site.
The right thigh was >95% re-epithelialised after one week.
Through 22 months, there was excellent scar quality and no contracture.

The role of RES™ in the clinician’s toolkit.

- Earlier definitive closure with less donor skin.
- Restores good quality pigmented skin with reduced scarring.
- Non-cultured and immediately available at the point of care.

The Case: Fast Facts

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How RES™ works...

Effective healing and the formation of good quality skin requires the presence and products of keratinocytes, fibroblasts and melanocytes. RES™ contains viable populations of all these skin cell phenotypes and enables earlier definitive closure by applying cells across the whole wound to enable healing rather than just from the edges and dermal appendages. These cells are highly interactive and communicate with each other via secreted factors, their receptors and via cell/cell contacts for the regeneration of normal, pigmented skin.

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Full Thickness Burn

Background

A 21-year-old female sustained a 53% TBSA mixed depth thermal burn injury as the result of a residential gas explosion. Areas of injury included face, bilateral upper extremities including hands, buttocks, and circumferential bilateral lower extremities. In addition to fluid resuscitation, prior treatments included mechanical ventilation, escharotomy (of areas of full-thickness injury), tangential excision and placement of allograft. The patient sustained pneumonia, hypernatremia, and bacteremia, all consistent with the burn injury and required mechanical ventilation for two weeks post injury.

Treatment

Approximately seven weeks after injury, donor sites from prior grafting procedures were ready for harvesting (for the third time), and surgery was undertaken for primary closure of the right leg. This report looks specifically at the treatment of the full-thickness injury on the right thigh. Skin harvested from the back was meshed 2:1, and secured onto the thigh using surgical clips. RES™ was prepared using ReCell®, and applied over the grafted surface, and to the graft donor sites. The treatment areas and donor sites were subsequently dressed with clear film, petrolatum impregnated gauze and dry gauze.

Results

Although the graft donor sites (not pictured) had been harvested three times, the area was 100% healed and was ready for re-harvesting one week after RES™ treatment. The right thigh was >95% re-epithelialised after one week of RES™ treatment, and the usual mesh pattern associated with 2:1 expanded mesh graft appeared faded. Through 22 months, there was remarkable absence of contracture.12-14

Benefits

This first use of RES™ in combination with mesh grafts in the United States helped reduce the number of grafting procedures required to achieve closure of the patient’s burn injuries12 and yielded a result uncharacteristic of mesh grafting over full-thickness injury in the limited appearance of mesh pattern scar and no observable contracture.12 This has also been observed in other cases.9,10

Clinical References

12. Foster K, Richley K, Perelman M, Carnes D. Compassionate use of ReCell and meshed autografts in three patients with extensive burn injury. Presented at: The 44th Annual Meeting of the American Burn Association; 2013 Apr 21-25; Chicago, USA.

Acknowledgements: Photos courtesy of Maricopa Medical Center, Phoenix © Avita Medical 2015

Figure 1: 40 weeks post-treatment

Figure 2: 1 week post-treatment

Figure 3: 4 weeks post-treatment

Figure 4: Treatment – excision

Figure 5: Treatment – grafting + RES™