

Resourceful Surgical Planning for Coverage of Large Burns: Optimizing Cultured Epithelial Autografts (CEAs) Outcomes by Combining with a Modified MEEK Procedure

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Abstract

Introduction: Our center previously reported a modified MEEK technique that provides reliable skin transfer using a specific adhesive called “The Rule of Sevens”.¹ This innovative approach has become a consistent part of our practice and we have experienced good outcomes as a result. With that technique perfected, we have also begun incorporating this method as part of the surgical plan for coverage of large TBSA burns with CEAs. Typically, these fragile grafts might be intimidating given their fragile composition, however, we are perfecting this technique as well. This study is a report of our initial experiences utilizing our modified MEEK procedure and CEA grafting of larger TBSA burns.

Methods: This retrospective study was granted exemption by IntegReview IRB. Basic demographic data was reviewed. In some cases, we encountered incomplete documentation related to percentage of take for the grafts. To account for this limitation, we agreed with the approach from other investigators in the literature and applied the “clinically relevant” assessment to this study analysis. This approach assumed that take and final coverage was successful when re-grafting was not required by the time of discharge or death.²

Results: Study timeline was from April 2016 – February 2020. A total of 19 patients were treated with MEEK/CEA. There were 5 females (25%) and 14 males (74%). Average age was 37 (range 9-71). TBSA ranged from 21-92%, with an average of 59%. Average length of stay was 87 days (range 20-188), approximately 1.5 days’ stay, per percent of burn in this group of patients with larger burns. There were 6 deaths in the total group of 19 evaluable patients (33%). Of these, all had MEEK performed initially, however; three did not live long enough to have CEA placed, though it had been scheduled. One patient died before initial takedown of CEA could be performed, and the other two died during treatment but both had documentation supporting 70% and 90% take, respectively. To determine overall take, as mentioned previously, we determined whether any of the surviving patients treated needed further grafting. None of the 13 remaining patients required further grafting of any kind. This met our criteria of successful take and gave us a 100% success rate. There were 8 patients with documentation clearly stating a percent take rate, and among these, the average percent of take was 88% (range 30%-95%) and again, none of these patients required additional surgery. Meshing ratio was documented on 16 patients and ranged from a 6:1 – 9:1 ratio. 5 patients had a 6:1 ratio and 11 patients had 9:1 meshing ratio used.

Conclusions: A modified MEEK technique in providing coverage of larger burns with CEA has offered our center better options of expansion, being able to perfect the technique of transfer and most importantly, has resulted in excellent outcomes in terms of take.

Learning Objectives

Discuss overall utilization of extra grafts received to determine the possibility of measuring and estimating need in a more concise manner.

References:

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