Optimal Timing for Range of Motion to Upper Extremities Following Split Thickness Skin Autografting: A Five-Year Retrospective Review

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Abstract
Introduction: The hand and upper extremity is one of the most common sites for burn injury. The total body surface area (TBSA) of the hand is small but the resultant impairment can limit a patient’s ability to return to functional independence. Split thickness skin grafting (STSG) has long been supported in the literature as the main means of treatment following full thickness burn injury. Surgical placement of STSG is often followed by a period of immobilization to the grafted area for graft adherence. The length of time which the grafted area is immobilized has evolved over time as surgical methods have improved. There is no set standard to balance the length of time necessary to prevent complications while maintaining functional mobility. A literature review revealed several studies and a meta-analysis examining the optimal timing for immobilization and bedrest following STSG to the lower extremities. Additional studies have examined guidelines for range of motion protocols and splinting as well as reconstructive procedures for improved function following burn injury. There are currently no studies examining the optimal timing for immobility following the placement of STSG and the implications this can have on functional independence. The proposed study details the results of one burn center’s standard of treatment following STSG to the upper extremity.

Methods: Following obtaining approval from the IRB, deidentified data was retrospectively collected from the electronic medical record from January 1, 2014-January 1, 2019 for all inpatients ages 18 and up who underwent split thickness skin grafting to the upper extremity.

Results: Data collected from 2014-2018 revealed a decreasing trend in the days of immobilization following STSG from an average of 4 days to 2 days to the resumption of range of motion (ROM). Additional trends include a decrease in the utilization of splinting as a prophylactic treatment for contractures with a shift towards interventional splinting. Access to home health care services upon hospital discharge also showed a decline from 2014-2018.
Conclusions: The decrease in days of immobilization following STSG combined with the shift from prophylactic to interventional splinting put more emphasis on increasing patient autonomy for functional independence. This trend coincides with a significant decrease in the utilization of home health services upon hospital discharge in the same time period. The findings of this retrospective study provide supporting evidence that decreasing the length of immobilization following STSG to 2 days did not result in an increase in post-operative complications. There was also not a significant decrease in functional independence found with a change in splinting practices from prophylactic to interventional.

**Learning Objectives**

1.) Identify the decrease in ROM hold days following STSG at this burn center.
2.) Recognize the decrease in LOS associated with the decrease in hold days.
3.) Consider the positive results to the changes in ADL abilities as it applies to their practice.

**References:**


### Parameter Estimates

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