VANDERBILT UNIVERSITY MEDICAL CENTER

Guideline: Early Excision and Grafting for Full Thickness Burns ≥15% TBSA

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I. Purpose

Multiple studies have shown the benefit of Early Excision, variably defined as post-injury day 2 through 7, in patients with severe thermal injuries (≥15% Total Body Surface Area, TBSA). Outcomes affected by early excision and grafting include but are not limited to improved scarring and mobility, decreased rates of infection, shorter hospital length of stay, and improved survival rates. Burned skin results in massive systemic inflammatory response due the release of cytokines and growth factors. This inflammatory response is a large contributor to the fluid shifts that are seen in these patients and their fluid resuscitation requirements. This inflammatory response will continue until the burned skin is excised.

Additionally, devitalized skin is a rich medium for microbial overgrowth leading to infection. All burn wounds are colonized by bacteria and invasive wound sepsis has been greatly ameliorated by early excision and grafting, which removes the devitalized tissue before this colonization becomes infection. Earlyexcision will now be tracked as a quality metric as time in days.

Early excision and grafting have been shown in multiple studies to modulate the systemic inflammatory response, attenuate muscle catabolism, and improve myocardial dysfunction caused by thermal injury. This protocol seeks to standardize our time frames for excision and grafting in our severely burned patients.

Ultra-early excision (within 2 days) has variably shown some benefits in weak data, such as fewer in-hospital complications. However, vasoactive use, blood loss, transfusion requirements, length of stay, readmission, and mortality are not clearly better than in the early groups. Some data suggests improvements in VTE/PE rates, CAUTI rates with ultra-early excision. Wounds excised within 3 days have some benefit regarding long term hypertrophic scar and contracture, but this must be achieved within the context of burn size and patient stability.

II. Population

All pediatric patients admitted to Monroe Carell Jr. Children's Hospital (Monroe Carell) with ≥15% TBSA full thickness (with or without partial thickness) burns.

III. Intervention/Treatment

a. Patients should have their first excision within 24-48 hours of their burn and be fully excised within 7 days of their burn
    i. Patients with a delayed presentation will be clearly documented and excised as soon as medically appropriate and possible.
b. Ideally, patients will reach the diuretic phase of acute burn resuscitation before initial excision, which generally occurs within the first 24 hours of resuscitation
c. Patients will return to OR for excision and grafting (autograft vs. allograft vs. biologic matrix) every 24-72 hours until all full thickness burns are excised and grafted with autograft
    i. If no further donor site is available, this process will stop when all fullthickness burns are excised and grafted in skin substitute

ii. If the patient becomes unstable and is unable to return to the operationroom within this timeframe, a discussion between the burn surgeon andburn intensivist will take place and a plan will be made and documentedin the medical record.

d. Complete excision (>95%) of all full thickness burns should be complete within 7 days.
e. If no further donor available and patient in skin substitute or dermal substitute:
f. Patient will return to the OR every 7-10 days to exchange allograft to prevent graft integration
g. Any areas that are non-adherent either due to infection or non-viable wound bed will be excised within 24-72 hours of identification
h. Patient will return to OR for autograft every 24-72 hours once donor sites are available again until grafting is complete
i. Large TBSA burns may meet criteria for to be leveled to the operating room, based on physiologic changes secondary to the burn

IV. Exceptions/Contraindications

In patients that are unstable and cannot tolerate a trip to the operating room, a discussion between the burn surgeon and the pediatric intensivist will take place and a plan will be formulated and documented in the medical record.

V. Appendix

a. [CPG] Pediatric Burn Early Excision & Grafting.pdf

VI. References

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