

Introduction: A dermal equivalent made of collagen-elastin matrix is available for the treatment of burn wounds with the possibility of an epidermis graft during the same surgical stage. The purpose of this study was to evaluate the initial and long term final cosmetic and functional outcomes over acute burn and post burn reconstructive surgery.

Methods: Excisions were done to obtain a viable plain without necrotic or infected tissue for deep burns or without scars for post burn sequel. After hydration the matrix was applied and a split-skin was grafted on the top of the matrix then the two layers were stapled together. Local dressing was changed every 4 days.

Results: 125 patients 75 males and 50 females from 5 to 84 years old were treated. 165 grafts were performed for 83 acute burns 42 burn sequelae. The mean surface grafted was 272 cm². The mean time of healing was 15 days. The take rate was total for 129 grafts; 99% for 4 grafts; 98% for 9; 95% for 10; 90% for 9; 80% for 3; 60% for 2. The complications observed were 4 local mechanical dislodgments 5 minimal epidermal dislocations 11 local infections treated with antiseptic and partial dermis loose was observed for 2 grafts 5 hematoma which need a new partial graft. The inflammatory aspect initially observed decrease during the following months. 10 months follow up shows a good suppleness and no adherences to the deep planes and allowed a quick and good functional result. The mean Vancouver score was 2 after 10 months for acute burn and move from 8 to 3 for reconstructive surgery.

Discussion: Since Yannas and Burke studies the dermal part of the skin could be restore by a dermal substitute; their bilayered matrix had to be recovered in a second surgical stage 3 weeks later by an epidermal graft. Only one stage surgical procedure was possible with the new Collagen-elastin matrix. The final healing time was reduce compare to others dermal templates. The one step procedure prevents the infection risk that could happen during the delay between the 2 surgical procedures. For acute burn patients this technique reduces the number of surgical process during the instable phase and for all patients it has reduced the hospital stay. The retraction of the graft was insignificant. After one year, the clinical evaluation shows a very good integration of the graft, with borders very sober. Histological results of biopsies taken between 10 to 12 months after grafting shows the regular organization of the dermal layer.

Conclusion: After this new series and long term follow up we consider the Collagen-Elastin matrix as a promising dermal substitute for good functional and cosmetic long term results with a quick healing and shorter hospital stay.