Resource Use, Costs and Outcomes for Treatment of Severe Burns Using ReCell® in the United States

Friday, November 9, 2018
5:00 – 5:15 pm

Author and Co-authors:

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Objective:

Upon completion of the lecture, attendees should be better prepared to:
▪ Recognize burn care hospitals can save time (via reduced dressings and number of surgeries) and cost with ReCell® for treatment of large burns

Abstract:

Introduction: Large burns (total body surface area [TBSA]>10%) are costly to treat. The economic impact of innovative treatments for burns is rarely assessed. ReCell® is a device that allows rapid creation of an autologous skin cell suspension at point-of-care to treat acute thermal injuries. ReCell® is used either as a primary intervention for indeterminate partial-thickness burns (iPT) or as an adjunct to widely meshed split-thickness skin grafts (STSG) for deep partial-thickness (DPT) burns without continuous dermis as well as full-thickness (FT) burns. A recent cost-effectiveness analysis found that ReCell® was cost-saving compared to standard of care (SOC) across a range of TBSA of burns and depths. The purpose of this analysis is to describe the impact of ReCell® on burn center resource use for adult burn patients.

Methods: A hospital-perspective model, developed in MS Excel, uses sequential decision trees to depict a 4-module acute burn care pathway (wound assessment, debridement/excision, temporary coverage, and permanent closure [PC]). Clinical inputs were derived from randomized controlled trials, ABA National Burn Registry (NBR) database analyses, and interviews with burn surgeons. Length of stay (LOS) and number of procedures was estimated using a published NBR database regression. Impact of ReCell® on LOS was derived from published clinical trials. Given reduced donor site size and clinical trial findings, only one surgery is assumed to be required for permanent wound closure with ReCell® across TBSA ranges compared to multiple surgeries with conventional skin grafting (per average number of surgeries per patient based on NBR data). Hospital resource use (e.g. materials, procedure time) and unit costs were derived from three US burn care hospitals.

Results: Predicted LOS for SOC was 21.2 (TBSA:10%) and 45 (TBSA:30%) days for FT burns, versus 15.6 (TBSA:10%) and 28.1 (TBSA:30%) for iPT burns compared to 20.8 (FT, TBSA:10%), 44.1 (FT, TBSA:30%), 10.9 (iPT, TBSA:10%) and 19.7 (iPT, TBSA:30%) – a reduction of 2% for FT and 30% iPT depth burns. Number of autograft procedures were also significantly reduced, from 2.71 (TBSA:10%) and 4.43 (TBSA: 30%) for FT

	burns and 2.41 (TBSA:10%) and 3.52 (TBSA:30%) for iPT for STSG, to 1 for ReCell® or ReCell® + STSG. Use of ReCell® significantly reduced donor site size, by 98% and 68% for ReCell® alone and ReCell®+ STSG, which subsequently reduced the amount of wound dressings (12-37%) required and time to clean and change dressings (8-71 mins per change). These shifts in surgery time, number of surgeries (and surgery-related resources such as blood transfusions) and wound dressings translated into reduced resources as well as predicted cost reductions from reduced staff time and supplies. The cost savings of dressings increased for larger burns and for iPT (which also benefited from reduced LOS and therefore number of dressing changes). For FT burns, predicted costs were $193K and $177K for SOC and ReCell® respectively (TBSA:10%) and for large burns, $512K (SOC) and $439K (ReCell®). Reduced costs from number of procedures generated 71% and 75% of the ReCell® savings for FT. Predicted costs for iPT were $146K and $100K (TBSA:10%) and $325K and $206 (TBSA:30%) for SOC and ReCell® respectively. Savings from reduced LOS were the largest cost shift for iPT burns, representing 68% and 47% of the savings for TBSA 10% and TBSA 30%. **Conclusions:** Using ReCell® alone or in combination with STSG reduces hospital resource use, costs and LOS of serious burns in the US, potentially generating significant savings for hospitals.
Disclosure:	William L. Hickerson - Stock: PermeaDerm, Avadim; Honorarium: PolyNovo, Vericel, Avita, MedLine Jeremiah Sparks – Employee: Avita Andrew Quick - Employee: Avita Eliza Kruger – Relevant Financial Relationships to Disclose Stacey Kowal - Relevant Financial Relationships to Disclose