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**603 Timing of autologous spray cell suspension: better early than late**

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**Introduction:** Autologous spray cell suspension is associated with multiple beneficial outcomes, however, the optimal timing of use has not been determined. We examined the timing of spray cell application, and hypothesize that early (< 72 hr) use is associated with faster definitive wound coverage, impacting multiple clinical outcomes compared to late (>72 hr) use of spray cells.

**Methods:** A retrospective review of 28 patients with spray cell application from March 2020 -- May 2021 was conducted. Pediatric patients < 16 yrs (n=1) as well as deaths (n=2--including 1 withdrawal) were excluded, leaving 25 patients. Those that received spray cells early (< 72 hrs, n=14) were compared to late (>72 hrs, n=11). Time to index operation, time to spray cell application, rate of complete wound coverage, number of OR trips required for wound closure, wound infection rates, LOS / %TBSA, and overall hospital LOS were examined.

**Results:** There was no difference in demographics or % TBSA burn (21.4% vs. 23/5%), between early and late spray cell groups. The early group had a significantly faster time to index operation (1.2 dys vs. 2.5 dys P=.05), and faster time to spray cell application (1.6 dys vs. 18.1 dys P=.036) (**Table 1**). The early group had a greater wound coverage rate at index operation —64.2% complete coverage vs. 18.1% in the late group (p< .03). The total number of OR trips needed for wound coverage was less in the early group (1.5 trips / pt) vs. the late (7.0 trips / pt) P=0.03. The early group had less wound infections, a shorter LOS / % TBSA burn ( 0.83 dys vs. 1.85 dys P=0.005), and shorter overall LOS (16.5 dys vs. 46.9 dys P=0.03).

**Conclusions:** Autologous spray cell use has multiple beneficial outcomes, however, the optimal timing of application has not been determined. We report that early (< 72 hr) application of spray cells is associated with greater rate of complete wound coverage at index operation, decreased total number of operations needed for wound coverage, less wound infections, shorter LOS / %TBSA, and shorter overall LOS. This is likely related to earlier definitive wound coverage and closure, which is afforded by the large expansion ratio of spray cells.

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**604 From admission to discharge: a total friction burn review from a single institution**Oscar I. Estrada Munoz, MD, Andrew F. Sabour, MD, Joseph T. Carroll, MD, Carmen E. Flores, MD, Douglas R. Fraser, MD FACS, Paul J. Chestovich, MD, FACS, Syed F. Saquib, Burn Medical Director  
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**Introduction:** Most friction burns are adequately managed in an outpatient setting. However, many require hospital admission, operative excision, and extended care especially those that present at trauma or burn centers. There is a wide variance in friction burn management. Our goal is to review the etiology, management, and outcomes of such burns warranting hospitalization.

**Methods:** We conducted a retrospective review of all friction burns admitted to a single, American Burn Association verified burn center from January 1, 2016 to December 31, 2020. Individual chart analysis was performed using data from the hospital's burn registry. Statistical analysis was performed using Chi-square and Wilcoxon rank-sum test with p< 0.05 being significant.

**Results:** Eighty-two patients met the inclusion criteria. Mean age was 35.4 years (95% CI 31.6-39.2). The overall mean Total Body Surface Area (TBSA) was 9.0 % (95% CI 7.5-10.6), and mean TBSA of 3<sup>rd</sup> degree burns was 1.1 % (95% CI 0.6-1.7). The most common mechanism of injury was motorcycle collision (45, 55%), followed by pedestrian struck by automobile (13, 16%). Fifty-four individuals (65%) had a concomitant injury. The most common topical agent used was silver sulfadiazine (52%), followed by bacitracin (21%). Sixteen patients (20%) required ICU level of care. Twenty-eight (34%) patients required surgery for their friction burns and 15 (18%) ultimately required a split-thickness skin graft. The mean number of operations was 2.4 (95% CI 1.6-3.1).

Overall, the operative group was younger (29.9 vs 38.3 years, p=0.026), more likely to have a concomitant traumatic brain injury (25% vs 7%, p=0.027) and had a longer hospital length of stay (17.5 vs 3.9 days, p< 0.001). Both groups had a similar overall TBSA (8.5% vs 10.0%, p=0.35), but the operative group had larger surface area comprised of 3<sup>rd</sup> degree burns (3.05% vs 0.2%, p< 0.001). Eighty-one patients survived with the sole death due to massive hemoptysis.

**Conclusions:** Friction burns resulting in hospital admission are associated with high-energy traumatic mechanisms and concomitant injuries. Patients who need operative intervention of their burns typically require multiple procedures often culminating in a split-thickness skin graft.