
93 **Foot Burns in Persons with Diabetes outcomes from the National Trauma Data Bank**

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Introduction: Diabetes Mellitus (DM) is an epidemic in the US that complicates the treatment of burn injuries. Lower extremity burns in diabetic patients, particularly the feet, are challenging problems with predictably unfavorable outcomes, as demonstrated by single-institution studies. National evaluations are absent, especially with regard to limb salvage. We aim to characterize lower extremity burns in persons with DM and evaluate the likelihood of amputation. We hypothesize that the incidence of DM associated foot burns is increasing in the US, and these patients are more likely to undergo lower extremity amputation than those without DM.

Methods: The National Trauma Data Bank (NTDB) was queried from 2007-2015 extracting encounters with primary burn injuries of the feet using International Classification of Diseases (ICD) 9th Edition codes. DM is a predefined comorbidity within the NTDB, allowing for cohort comparisons. Logistic regression modeled predictors of lower extremity amputation. Patient covariables included age, sex, race/ethnicity, and comorbidities. Burn covariables included % burn total body surface area (TBSA), mechanism, and region of burn center. Poisson regression evaluated for significance in temporal changes in DM foot burns.

Results: There were 116,796 adult burn encounters of which 7,963 (7%) had foot burns. Of this group, 1,308 (16%) had DM. DM foot burn encounters were older, more likely to be male, and had more comorbidities than non-DM foot burn encounters (all $p < 0.001$). DM foot burn encounters were more likely to sustain a scald injury (compared to flame) and had smaller %TBSA (all $p < 0.001$). Additionally, 5.6% of encounters with DM foot burns underwent amputation compared to 1.5% of non-DM encounters ($p < 0.001$). Independent predictors of lower extremity amputation included DM (OR 3.70, 95% CI 2.98 – 4.59), alcohol use, smoking, chronic kidney disease, burn size $>20\%$, African American/Black race, male sex, and age >40 years (all $p < 0.01$). The incidence of DM foot burns increased over the study period with an incidence rate ratio (IRR) of 1.09 (95% CI 1.07 – 1.12, $p < 0.001$).

Conclusions: In the largest cohort study to date, DM was associated with nearly a 4-fold increase in amputation after adjusting for available confounders. Furthermore, the incidence of DM foot burns is increasing. Strategies for optimizing care in persons with DM foot burns are need to improve limb salvage.

95 **Incidence of Hypertrophic Scar Diagnosis in Burn Patients Prescribed Glucocorticoids**

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Introduction: Despite advancements in burn care, the optimal treatment to prevent or treat hypertrophic scars is still elusive. Therefore, the objective of this study is to compare the efficacy of five glucocorticoid medications commonly used in the treatment of hypertrophic scarring in burned patients using a large patient database.

Methods: Patients diagnosed with hypertrophic scarring, hypertrophic disorders of the skin, or scar conditions and fibrosis of skin at least one day after burn injury were identified in the TriNetX database. Hydrocortisone, methylprednisolone, dexamethasone, triamcinolone, and prednisone were the glucocorticoids investigated. Those who received a glucocorticoid on the same day or any time after the incidence of burn injury were compared to those who did not take glucocorticoids in the previous five years. Patients were stratified into four groups based on percent total body surface area (TBSA) burned: 0-9%, 10-19%, 20-39%, and 40-100%. A total of 165,041 burned patients were found who did not receive glucocorticoids, and 66,652 burn patients who received glucocorticoids after injury. Statistical analysis for comparison included a risk ratio with a significance defined as a p -value < 0.05 .

Results: In all burn patients identified, the risk of hypertrophic scarring diagnosis was reduced with methylprednisolone (RR=0.60, $p < 0.001$) and prednisone (RR=0.37, $p < 0.001$), while it was increased with dexamethasone (RR=2.48, $p < 0.001$). Stratification based on %TBSA burned showed that diagnosis of hypertrophic scarring was reduced in the $< 10\%$ TBSA group with methylprednisolone (RR=0.49, $p < 0.001$) and prednisone (RR=0.33, $p < 0.001$), while it was increased with dexamethasone (RR=3.6, $p < 0.001$). Similarly, in the 10-19% TBSA group, the risk was reduced with prednisone (RR=0.57, $p=0.024$) while increased with dexamethasone (RR=2.2, $p < 0.001$). No significant effect was observed with hydrocortisone or triamcinolone with any of the %TBSA groups examined. Patients treated with dexamethasone continued to show increased risk for hypertrophic scar diagnosis

with 20-39% TBSA (RR=1.69, p< 0.001) and 40-100% TBSA (RR=1.87, p< 0.001).

Conclusions: While methylprednisolone and prednisone decreased the risk of hypertrophic scarring diagnosis among all burn patients identified, dexamethasone showed an increased risk of hypertrophic scarring diagnosis in all burn patients and in each %TBSA stratified group.

96 Poly-dl-lactide Copolymer-dressing Use on Burn Wounds and Skin Graft Donor Sites - An Institutional Review

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Introduction: In burn surgical care, wound coverage and the corresponding dressing are paired to maximize the ability to promote re-epithelization, minimize pain and patient discomfort, dressing change frequency and overall cost. This dressing, a copolymer material based on DL lactic acid, has been described as a reliable alternative dressing for partial thickness burns as well as skin graft donor sites with comparable wound-healing quality and duration. Our aim is to assess outcomes results of this copolymer dressing at our institution, as applied to partial thickness burn wounds and graft donor sites.

Methods: We performed a retrospective analysis of 55 adult patients admitted between January 1, 2020 to August 25, 2021 for the treatment of partial thickness burns that were managed with a poly-DL-lactide copolymer skin substitute at the burn wound and/or autograft donor site. Three study groups were established based on application site: wound only (group 1), donor site only (group 2), and both (group 3). We assessed operative times, infections rates, complications, length of stay, readmission rates, and mortality.

Results: Preliminary data of 40 patients shows clinically similar results for analgesic requirements, operative length, and hospital LOS between group 1 and group 3. Group 2 showed higher analgesic requirements, lower operative times, a lower LOS, and lower readmission rates. Group 3 shows higher pain levels and longer operative times, when compared with groups 1 and 2, but lower readmission rates than group 1.

Conclusions: The poly-DL-lactide copolymer skin substitute offers reliable wound coverage for a partial thickness burns while also reducing frequency of dressing changes and associated pain correlating to reduced length of hospital stay and wound healing interval.